DISSERTATION

NEW BUSINESS FORMATION IN NORTHERN COLORADO –

A TIME-SERIES CROSS-SECTIONAL ANALYSIS

Submitted by

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ABSTRACT

NEW BUSINESS FORMATION IN NORTHERN COLORADO –

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This research represents an effort to fill a specific gap in new business formation studies: a study of neighboring variations in new business formation in small-to-medium size cities such as Fort Collins, Greeley and Loveland, Colorado. Specifically, this research explores eleven cities-wide factors as determinants of new business formation for 1998-2008. Four different time-series cross-sectional models of new business formation and location of new single establishment businesses for four industry sectors are produced, plus all industrial sectors combined.

A comprehensive annotated bibliography of empirical and non-empirical based studies is part of this dissertation. There are three main reasons to include a bibliography. The first reason is to fill another gap in the literature, as it appears that no new business formation annotated bibliography has been produced; the second reason is to give readers a one-stop source of citations with information to look up the material, if interested. This annotated bibliography allows the reader to compare one or more citations by 1) full citation, 2) objectives, 3)

methodology, 4) dependent variables, 5) independent variables, and 6) results. The third reason is to provide the basis for the validity of the research to this researcher and serve as an opportunity to develop greater skill as a literature reviewer and article appraiser.

This dissertation research explores 11 predictors judged to exert influence on new business formation in Northern Colorado. The obtainable and significant variables (based on the literature) are studied. New business formation is central to economic growth and development. New businesses bring industry diversity and job growth to a region and are a major engine for economic growth. Research has shown a positive relationship between levels of entrepreneurial activity and economic growth across a myriad of countries.

Among many significant findings, the following stand out when described by industrial sector and time lag:

In the retail industrial sector, one year lag: the data show a positive and significant relationship with average age of population, percentage of population (ages 15 to 24), average per capita income, percentage of females in the population, and percentage of Whites in the population; a negative and significant impact of percentage of population (25 to 64), average housing price, percentage of households with income less than $100,000 per year, percentage of Hispanics in population, cubic root of total population, and cubic root of unemployment rate.

In the manufacturing industrial sector, one year lag: the data show a positive and significant impact of average age of population, percentage of population (15 to 24), percentage of population (25 to 64), percentage of households with income less than $100,000 per year, percentage of Hispanics in population, percentage of Whites in population, and cubic root of unemployment rate; negative and significant impact of average housing price, average per capita income, percentage of females in the population, and cubic root of total population.

In the distributive industrial sector, two year lag: the data show a positive and significant impact of percentage of population (15 to 24), average per capita income, percentage of households with income less than $100,000 per year, percentage of females in the population, and percentage of Whites in the population; negative and significant impact of average housing price, cubic root of total population, and cubic root of unemployment rate.

In the service industrial sector, two year lag: the data show a positive and significant impact of average age of population, percentage of population (25 to 64), percentage of females in the population, percentage of Hispanics in population, and percentage of Whites in the population; negative and significant impact of percentage of population (15 to 24), average housing price, average per capita income, percentage of households with income less than $100,000 per year, cubic root of total population, and cubic root of unemployment rate.

In all industrial sectors, one and two year lags: the data show a positive and significant impact of average age of population, percentage of population (15 to 24), percentage of population (25 to 64), percentage of Hispanics in population, and percentage of Whites in the population (one year lag); negative and significant impact of average housing price, average per capita income, percentage of households with income less than $100,000 per year, percentage of females in the population, cubic root of total population, and cubic root of unemployment rate (one-year lag); a positive and significant impact of average age of population, percentage of population (25 to 64), percentage of females in the population, percentage of Hispanics in population, and percentage of Whites in the population (two-year lag); negative and significant impact of percentage of population (25 to 64), average housing price, average per capita income, percentage of households with income less than $100,000 per year, cubic root of total population, and cubic root of unemployment rate (two-year lag).

The results are of practical significance to policy makers, economists, and would-be entrepreneurs for the purpose of new business formation policies and economic growth. Research studies deserving exploration include investigating the high level of spatial autocorrelation found in the analysis, refining the industrial sectors into more specific business categories (lowering sector levels), adding more variables to the models, and comparing these results to other cities of similar attributes.

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And to all: Thank you for your support, friendship, and the vast knowledge you have imparted to me. As I pass on the knowledge to others, your names, reputation, and wisdom will live indefinitely.

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I also thank you my spouse, Christine, and my daughter Alisa, for their willingness to endure my focus on this project and unending support. Christine read and reread drafts, thus making the words much better. She kept my body and soul nourished and reminded my of my topic when I could no longer remember it. She did many extra chores around the house and provided strong shoulders for me to lean on when the journey seemed long and arduous. She is a fantastic person in many ways – thank you and my love to you! To my daughter Alisa, although you are still too young to understand the full implications of this journey, I want to apologize and thank you. I want to apologize for missing so many moments with you and I hope I can make them up to you, now that this phase of my professional life is over. I also want to thank you for being the special person you already are. I am always proud of you and forever you will be daddy's girl. I love you so.

Many friends also gave me endless encouragement and much assistance. There are so many of them… I also thank you very much and I hope that if you ever need support, I will be as capable, loving, and understanding as you have been to me during these years.

… and I really look forward to the rest of my academic journey – it will be great!

Henrique Barreto

DEDICATION

I dedicate this dissertation to three special people:

my daughter Alisa, my spouse Christine, and my advisor Dr. Makela.

These pages would be blank without them.

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CHAPTER 1: INTRODUCTION TO THE STUDY

Entrepreneurship is defined as the "functions, activities, and action associated with the perceiving of opportunities and the creation of organizations to pursue them" (Bygrave & Hofer, 1991, p. 13). Entrepreneurship and new business formation are used synonymously in this dissertation. A purpose of this paper is to highlight dynamics of new business formation, specifically some key location factors present in Northern Colorado.

Specifically, this research explores cities-wide (Fort Collins (F), Greeley (G), and Loveland (L)) factors as determinants of new business formation for the 1998 - 2008[1] years, as the data were available. The three largest northern Colorado communities have been used to study the variation of new business formation over time and space. Four different time-series cross-sectional models of new business formation and location of new single establishment businesses for four industry sectors are developed, plus all the industry sectors combined. The results are of practical significance to policy makers, economists, and would-be entrepreneurs. An executive summary of this study is provided in Appendix A.

[1] The 1998-2007 time frame is selected to cover the longest time period permissible by data availability and consistency (although 1994-1997 is available, a major change in data collection technique and categorical allocation make it impossible to link these two time periods)

This dissertation research explores 11 predictors, judged to exert influence on new business formation in Northern Colorado. The variables that are both obtainable and significant (based on the literature) are shown in Table 1. New business formation is central to economic growth and development. New businesses bring industry diversity and job growth to a region and are a major engine for economic growth. Research has shown a positive relationship between levels of entrepreneurial activity and economic growth across a myriad of countries (Bosma, Jones, Autio, & Levie, 2008).

Table 1. Dependent and Independent variables (DVs and IVs) used in this research: Fort Collins = F, Greeley = G, and Loveland = L

Variable Name IVs	Variable Logo	Expected Correlation	Description and Measurement
Average age of population	AA-F AA-G AA-L	+	Average age of total population. Calculated from the distribution of age by five-year groups. These data are ESRI Business Information Solutions' projections (a)
Percentage of population (ages 15 to 24)	AGE1-F AGE1-G AGE1-L	+	Reported for age groups and selected summary groups such as 18 years and over. These data are ESRI Business Information Solutions' projections. The four basic age categories chosen were: [(15-19) + (19-24)] = AGE1 and [(25 - 44) + (45 - 64)] = AGE2, next entry (a)
Percentage of population (ages 25 to 64)	AGE2-F AGE2-G AGE2-L	+	Reported for age groups and selected summary groups such as 18 years and over. These data are ESRI Business Information Solutions' projections. The four basic age categories chosen were: [(15 - 19) + (19 - 24)] = AGE1, previous entry and [(25 - 44) + (45 - 64)] = AGE2 (a)
Average housing price	AHP-F AHP-G AHP-L	-	Median value for total owner-occupied units and units that were bought, or vacant for sale (a)
Average per capita income	APC-F APC-G APC-L	-	Average income for all persons calculated from the aggregate income of persons 15 years and older (a)
Percentage of households with income less than $100,000 per year	HH-F HH-G HH-L	+	Forecast income for the calendar year and based both on Census income tabulations and Current Population Survey. Income amounts expressed in current dollars, including an adjustment for inflation or cost-of-living increases (a), (b)
Percentage of females in population	FEM-F FEM-G FEM-L	-	Percentage of females in the population (see also Population) (a)
Percentage of Hispanics in population	HISP-F HISP-G HISP-L	-	Defined by self-identification. ESRI Business Information Solutions' forecasts race percentage for all single and ethnic populations and are consistent with 2000 census tabulations. The two basic race categories used here are Hispanics and Whites (next entry) (a)
Percentage of Whites in population	WHI-F WHI-G WHI-L	+	Defined by self-identification. ESRI Business Information Solutions' forecasts race percentage for all single and ethnic populations and are consistent with 2000 census tabulations. The two basic race categories used here are Hispanics (previous entry) and Whites (a)
Cubic root of total population[1]	POP3R-F POP3R-G POP3R-L	+	Total number of residents in an area. Residence refers to the "usual place" where a person lives, which is not necessarily the legal residence (a)

[1] Normalizing transformation: The cubic root of total population was done to improve the normality of the variable.

Variable Name IVs	Variable Logo	Expected Correlation	Description and Measurement
Cubic root of unemployment rate[1]	UNEMP3R-F UNEMP3R-G UNEMP3R-L	+	Data from The Current Population Survey (CPS) - a monthly survey of households conducted by the Bureau of Census for the Bureau of Labor Statistics. The proportion of the total labor force aged 16 years and older and unemployed (b), (c)
Year dummy variables (YR2 = 1999, YR3 = 1999,…,YR11 = 2008; YR1 = 1998 IS THE REFERENCE YEAR)	YR2-F,G, L YR3-F,G, L YR4-F,G, L YR5-F,G, L YR6-F,G, L YR7-F,G, L YR8-F,G, L YR9-F,G, L YR10-F,G, L YR11-F,G, L	NA	A dummy variable is a binary variable, either zero or one. It is commonly used to examine group and time effects in multiple regression. Here dummy variables are used to control for time effects. One of the time dummies (usually the first one) is dropped; otherwise there will be a problem of perfect multicollinearity (f)
City dummy variables (CTY2 = GREELEY, CTY3 = LOVELAND; FORT COLLINS = CTY1 = REFERENCE CITY)	CTY2 CTY3	NA	A dummy variable is a binary variable that has either zero or one. It is commonly used to examine group and time effects in multiple regression. Here dummy variables are used to control for city effects. One of the time dummies (usually the first one) is dropped; otherwise there will be a problem of perfect multicollinearity (f)
Variable Name DVs			
New Business Formation, Retail Industry	RET-F RET-G RET-L	NA	Data items extracted from the Standard Statistical Establishment List, maintained and updated by the Bureau of the Census. Data for single establishment companies are obtained from various Census Bureau programs, such as the Annual Survey of Manufactures and Current Business Surveys, as well as from administrative records of the Internal Revenue Service and the Social Security Administration. This variable represents the total retail businesses divided per 1000 population (e), (f)
New Business Formation, Manufacturing Industry	MAN-F MAN-G MAN-L	NA	Data items extracted from the Standard Statistical Establishment List, maintained and updated by the Bureau of the Census. Data for single establishment companies are obtained from various Census Bureau programs, such as the Annual Survey of Manufactures and Current Business Surveys, as well as from administrative records of the Internal Revenue Service and the Social Security Administration. This variable represents the total manufacturing and construction businesses divided per 1000 population (e), (f)

[1] Normalizing transformation: The cubic root of unemployment was done to improve the normality of the variable.

Variable Name IVs	Variable Logo	Expected Correlation	Description and Measurement
New Business Formation, Distributive Industry	DIST-F DIST-G DIST-L	NA	Data items extracted from the Standard Statistical Establishment List, maintained and updated by the Bureau of the Census. Data for single establishment companies are obtained from various Census Bureau programs, such as the Annual Survey of Manufactures and Current Business Surveys, as well as from administrative records of the Internal Revenue Service and the Social Security Administration. This variable represents the total distributive businesses divided per 1000 population (e), (f)
New Business Formation, Service Industry	SERV-F SERV-G SERV-L	NA	Data items extracted from the Standard Statistical Establishment List, maintained and updated by the Bureau of the Census. Data for single establishment companies are obtained from various Census Bureau programs, such as the Annual Survey of Manufactures and Current Business Surveys, as well as from administrative records of the Internal Revenue Service and the Social Security Administration. This variable represents the total service businesses divided per 1000 population (e), (f)
New Business Formation, All Business Industries	ALL-F ALL-G ALL-L	NA	Data items extracted from the Standard Statistical Establishment List, maintained and updated by the Bureau of the Census. Data for single establishment companies are obtained from various Census Bureau programs, such as the Annual Survey of Manufactures and Current Business Surveys, as well as from administrative records of the Internal Revenue Service and the Social Security Administration. This variable represents the total (retail + manufacturing + distributive + service) businesses divided per 1000 population (e), (f)

(a) (ESRI Press, 1998-2008)
(b) (Real Estate Center, 1998-2008)
(c) (U.S. Department of Labor--Bureau of Labor Statistics, 1998-2008)
(d) (ESRI Press, 1998-2008)
(e) (U.S. Census Bureau, 2000, 2005, 2006, 2008)
(f) (Beck & Katz, 1995, 1996; Drury, 2005)

From various theories of economic growth, entrepreneurial potential, and business location, the one developed by Joseph Schumpeter (Heilbroner, 1993) is most closely related to this dissertation. Schumpeter's theory states innovation and entrepreneurship, not simply economies of scale and specialization, are the power for economic growth. Innovation and entrepreneurship give rise to what Schumpeter labeled "creative destruction," a phenomenon that does away with established systems and replaces them with new businesses and industries, the creation of something new.

Statement of the Problem

New business formation is an important, yet not well understood, element in regional economic growth. Because new business creation is a key element in job (U.S. Small Business Administration, 2007) and economic development (Acs, Audretsch, Braunerhjelm, & Carlsson, 2006; Clemson University Faculty, 2006), it is an important issue, both in helping to form and influence public policies. An area or region needs an economic environment that is conducive to new business formation. New business formation occurs in areas that have the appropriate economic and social attributes, such as demand-side economic factors, supply-side economic factors, and information resource connections (Acs, 2006; Alonso, 1967; Armington & Acs, 2002; Busenitz, Gomez, & Spencer, 2000; Giuliani, Daley, & Goldsmith, 2000; Love, Truscott, & Walker, 1984; Sutaria & Hicks, 2004). Demand-side factors focus on demographics and changes in demographics that influence the demand for goods and services. Supply-side factors center around unemployment, presence of knowledge-based clusters, and availability of financial capital related variables, which affect the supply of entrepreneurs. Entrepreneurship is not a random event as evidenced in regional variations in the external environments, which affect new business formation (Acs & Armington, 2003; Aharonson, Baum, & Feldman, 2004; Audretsch & Fritsch, 1994).

Since 1998 there has been increased research literature to identify and explain regional factors that influence new business formation (Acs & Armington, 2005; Aharonson et al., 2004; Augustin, 1999; Cohen, 2000; Florida, 2003; Gebremariam & Schaeffer, 2006; Guimaraes, Rolfe, & Woodward, 1998; Harris, 2001; Hedgcoth, 2002; Peake & Marshall, 2007). In spite of this increase, the bulk of the literature on new business formation focuses on the psychological, cultural, and economic traits of individual entrepreneurs, not on regional factors, which may affect new business formation. Studies of "neighboring" variations in new business formation are still fairly new and few. In this study the term "neighboring" means the cities under study (i.e., Fort Collins, Greeley, and Loveland, near each other, inside a 20 mile radius). Based on my literature search, no theory of this relationship has been tendered – and that is the statement of the problem for this study.

Purposes of Study

The central missions of this dissertation research are to 1) develop, 2) document, and 3) justify some of key factors on new business formation in Northern Colorado.

Research Questions

The research questions are developed from: 1) the availability and quality of the data, 2) previous research of new business formation (see annotated bibliography section), and 3) professional experience. These questions serve as the statement of the problem and purpose of study (Table 2):

Table 2. Research Questions

Research Question 1	Which city (Fort Collins, Greeley and Loveland) characteristics (IVs) help explain variation in rates of new business formation across both time and space?
Research Question 2	What is the relative importance of different variables on the overall rate of new business formation across both time and space?
Research Question 3	Is it possible the interaction between different variables can have an impact on the rate of new business formation across both time and space?
Research Question 4	What are the implications for the development of entrepreneurship and likewise new business formation theories?

Testing Models Derived from Research Questions

Derived from the research questions, the following 55 hypotheses are tested and included in the models discussed in Chapters 3 and 4 (Table 3).

Table 3. Hypotheses (H) Derived From Research Questions

H1: Total new business formation ratio (per 1000 population) is higher in cities with a higher average age of population

H2: Total new business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (15 to 24)

H3: Total new business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (25 to 64)

H4: Total new business formation ratio (per 1000 population) is higher in cities with a lower average housing price

H5: Total new business formation ratio (per 1000 population) is higher in cities with a lower average per capita income (wealth)

H6: Total new business formation ratio (per 1000 population) is higher in cities with a higher percentage of households with incomes less than $100,000 per year

H7: Total new business formation ratio (per 1000 population) is higher in cities with a lower percentage of females in population

H8: Total new business formation ratio (per 1000 population) is higher in cities with a lower percentage of Hispanics in population

H9: Total new business formation ratio (per 1000 population) is higher in cities with a higher percentage of Whites in population

H10: Total new business formation ratio (per 1000 population) is higher in cities with a higher total population

H11: Total new business formation ratio (per 1000 population) is higher in cities with a higher unemployment rate

H12 - H22: Retail based new business formation… same as above

H23 – H33: Manufacturing based new business formation… same as above

H34 – H44: Distributive based new business formation… same as above

H45 – H55: Service based new business formation… same as above

Geographical Settings

The following information was obtained from the respective cities' websites and augmented with historical research (Boyd, 1890; Carroll, 1971; Coen, Skinner, & Leach, 1926; Greeley, 2011; Money Magazine, 2011; Smith, 1970; U.S. Census Bureau, 2009, 2010)

Fort Collins

Historical Background

The city of Fort Collins lies within the Larimer County Metropolitan Statistical Area and to the north of the city of Loveland. It is a city that grew up around a university that is now called Colorado State University. The university originally went by the name of The Agricultural College of Colorado and its history goes back to 1870. It originally started as a land grant institution and provided educational opportunities that enhanced the pioneer/homesteaders and farming and ranching communities that were springing up in the area. The university still boasts one of the top veterinary programs in the country along with highly respected programs in agricultural sciences that trace directly back to the university's roots.

The city of Fort Collins originated from the disassembling of an Army Camp (Camp Collins) that was based along the banks of the Cache la Poudre River, which runs through parts of the city. The railroad that now bisects the city was granted the right-of-way in 1877. The ownership of the rail line changed hands several times at the turn of the century, and its presence continues to bother drivers today. Despite the city's very prominent rail line it does not have a commuter rail.

Local Information

Fort Collins has a technology sector including Celestica, Hewlett Packard, LSI, and Woodward Governor. Its proximity to Denver and the Fort Collins-Loveland Municipal Airport, along with the high educational attainment level of the residents, makes this an attractive location for technology businesses.

Fort Collins also serves as a hub for persons working in the Denver metropolitan area. Fort Collins is located at 40°33′33″N 105°4′41″W; its elevation is 5,003 feet above sea level. The city is situated just east of the Rocky Mountain foothills of the Northern Front Range approximately 65 miles north of Denver, Colorado, and 45 miles south of Cheyenne, Wyoming. The city has a total area of 47.1 square miles, of which, 46.5 square miles is land and 0.6 square miles is water.

Natural Areas

The proximity to the mountains and natural areas, along with the mostly temperate weather and clear blue skies, attracts people who wish to relocate. In recent years the city of Fort Collins has grown dramatically. It possesses a large number of people who moved from out of state because they enjoyed it when visiting or hearing great things about this community. Fort Collins has beautiful vistas, with the mountains to the west and the plains to the east, and has many recreational opportunities available, such as Horsetooth Mountain Park and Lory

State Park. A short commute in any direction offers even more opportunities for outdoor recreation or big city attractions.

The university students help to make the city data different from nearby towns. The population tends to be younger, more diverse, and more educated.

Census Data

The estimated population for Fort Collins was 129,467 in 2006 according to Census Data. According to the same data, the percentage of women aged 18 or older in Fort Collins is 49.8% in 2006. The percentage of men is 51.2% of the total Fort Collins population during 2006. The racial distribution as reported during the 2006 calendar year is as follows: 89.6% White, 1.0% Black, and 2.5% Asian, and Hispanic or Latino 8.8%.

During the 2006 calendar year, 94.0% of the population had a High School Degree.

The median household income as reported in the 2004 census report was $44,459. The population in Fort Collins that is reported as living below the poverty line is 14.0%.

In 2006 it was reported that there were 47,755 housing units in Fort Collins and the homeownership rate in 2000 was 57%.

The median age in Fort Collins in 2007 is 29.1 as reported by Money Magazine.

Loveland

Historical Background

Loveland appears to have some of the “old time” charm and small town feel that is associated with small midwestern towns. The city of Loveland has a very lovely old town area that can be easily explored on foot. There is a quaint museum that generates much attention for the quality of its exhibits and the “star power” it attracts at the annual art show.

Loveland is also known for its Sweetheart Valentine re-mailing program. People from all over the world can mail their Valentine’s Day cards and letters through Loveland, where volunteers stamp them with Loveland cachet.

Local Information

The city of Loveland is a smaller city than its neighbor to the north, Fort Collins. While Loveland has not grown at the same rate as Fort Collins, it does continue to attract development such as the Centerra shopping complex. The city managers, in an effort to enhance growth in Loveland and compete with Fort Collins, made a number of concessions that made the development of Centerra and nearby outlet malls and homes, very attractive to developers. As a result, a drive north on Interstate 25 near the main exit to Loveland has a very different appearance than it once did. The Highway 34 exit is bounded on both sides of the highway with shopping areas and, slightly to the north, with a very large event center complex.

The city of Loveland has, in fact, become a local “mecca” for artists and is host to a large foundry. There are art galleries and sculpture parks and several internationally judged art shows each year.

Natural Areas

Highway 34 crosses the city east to west and connects Greeley, a city to its east, with the famed Rocky Mountain National Park to its west. Many tourists from all over the world drive through Loveland each year on their journey to see the Rocky Mountains.

However, Loveland is not just for driving through to get to Rocky Mountain National Park. The city also has many well maintained natural and recreational areas of its own, such as Boyd Lake State Park and Carter Lake.

Loveland is located at 40°24′17″N 105°5′9″W; its elevation above sea level is 4,982 feet. The city has a total area of 25.5 square miles, of which, 24.6 square miles is land and 0.9 square miles is water. The city is south of Fort Collins, its larger neighbor and the county seat. The northward city limits are now contiguous with those of Windsor, which has expanded westward from Weld County and now borders Interstate 25.

Census Data

The estimated population for Loveland was 61,122 in 2006 according to Census data. According to the same data, the percentage of women aged 18 or older in Loveland is 51% in 2006. The percentage of men is 49% of the total Loveland population during 2006. The racial distribution as reported during the

2006 calendar year is as follows: 92.9% White, 0.4% Black, and 0.8% Asian, and Hispanic or Latino 8.6%.

During the 2006 calendar year, 90.4% of the population had a High School Degree or Higher.

The median household income as reported in the 1999 census report was $47,119. The population in Loveland that is reported as living below the poverty line is 5.7%.

In 2006 it was reported that there were 20,299 housing units in Loveland and the homeownership rate in 2000 was 69.4%.

The median age in Loveland in 2007 as reported by is 36.

Greeley

Historical Background

The city of Greeley is the county seat of Weld County and is the home to the majority of that county's service bureaus. It is also home to the University of Northern Colorado. That university originated in 1889 when the Governor signed a bill created the State Normal School. Throughout its history the university transformed into one well known for the quality of its programs in education and nursing.

Greeley was built up around the agricultural opportunities it offered during the homesteading period of the late 1800s. Due to its vast open spaces it was populated primarily by farmers and ranchers. The major products at that time were beef and sugar beets. In many ways that has not changed: sugar beets were a staple of an industry that, to this day, is able to use the majority of the plant. Once it was discovered that the area could effectively grow sugar beets it began to attract Russian-German immigrants who had grown them in their native countries. There were many landholders who came west to find their fortune in cattle or sugar beets. The labor was backbreaking and the conditions were not always favorable since the area does not produce significant rainfall.

The Immigration Act of 1924, also known as the Johnson-Reed Act, was a federal law that restricted the number of immigrants from any country considerably. However, the quota law did not impact immigrants from Mexico. The sugar beet companies began to fill their employee rolls with people from Mexico who proved to be diligent, hard workers.

Local Information

Greeley is still known for its agricultural output and its large population of Mexican immigrants. JBS Swift and Company is a powerhouse in the meat packing industry and continues to rely very heavily on new immigrant employees.

Greeley is located at 40°24′54″N 104°43′26″W; its elevation above sea level is 4,658 feet. The city has a total area of 30.0 square miles, of which, 29.9 square miles is land and 0.1 square miles is water. The city of Greeley is bordered on the south by the towns of Evans and Garden City, and the three together are often collectively (although incorrectly) referred to as "Greeley." The Greeley/Evans area is bounded on the south by the South Platte River, and the Cache la Poudre River flows through north Greeley. The intersection of U.S. Highways 85 and 34 is often cited as the location of Greeley, although the actual point of intersection lies within the city limits of Evans. Greeley contains the western terminus of State Highway 257 and borders State Highway 392 on the north.

Census Data

The population for the Greeley was 89,046 in 2006 according to Census data. According to the same data, the percentage of women aged 18 or older is 51.0% in 2006. The racial distribution as reported during the 2006 calendar year is as follows: 80.4% White, 0.9% Black, and 1.2% Asian, and Hispanic or Latino 29.5%.

During the 2006 calendar year, 79.3% of the population had a High School Degree.

The median household income as reported in 1999 was $36,414. The population in Greeley that is reported as living below the poverty line is 16.9%. In 2006 it was reported that there were 28,972 housing units in Greeley and the homeownership rate in 2000 was 58.4%.

The median age in Greeley as reported is 28.5.

Businesses' Industrial Sectors

The research questions are explored in part through data collection from various sources: U.S. Census Bureau, Office of Economic Development of the State of Colorado, local Chambers of Commerce, local city administration offices, and other venues. This study focuses on the dynamics of new business entry, in four industrial sectors (U.S. Bureau of Labor Statistics, 2006), as suggested by Reynolds, Miller, and Maki (1995). These industrial sectors are Distributive, Manufacturing, Retail, and Service.

Distributive Sector

The Distributive sector is concerned with converting, usually in large volume, raw materials, unfinished parts, and other items into final products. This sector emphasizes selling products through intermediaries to consumers. Compared to retailers, this sector produces units that are often larger, fewer, and sold to a smaller number of customers. For example, businesses in this sector (and their customers) can be located some distance apart, so other location factors (besides proximity to customers) become more important. Still, nearness to customers and suppliers keeps costs down and allows more satisfactory service.

Manufacturing Sector

The Manufacturing sector creates finished, usable products, either for other businesses, export, or direct sale to domestic customers. This sector is often separated into light and heavy industries. Heavy industries consume large quantities of energy and require large factories and machinery to convert raw materials into products. Moreover, heavy industries are thought of as more capital intensive, requiring larger facilities and having larger environmental impact than light industries. One example of a light industry is a manufacturing plant that uses moderate amounts of partially processed materials to produce items of relatively high value per unit weight. The (light and heavy) industry sector is often an important source of good paying jobs as well as engineering-related job opportunities. In both manufacturing and warehousing, the accessibility concern is truck or rail access for shipping and receiving purposes.

Retail Sector

The Retail sector consists of the sale of goods usually from a fixed location, such as a department or grocery store. This sector is concerned with customers who come to or are drawn into a store. Therefore, location is of utmost importance, attracting customers and their movement, attention, attitudes, convenience, needs, and ability to buy. Among all sectors, this holds second place (after the service sector) in terms of employment generation.

Service Sector

The Service sector is mostly concerned with the presence of customers who come to the businesses' location where the service is usually performed. The location of service companies depends on convenient and economical customer travel. Some services – such as home health care, landscaping/gardening, and plumbing/electrical repairs – require going to the client's location. Those who perform these services often try to locate near customers and thus these types of businesses are often clustered.

Local and Regional Variation in New Business Creation

Most entrepreneurs only consider the locality of their present residence as a business site (Bartik, 1989). Nascent entrepreneurs seem to forgo the conventional location cost-benefit analysis when starting a new business and select the area (region, city) in which they are most familiar (Duckworth, Simmons, & McNulty, 1986). Because few entrepreneurs move to start businesses, first importance is local characteristics; Second in importance are the people that makes the difference in new business formation (Gartner, 1989b;

Gebremariam & Schaeffer, 2006; Guesnier, 1994). Different areas have unique economic-social environments, and these are keys to spatial variation in new business creation.

Importance of this Study

New business formation is a primary component in economic growth. Entrepreneurs and policymakers know as a matter of (researched) fact that small to medium enterprises/businesses (SME[1]) are the source of job creation and the engine of economic growth. Several studies have shown a positive correlation between new business formation and economic growth (Dayton, 2005; Reynolds et al., 1995). According to studies from the Kauffman Foundation (Stangler & Litan, 2009), small businesses less than five years old created all (net) new jobs in the United States since 1980. In 1997, these new businesses accounted for over 65% of all job creation in the United States. A recent study, however, shows that, in 2008 and most of 2009, new business formation declined (Rocca & Pruitt, 2009).

Since Birch (1979) introduced the importance of new business (especially SMEs) in job creation during the period 1969 - 1976, public administrators in the United States and around the world began to promote strategies and establish assistance measures for the creation of new enterprises (Cohen, 2000). Birch's research was vital in demonstrating that between 1969 and 1976, 75% of new jobs in the United States were created by businesses of less than 20 employees.

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[1] SME defined as an independent business having fewer than 500 employees (U.S. Small Business Administration, 2007)

Later studies have confirmed Birch's findings on the importance of SME in the creation of new jobs (Figure 1) (Low, Henderson, & Weiler, 2005; Mendeloff, 2006). It is difficult to overemphasize the importance of entrepreneurial activity, especially of SME high-growth companies and industries, to smaller communities' social and economic well-being (Siegel & Waxman, 2001).

According to the Small Business Administration (2007), SME in the United States:

- Represent 99.7% of all United States businesses,
- Employ 50.0% of all private sector employees,
- Pay 44.3% of total private payroll,
- Generate up to 70.0% of new jobs annually over the decade of 1996 - 2006,
- Create 100% of the net new jobs in 2003 - 2004 (SME had a net increase in employment of 1,875,000 in firms having less than 500 employees; Large businesses decreased employees by 214,000, on net, during the same period).

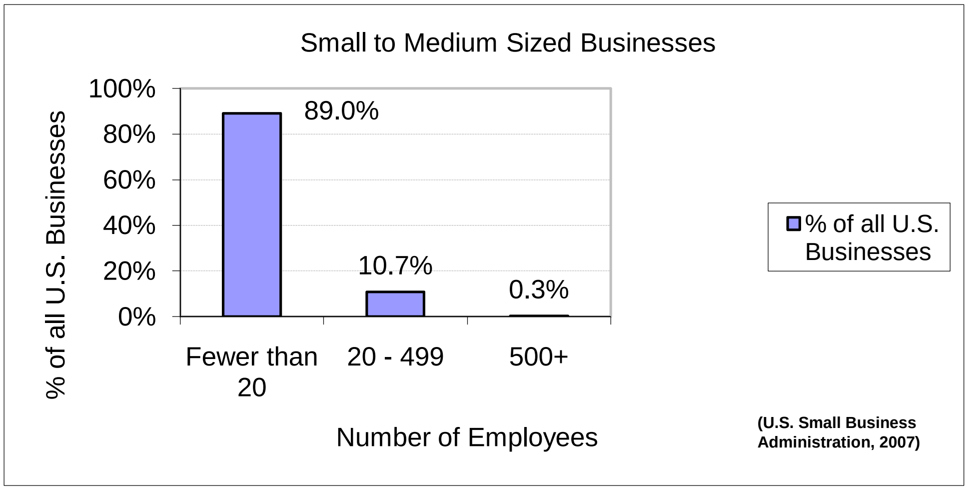

Figure 1. Number of Small to Medium Sized Businesses as a percentage of all U.S. businesses.

Additional empirical research points to the even greater and complimentary importance of new and smaller enterprises. Winders' (1997) research in rural Georgia found new business formation increased both employment and the property tax base while larger businesses did neither. Winders inferred that small businesses are more likely to buy from local suppliers and hire local labor, thus creating a multiplier effect. Because SMEs are normally not eligible for tax incentives and abatements (reserved for larger firms like "Wal-Mart types"), they tend to contribute a substantial amount of money to government treasuries.

Despite their importance, new businesses formation processes have been overlooked by both researchers and regional[1] policymakers. More empirical (in

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[1] Region/s/al has been defined in several ways in the literature, including counties, states and labor market areas. The common theme is that a region contains more than one city or township. That is why in this dissertation, the words city, community and area will be used to refer to the cities of Fort Collins,

addition to theoretical) attention has been directed toward researching the importance and attraction of larger businesses. Larger businesses are still considered by many economists and policymakers as growth poles and location anchors which, in theory, should stimulate economic development, even though there is much evidence to the contrary (Acs et al., 2006; U.S. Small Business Administration, 2007; Winders, 1997).

In addition to job creation, there are three other important reasons one should care about new business startups (Reynolds, Storey, & Westhead, 1994). First, they are the primary sources of (technological) innovation. Empirical evidence of this dates back 20 years, as demonstrated by the works of Acs and Audretsch (1987, 1988). Their studies showed there is very little difference between the quality of innovations in SMEs and large firms, and that SMEs produced more innovations per employee than large firms. Very small and very large firms are more innovative than medium-sized firms. New firms are important sources of innovation.

Second, new business formation serves as a career option for nascent entrepreneurs and career advancement or progression for “end of the line” top managers and chief executive officers. This is important because firms started by highly qualified individuals have an increased probability of success and growth over the first three to five years (Lee, Florida, & Acs, 2004).

Greeley and Loveland. Specifically, “region” contains all three cities, but this dissertation aims to explain the new business formation differences within parts of the region.

Third, some communities have more new startups than others, even when communities are near each other. Since new startups are important because of job creation, innovation, and economic growth, it is important to analyze why some communities are more entrepreneurial than others. This point is the focus of this dissertation. The rate and retention of new business may help explain some variations in economic growth of cities. Identifying the factors of an entrepreneurial environment can help policymakers focus on the most important factors related to entrepreneurship for promoting economic development. According to the literature, five major factor groups are related to new business formation: education of workforce, quality of life, economic development, business climate, and sites and infrastructure (Acs & Armington, 2004; Acs & Storey, 2004; Bartik, 1985; Chieffo et al., 2004)

In summary, new SMEs play a crucial role in economic development. New businesses provide employment opportunities, serve as customers and suppliers for other local businesses, and are a major source of innovation. However, most empirical research and policymakers focus on the role of large firms on the economy while new business formation has been comparatively ignored. The next section will expand on the importance of local/regional variation in new business creation and its significance as a research topic.

How this Research Adds to the Field of Study

The intent of this study was to add to the body of knowledge on new business formation and/or variables that influence business location formation. Studies of "neighboring" variations in new business formation are relatively new and few. In the context of this research, “neighboring” implies small to medium-size communities within a few miles of each other, or more specifically the cities under study (i.e., Fort Collins, Greeley, and Loveland are near each other, within a 20 mile radius). An extensive literature review found peer-reviewed research at the regional, state, or county levels (Okamuro & Kobayashi, 2006; Reynolds et al., 1994)

There were several other important expectations of this research project. Once city managers and economic advisors understand what appeals to new businesses, resources to attract these firms can be better utilized. Consequently, the results of this research may lead to economic developers targeting and attracting new businesses as well as follow-up research. If new business formation leads to job creation and other economic stimulus effects, that may include an improvement of quality of life and population wealth, as a subsequent outcome. It is possible the findings, if appropriate, will encourage the communities under study to continue putting together new business formation and industry sector location stimulus plans. Such an inclusive plan could improve the cities’ economic development by using pooled resources while still maintaining their distinctiveness.

Researcher’s Perspective

I am interested in the subject of new business formation and entrepreneurship for a myriad of reasons: First, I am the owner of two small businesses. Second, I have an MBA with an emphasis in entrepreneurship. Third, I served as the Department Chair for CollegeAmerica’s Business and

Accounting Programs in 2006. During my term as Department Chair, I instituted both a computer repair business and a computer consulting business within the college. Both of these businesses engaged approximately 35 computer science and business students and were used to demonstrate to the students the practical aspects of running a business and utilizing the theory learned in the classroom.

I am a strong proponent of entrepreneurship and education. Through knowledge gained from studies like this one or experience gained through formal entrepreneurship education, I aim to stimulate the formation of new businesses.

Potential Limitations

There are limitations in the secondary data. Some of the data are estimates, via multifaceted equations for some years, based on the 1990 and 2000 census to estimate subsequent years. The quality of the estimates is deemed (more than) satisfactory: of the data sources depicted in Table 1, two are federal agencies (U.S. Department of Labor – Bureau of Labor Statistics and U.S. Census Bureau), one is contracted by a federal agency (ESRI Press) and one is a partially funded local and statewide agency (Real Estate Center). Additionally, an earnest attempt was made to cover a wide range of source materials for identification of factors.

Because primary data were not collected, the goals and purposes of the secondary data may possibly bias this research (Quinton, 2005). The factors discussed and evaluated in this study are important for firms considering relocating and/or entrepreneurs considering starting a new venture in Fort

Collins, Greeley and Loveland, Northern Colorado. One may extrapolate the findings to comparable communities across the United States – however, the findings may vary in other parts of the state and country due to city size or political and economical development decisions such as zoning restrictions, characteristics not measured and/or accounted for in this research. It is also possible that including more variables than specifically related to certain market areas could fine tune new business formation theory.

Definition of Terms

In this research, the following terms are used according to these definitions:

Business Location Decision Factors

Factors that are important to businesses to assess location options. These factors are multidimensional and complex, referring to tangible and intangible, primary (such as cost of labor) and secondary (business climate), and cost and non-cost factors.

Causal Comparative Research

A type of research that tries to establish relationships between two or among more variables where the independent variable cannot be changed or manipulated. A relationship between two or more variables in which one or more variables affect another variable (Picciano, 2004).

Correlation Coefficient

A decimal number between -1.00 and +1.00 that indicates the degree to which two variables are related. This relationship does not imply causation. Correlation coefficient is interconnected with the mentioned above causal comparative research.

Dependent Variable (DV)

A variable that changes as a result of, or in relation to, a change in an independent variable. In prediction studies, it is also referred to as the criterion variable (Picciano, 2004).

Economic Development

Economic development is defined as the development of economic wealth of communities or regions for the well-being of their inhabitants. Economic development can also be defined as efforts of city leaders to improve the economic well-being (welfare) and quality of life (health, education, and environment) for a city by creating and/or retaining jobs and supporting or growing incomes and the tax base. Economic development should not be confused with economic growth, a term that refers to an increase of a specific measure, such as GNP.

Economic Developer

A person professionally employed to promote economic development.

Entrepreneurship

Creation of organizations and the process by which new organizations come into existence (Timmons, 1997). Entrepreneurship can be defined as the "functions, activities, and action associated with the perceiving of opportunities and the creation of organizations to pursue them" (Bygrave & Hofer, 1991, p. 14).

Industrial Sector Clusters

Measured concentration (ratio) of four major industry groups: Distributive, Manufacturing, Service, and Retail. Firms tend to locate in areas where there is a concentration of similar firms. This is because people and firms realize the operational synergy and savings in having access to necessary skilled labor, infrastructure, and spillover knowledge (so-called "agglomerative economies"). The importance of this factor started with the leading works of Alfred Marshall (Davenport, 1935) and more contemporarily continued with studies of Porter (1998, 2000a, 2000b) and Feldman (2000). While it is true that similar firms tend to cluster (i.e., in Detroit, MI and Silicon Valley, CA), the reasons they cluster are not entirely understood. Florida (2003) theorizes that people are the motor for attracting firms – the "human capital," consisting of talented, creative, productive, and diverse people. Porter (1998, 2000a, 2000b) and Feldman (2000) believe, as Marshall (Davenport, 1935) did, firms' agglomerations are formed to principally increase efficiencies that are naturally generated when firms are tightly linked. These efficiencies are assumed to be shared infrastructure, trained personnel, tailored planning, and local customers.

Independent Variable (IV)

A variable, which as it changes, causes or relates to a change in another (dependent) variable. In prediction studies, it is also referred to as the predictor variable (Picciano, 2004).

New Business Formation

Private businesses gross start-up ratio; total number of business openings during a certain period of time per 1,000 labor force; measured for each of the following years: 1998 (the baseline) to 2008 for the cities of Fort Collins, Greeley, and Loveland.

Population Growth Rate (PGR)

Population growth rate of Fort Collins, Greeley and Loveland, from 1998 to 2008. The year 1998 serves as the base year. Refer to Table 1 for more details, including measurement details.

Quality of Life

Quality of life pertains to the social, cultural, and environmental aspects in which a business operates and the conditions in which people live.

Reliability

The extent to which research findings would be the same if repeated at a later date and/or with a different sample of subjects.

Secondary Data

Secondary data are collected and processed by researchers other than the researcher doing a/the study/analysis.

Secondary Data Analysis

Secondary data analysis is often defined as “second-hand” analysis. It is the analysis of data or information either gathered by someone else (e.g., researchers, government institutions or other non-government organizations (NGO)) for other purposes than the one currently being considered or often a combination of the two (Picciano, 2004).

Standard Industrial Classification (SIC) Code

A classification number given to specific industries. The Standard Industrial Classification is a U.S. government system for classifying industries by four-digit codes. The four industrial sectors fall into categories based on SIC code.

Validity

The extent to which the information collected by the researcher truly reflects the phenomenon being studied.

Summary

The main objective of this dissertation was to test models developed to account for variation in rates of new business formation across three northern Colorado communities: Fort Collins, Greeley, and Loveland. The specific focus is to link city scale social-economic variables to the rates of new business formation during the 1998 - 2008 (data availability permitting) period within four major industrial sectors. The evaluation of pooled, time-series cross-sectional models' variables are important in city variation in new business formation. The findings of this study are of practical importance to developers, policy makers, regional economists, educators, and would be entrepreneurs.

CHAPTER 2: LITERATURE REVIEW

This chapter is divided into five sections, which cover the relevant areas of interest under the title of New Business Formation and Business Location Decision: First, the (highly interconnected) classical theories (business location and new business formation theories) for this study are presented. Second, several sub-theories will be presented that fall within the classification of both base theories. Third, a comprehensive annotated bibliography, ordered by principal author's last name, is offered. This annotated bibliography summarizes over 50 studies of the business location and new business formation at the country, county and Labor Metropolitan Areas (LMA). A total list of 236 new business formation related studies are also summarily included. This list includes significant focal studies of new business formation during the last five decades. Fourth, a list of the aforementioned bibliography is provided, sorted by year of publication. And last, a complete list of independent variables (with the total number of times each was studied), is offered.

Business Location Traditions in Location Theory and Sub-Theories

There are five major classical business location traditions that represent the foundation of location and spatial organization of business. These five major traditions can be broadly classified as 1) Land Use (Johann Heinrich von Thunen), 2) Industrial Location Product Orientation (Alfred Weber), 3) Central

Places Market Areas (Walter Christaller & August Losch), 4) Comparative Advantage (David Ricardo), and 5) Spatial Competition (Hotelling). Each of these traditions is expanded below.

Johann Heinrich von Thunen's Model of Land Use

One of the earliest writers of business location was Johann Heinrich von Thunen. Although Von Thunen's model (Von Thunen, 1875) was created before industrialization, factories, highways and railroads, it is still regarded as an important model in geography and business location, as it provides a balance between land cost and transportation cost. As a result, it had a great impact on the industrial revolution. In the first volume of *The Isolated State* (dated 1826) he turned out to be the first person to academically discuss spatial economics and proceeded to practically connect it with the theory of rent. The second volume (dated 1850) developed the foundations of marginal productivity theory of distribution.

Von Thunen's model contained the following assertions and is still used today in business modeling and simulations of land-use modeling:

- One market in an isolated state has no interaction with any other market – isolation of the market
- Fertility and flatness of the land are uniform – similar land characteristics everywhere.
- Transportation costs are dependent of the type of commodity being transported to the market as well as the distance involved – transportation characteristics

- Land rents, transaction costs, and economic success of a business are determined mainly by location – location characteristics

Alfred Weber's Least Location Theory

Alfred Weber was one of the early writers on business location theory and the developer of the theory of industrial location in 1909 (Burdina, 2004; Weber, 1928). Weber's Least Cost Location Theory (considered a spin-off of von Thunen's Model of Land Use) focused on placing manufacturing plants near sources of materials. It also focused on labor as a location variable. Weber pointed out that location decisions depended on wage levels and the cost effectiveness of the workforce, and these variations were geographically fixed. This theory held demand side constant and focused on spatial variation in cost. This approach attempted to suggest to future plant owners to locate their factories at a site where the costs of transportation, labor, and production were minimized (hence the "Least Cost Theory" name).

The Least Cost Theory assumed that all industrial sectors were perfectly competitive in the anticipation that a business would minimize its costs to remain in commerce. The emphasis was on minimizing the cost of transportation and taking into account agglomeration (clusters) advantages, which caused a reduction of overhead costs such as personnel wages and rent. Weber's major contributions to location theory were:

- Determination of optimal location of factories by least cost site mathematical computations
- Analysis of the impact of agglomeration (clusters) benefits

- Being the first location scholar to attempt a general location theory by explaining production locations and flows of input and commodities simultaneously

Walter Christaller & August Losch's Central Place Theory

Walter Christaller, a German geographer, originally proposed the Central Place Theory in 1933 (Beguin, 1992; Christaller, 1966). This theory held the supply side constant, while focusing primarily on spatial distribution of demand. Christaller's model was based on the principle that all goods and services were purchased from the nearest central place (hence the name); demands placed on all central places were comparable, and none of the central places made any disproportionate profit.

One of the main criticisms of Christaller's model is that it did not take into account the development of belts of industrial concentration and the agglomeration (clusters) advantages that are such an important part of the world today. Christaller stated in his work "We have disregarded the entire complex of the determination of urban development through industrialization which falls in the scope of the theory of industry discussed by Alfred Weber" (1966, p. 198).

Many modifications to Christaller's model have been proposed. The leading contribution was that from August Losch, a German economist, who in the 1940s proposed a consumer model that was based on organizational and manufacturing structures as contrasting to service centers in Christaller's model. This model produced wedges of city-rich and city-poor areas spread out around a major central place. Examples of both Christaller's and Losch's models can be seen in Figure 2.

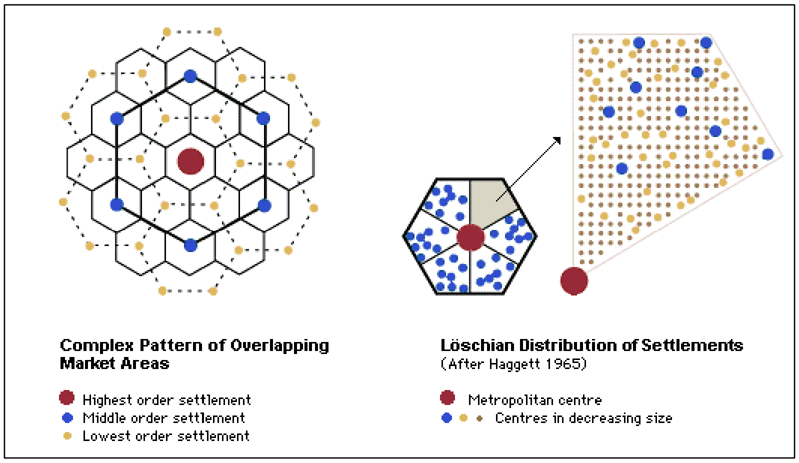

Figure 2. Christaller and Losch Central Place Theory Models (Unknown Source)

Ricardo's Comparative Theory

Comparative Advantage originated in the early part of the 19th century. This theory was first presented in David Ricardo's book titled *On the Principles of Political Economy and Taxation* (Ricardo, 1821). In explaining his model, Ricardo presented the idea of two counties producing two goods. The main assumption was that the productivity of labor varied among industries and countries. Ricardo's conclusion was if one country specialized in producing one product and another country specialized in producing another product, world output of both products would increase. Thus, comparative advantage is a key economic concept in the study of trade and shows what is relevant is not the absolute cost, but the opportunity cost of production.

The modern version of David Ricardo's Comparative Theory is normally presented by piecing together and analyzing an economic model of international economy. In its simplest form, the model presupposes two countries producing two goods using labor as the only measured factor of production. Goods are assumed homogenous (indistinguishable in quality, etc.) across the businesses producing the goods and thus across countries. Labor is homogenous within a country but heterogeneous across countries. In turn, firms are assumed to maximize total profits while consumers (workers) are assumed to maximize total utility (“aiming for the greatest happiness for the greatest number”) (Capaldi, 2004, p. 256).

Harold Hotelling’s Spatial Competition Theory

Harold Hotelling was a very influential economic theorist, a creator of Hotelling’s T-Square distribution, a statistic for a multivariate test of differences between the mean values of two groups and canonical correlation analysis, and a way to make sense of cross-covariance matrices (Mardia, Kent, & Bibby, 1979). His Spatial Competition Theory investigates how entrepreneurs would choose locations in a market in respect to one another (spatial competition).

Applications of Hotelling model are numerous, including not only business location choices, but industrial geography and political competition. Thus, Hotelling’s theoretical framework is actually commonly used in modern economic research. Hotelling’s seminal theory is often poorly explained in most economic textbooks, being passed on as the “ice-cream-vendor story.” In reality, the theory aims to explain competitive clustering, the trade-off between location and price, price equilibrium, demand proximity, and socially optimal location decisions (Collins & Sherstyuk, 2000; Eber, 2002; Hotelling, 1929).

New Business Formation Traditions and Sub-Theories

There are two major classical new business formation traditions that represent the foundation of formation and spatial organization of businesses. These two major traditions can be broadly classified as 1) Entrepreneurship School, a.k.a. Behavioral Approach Theory and 2) Regional Economics School, which includes the 1) Demand-Side Regional Economic Theories and 2) Supply-Side Regional Economic Theories. Each of these traditions is expanded below.

Entrepreneurship School Traditions – Behavioral Approach Theories

Early work in the field of new business formation was grounded in the Entrepreneurship School (Behavioral Approach) of thought, with emphasis on individual entrepreneurs, the differences among them, and what differentiated entrepreneurs from non-entrepreneurs. This type of research was rooted in both the fields of business (entrepreneurship) and psychology. While many strive to be able to predict new business formation or differentiate between entrepreneurs and non-entrepreneurs based on personality and demographic traits there has yet to be one valid, dependable theory (Gartner, 1989a, 1989b; Hoang & Gimeno, 2005).

In the Entrepreneurship School of thought (Behavioral Approach Theory), the individual entrepreneur is the unit of analysis. Here the entrepreneurial environments are identical and unchanging across the areas under study. The individual entrepreneurs make the difference in regional variations in new business formation. Most research in this “school” uses surveys of entrepreneurs and often involve simple statistical analysis (Allen & Hayward, 1990).

The most common approaches to identifying entrepreneurial characteristics have emphasized personality traits and demographics. Trait determinants include: 1) need for achievement with McClelland (1961) as an early contributor, 2) energetic and the need for autonomy with Sexton and Bowman (1984) as early contributors, 3) persistence and dominance with Neider (1987) as an early contributor, 4) desire for personal control or internal locus of control with Greenberger and Sexton (1988), Brockhaus and Nord (1979), and Brockhaus (1982) all as early contributors, and 5) risk-taking propensity with Sexton and Bowman (1985) again as early contributors.

Until recently, the bulk of research in the field of new business formation has been grounded in Entrepreneurship School Traditions and Behavioral Approach Theories. More specifically, most research had been focused on differences between entrepreneurs and non-entrepreneurs (Trahair, 2007; Xue, 2007). Despite the considerable body of work, I see several fundamental problems associated with this approach. First, most research has been non-theoretical, often doing little more than list the factors that may affect levels of entrepreneurship. Second, researchers have not used standardized scales or followed standard validation procedures in creating their measurements (Gartner, 1989b). Third, research done within the Entrepreneurship School tradition often compares individuals who have already started a business without explicitly studying individuals who have not (or do not plan to) started a business. And fourth, as stated earlier, many studies focus narrowly on personality and socio-economic characteristics of entrepreneurs without considering other types of variables such as city (geography) and technological factors (Romanelli, 1989).

The problems associated with the Entrepreneurship School Traditions and Behavioral Approach Theories have led several researchers to take a different approach to entrepreneurship research, one that takes the environment into account. The environment embodies economic and non-economic factors such as the number of bohemian, artists, and gay-lesbian populations (Florida & Mellander, 2007). In the next section I will discuss the theoretical basis of this newer Regional Economics School of thought, which comes forward to address the deficiencies in the Entrepreneurship School Traditions – Behavioral Approach Theories.

Regional Economics School Traditions

Regional Economics is another major school of thought in the field of new business formation. As the name suggests, regions are the units of analysis. Designation of region includes countries, counties, cities, districts, and neighborhoods. Regional economics can be described as a blend of economic, geographic, and business disciplines. The Regional Economics School Traditions is based on regional economic development theories, which view regions as natural systems consisting of numerous elements (Allen & Hayward, 1990). This tradition is grounded in industrial location theory (see above section “Business Location Traditions in Location Theory and Sub-Theories”). The difference between Business Location Traditions and New Business Formation is that the former tends to focus on existing businesses and the latter on the creation of new businesses. In terms of methodology, the regional economics schools tradition uses quantitative methods with the ultimate goal to analyze rates of new business formation across regions and time. A brief review of the regional theories follows.

Demand-Side Regional Economic Theories

Keynesian economics (Laidler, 2006) or Demand-Side Economics Theories focus on the role of demand for a region's goods and services as the stimulus and motivation for economic growth. If a region (city, MSA, etc.) has a comparative advantage in the manufacturing of a certain good or providing a particular service (for which there is demand), then capital and labor will be attracted to this region. Both capital and labor will be used in the production of the good or service. The supply of inputs, such as labor, is sufficient to meet demand and the solution to regional economic growth is to stimulate or encourage demand for goods and services. Researchers have thus analyzed market demand as an important element in regional variations of new business formation (Jian & De, 2007; Sutaria & Hicks, 2004).

Supply-Side Regional Economic Theories

Supply-Side theories focus on capital, labor, and other production variables necessary to yield more output and as a result more income to the entrepreneurs. The assumption that there is a perfectly competitive market in which entrepreneurs (producers) can sell everything they produce (manufacture or service) is taken for granted. Economic growth is based upon an increase in the amount of labor or capital used to manufacture goods and services, technological innovations, and the free movement of capital and labor, preferably to the most productive uses within regions. A region grows when its resource supply increases or when these resources are used more efficiently.

Productivity Theory and Human Capital Theory are examples of Supply-Side Regional Economic Theory. The former assumes changes in the level of exports to other regions (cities, counties, etc.) are a result, not a cause, of economic development. Therefore, access to financial capital is an important element, which can help explain regional variation in new business formation. Human capital theory maintains investment in human capital training is key to economic development as it leads to higher productivity levels and higher wages. Adapting this theory to new business formation, entrepreneurs have a great deal of human capital, much of which is acquired while working in leadership positions in small firms. Management and other leadership positions, especially in small firms where nascent entrepreneurs work closely with entrepreneurs who have started businesses, are the best training and fertile grounds for new business formation.

Obviously, the Regional Economics School Theory of new business formation does not rely exclusively on the Demand- and/or Supply- Side Theories as outlined above. Economists and other researchers use a multitude of regional economic theories to identify economic variables that affect new business formation. During the course of this dissertation, I did not find any explicit mention of any of these theories in the literature nor any explicit mention of their testing. In short, Regional Economics School Tradition is a blend of many different theories grounded in regional economic, economic geography, and business theories.

Selected Annotated Bibliography

In the selective annotated bibliography section, the entries are presented alphabetically by the principal author's last name. Each entry is a table representing the information most sought by readers seeking to understand how the study and its findings (Green & Hall, 1984). The headings for each table are:

Full Citation / REFERENCE

OBJECTIVE/S of the Research

METHODOLOGY Used

DV/S (Dependent Variables)

IVS (Independent Variables)

Main RESULTS

The reference list and annotated bibliography of these studies of new business formation, during the last five decades, are found in Appendices C and D.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

Chapters 1 and 2 laid the theoretical framework for this dissertation research. Prior studies focused mostly on regional variation in new business formation and some of the studies developed socio-economic models to explain regional variation in new business formation. The purpose of this chapter is to present the design and methodology used, including details needed to build the northern Colorado new business formation models. The models express the change in new business formation rates, by industrial sector, in the largest cities of Northern Colorado and the number of new business formation in the cities of Greeley and Loveland, when compared to that of Fort Collins[1] – between 1998 and 2008.

Quantitative methodologies used in this study (such as various forms of regression models) are introduced. Both the dependent and independent variables used in the models are expanded as well as the individual data values of the eleven independent variables (Table 1).

[1] NBGR_CFC = number of new business formation in Greeley when compared to Fort Collins; NBLV_CFC = number of new business formation in Loveland when compared to Fort Collins; per 1000 population.

Time-Series Cross-Sectional Data Analysis

The quantitative methodology used consists of a time-series cross-sectional (TSCS) regression analysis of new business formation in the cities of Fort Collins, Greeley and Loveland for the 11- year period of 1998 to 2008. When multiple observations are collected for each IV and DV, the collected information is referred as panel data, correlated data, or repeated measures. Here the data vary both through time (years) and across cross-sections (cities and industrial sectors). I refer to time units as T and cross-section units as N. In this study, T equals 11 years and N equals 12 (3 cities x 4 industrial sectors per city).

TSCS methodology is similar to Panel Data analysis[1], except that Panel Data usually refers to data that are mostly cross-section, that is, N > T, often much greater. TSCS data usually refers to data that are typically time-series, meaning T > N or T ≈ N. More specifically, the 11 variables, discussed in Chapter 1, are regressed on a measure of total new business formation for each of the cities and then by industrial sectors. The total potential number of citywide data points or observations is 1,386 (11 years, 11 variables, 3 cities, and 5 industrial sectors/city, and lags 0, 1 and 2).

Disadvantages of Time-Series Cross-Sectional Data Analysis

When data are collected from the same set of sources (such as new business formation in the service industrial sector) in multiple instances over time, these

[1] Not to be confused with Panel Research in survey studies.

observations might be correlated. The dependency of observations violates one of the main principles of regression analysis, that is, observations are supposed to be independent and identically distributed.

When observations are not independent, the effective number of observations is thought to be less than the physical number of observations, since these groups of observations represent the same information. Still, the correlation issue must be addressed, which means that statistics and tests based on the likelihood must not be based on a faulty specification of independence (Good & Hardin, 2009)

Advantages of Time-Series Cross-Sectional Data Analysis

While tracking some of the methodological examples of previous studies, this dissertation differs from these studies in two major ways. First, it utilizes pooled time-series cross-sectional analyses, which a few regional business location-related studies have done (Bartik, 1989; Fritsch & Falck, 2007; Gebremariam & Schaeffer, 2006). Second, it uses cities as the units of analyses, while other studies have utilized much larger geographic or economic units of analyses, such as counties, labor market areas, or countries. Each of these improvements is discussed below.

TSCS data models address fixed effects biases of the units, as described at length by Bartik (1989). Bartik noted that when using the United States as the unit of analysis, cross-section analyses gave biased results if unobserved state characteristics were correlated with the independent variables. For example, by including a time element in the analysis, Bartik analyzed changes in new firm formation as well as the explanatory variables, and, as a result, the fixed effects of states did not bias the final results[1]. The same outcome is expected in this research once the analyses of new business formation (start-up ratio) are done for the cities and for each of the four industrial sectors.

Fixed- and random- effects analysis of variance models are used in TSCS data. The difference between fixed- and random- effects is whether the sampling units represent the group of most of the units for which an inference will be drawn. If so, the fixed-effects estimator is preferred. If the sampling units represent a random sample from a larger population, then the random-effects estimate is favored (Good & Hardin, 2009; Gujarati, 1995; Studenmund, 2006).

The fixed-effects approach is used in this research. This approach is referred to as an assumption-free approach, since there are no assumptions about the distribution of heterogeneity between the panels. Therefore, as Good and Hardin (2009) state "It is often easier to justify application of fixed-effects methods, especially when we focus on the less stringent set of assumptions on which the methods depend" (p. 219).

TSCS data analysis has several advantages over individual time-series analyses and cross-section analyses. As both cross-section and time-series data are

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[1] In econometrics the fixed effects estimator (a.k.a. within estimator) estimates the coefficients in Panel/TSCS data analysis. If fixed effects are assumed, then time independent effects are imposed for each entity. It is a method of estimating parameters from a Panel/TSCS data set and is obtained by various form of multiple regressions on the deviations from the means of each unit or time periods. This approach is relevant when it is expected that the averages of the dependent variable will be different for each cross-section unit (i.e., city), or each time period (11 years), but the variance of the errors will not.

pooled, TSCS data models are deemed to better infer causality than are cross-section models. And because cross-section analyses only use variables at one point in time, determining temporal order is impossible (Beck & Katz, 1995, 1996, 2004). Therefore, models based on TSCS analysis allow business location researchers to study the relationships among several variables across several points in time. Moreover, the inclusion of a lagged dependent variable (discussed in detail later) allows exploration and study of the changes in new business formation across time.

Pooling cross-section units with longitudinal data generates a greater number of observations, which by default, create a number of advantages. First, a greater number of observations help lessen problems associated with multicollinearity by adding data and variety. Second, hypothesis testing is made stronger because of smaller standard errors. Third, the greater number of observations leads to increased degrees of freedom (Drury, 2005).

Cities and Industry Sectors as the Units of Analyses

In addition to using TSCS data analysis, the second major practical contribution of this analysis is its use of Northern Colorado's three main cities as the units of analyses. Studies of new business formation at the county, state, and national levels often conceal what is happening at the local level (Mason, 1991). Using large and likely heterogeneous units of analysis may lead to aggregation problems. That is, localized phenomena are often lost in the data analysis. Because the three cities are relatively small in terms of land area and population, this dissertation averts the problems usually associated with aggregating data at higher and more encompassing levels.

The next sections describe the measures of the explanatory variables and the different "operationalizations" of each. Additionally, four forms of multiple regression models are presented and expected results are estimated. Like the dependent variables, the independent variables, which are not already measured in proportions, are adjusted by total population (total labor force data not available for all three cities).

Variables and Data

This section describes the dependent and independent variables used in the regression analyses of new business formation. Sources and description of the data have already been provided (Table 1).

Dependent Variables

The dependent variables are the number of new firms created each year, from 1998 to 2008, per each of the four industry sectors (page 10). The number of new firms were standardized and scaled by the size of each city's population (per 1,000). More specifically, it is the number of new business filings submitted to the State of Colorado Department of Labor and Employment and Department of Revenue. These state filings, as well as the state and citywide business licenses, are notifications by entrepreneurs of the creation of new businesses. While some studies have used new businesses weighted by the total number of existing businesses, this measure has problems, based on the study by Fritsch and Falck (2003). Adjusting new businesses by the total number of firms entails an incorrect relationship between new businesses and already existing businesses – entrepreneurs create new businesses; businesses do not create new businesses. Thus, I chose to weight new business by the annual total per 1,000 population.

There are 15 dependent variables considered in this research. These dependent variables (DVs) are as follows (Appendix B):

DV 1: New Business Formation in the Retail sector, Fort Collins (RET-F)

DV 2: New Business Formation in the Manufacturing sector, Fort Collins (MAN-F)

DV 3: New Business Formation in the Distributive sector, Fort Collins (DIST-F)

DV 4: New Business Formation in the Service sector, Fort Collins (SERV-F)

DV 5: New Business Formation in all Industrial sectors, Fort Collins (ALL-F)

DV 6: New Business Formation in the Retail sector, Greeley (RET-G)

DV 7: New Business Formation in the Manufacturing sector, Greeley (MAN-G)

DV 8: New Business Formation in the Distributive sector, Greeley (DIST-G)

DV 9: New Business Formation in the Service sector, Greeley (SERV-G)

DV 10: New Business Formation in all Industrial sectors, Greeley (ALL-G)

DV 11: New Business Formation in the Retail sector, Loveland (RET-L)

DV 12: New Business Formation in the Manufacturing sector, Loveland (MAN-L)

DV 13: New Business Formation in the Distributive sector, Loveland (DIST-L)

DV 14: New Business Formation in the Service sector, Loveland (SERV-L)

DV 15: New Business Formation in all Industrial sectors, Loveland (ALL-L)

Independent Variables

Review and evaluation of both literature and data used led to the conclusion that the predictors (independent variables) selected for this study would take about one year to influence processes of new business formation (Reynolds, 1999). Thus, a one-year lag is built into the regression model for all predictors. Nonetheless, two other models, one with a two-year lag and another with zero lag (Fritsch & Falck, 2007; Johnson & Parker, 1996) were run to check for fit and predictability.

Given the cross-section time-series nature of the data for this study, general fixed-effects regression is used. There are four estimation models on which I will focus later in this chapter. These are:

Model 1: Generalized Linear Model (Robust SE Type)

Model 2: Multiple Regression for Serial Correlation

Model 3: Ordinary Least Squares for Multiple Regression

Model 4: Robust Regression

The basic regression model for the 15 dependent variables and related independent variables are represented by:

NEW BUSINESS FORMATION $_{\text{Retail, Manufacturing, Distributive, Service, and All Industries; LAGS} = 0, 1, \text{and } 2}$[1] per 1000 population =

f (AVERAGE AGE OF POPULATION) $_{cy}$	VN [2] = AA
PERCENTAGE OF POPULATION WITH AGE 15 - 24 $_{cy}$	VN = AGE1
PERCENTAGE OF POPULATION WITH AGE 25 - 64 $_{cy}$	VN = AGE2
AVERAGE HOUSING PRICE INDEX (1998 = 1) $_{cy}$	VN = AHP
AVERAGE PER CAPITA INCOME INDEX (1998 = 1) $_{cy}$	VN = APC
PERCENTAGE OF FEMALES IN THE POPULATION $_{cy}$	VN= FEM
PERCENTAGE OF HOUSEHOLDS WITH INCOME 0 - 100K	VN = HH
PERCENTAGE OF HISPANIC POPULATION $_{cy}$	VN = HISP
RATE OF POPULATION CHANGE $_{cy}$	VN = POP3R
UNEMPLOYMENT RATE $_{cy}$	VN = UNEMP3R
PERCENTAGE OF WHITE POPULATION $_{cy}$	VN = WHI
CITY$_{1..3}$,	VN = CTY
YEAR ($_{1998…2008}$)	VN = YR

[1] Variable Names: Retail = Ret; Manufacturing = Man; Distributive = Dist; Service = Serv; All Industries = ALL

[2] VN = Variable Name

This original model is tested using four distinctive estimation techniques: Model 1: Generalized Linear Model; Model, Robust S.E. (GLM); 2: Multiple Regression with Serial Correlation (MRS); Model 3: Ordinary Least Squares for Multiple Regression (OLS); and Model 4: Robust Regression (RR). In all cases, estimates were developed using eleven predictor variables suggested by theory, intuition, and availability of data. City and year dummy variables were used to control for unmeasured city and period influences.

Model 1 is a flexible generalization of ordinary least squares regression: it generalizes linear regression by allowing the linear model to be related to the response variable via a link function and by allowing the magnitude of the variance of each amount to be a function of its predicted value. Model 2 uses the Cochrane-Orcutt method (Salkind, 2007) to adjust for serial correlation when performing multiple regression. Model 3 routine assumes the random-error components are independent from one observation to the next. This assumption is seldom appropriate for business and economic data. It is more appropriate to assume the error terms are positively correlated over time. When error terms are serially correlated 1) regression coefficients are ineffectual estimators, 2) under estimation of the error variance (MSE) may occur, 3) under estimation of the variance of the regression coefficients may occur, and 4) inaccurate confidence intervals are displayed (Salkind, 2007)). Model 4 is for distributions when errors are heavy-tailed. This estimation employs a fitting criterion that is not as vulnerable as ordinary least squares to unusual data, including helping with the issue of multicollinearity in the dataset (Salkind, 2007)

The models presented above aim to predict that new business formation is a function of economic and social variables, as well as the interaction among them. Each of these variables, already described in detail in Chapter 1, is presented, in the next few pages, in table form.

Data Considerations

First, it is possible that some businesses listed in each of the cities' databases are not new but have changed structure. That is, some businesses may have changed from sole proprietorship to corporation or from not requiring registration to requiring registration. Therefore the business birth date is not the same as the incorporation date. The impact of change in business structure is minimal for the following reason: it often takes many years for businesses to change their structure and business licenses are widely required by many communities, including those under this dissertation's study.

Second, both for-profit and non-profit organizations are included in the new business formation count for this research. Various types of non-profit firms exist in Fort Collins, Loveland, and Greeley. There is no impact of including non-profit organizations in this study, as new non-profit businesses are not counted any differently than for-profit businesses as well as they employ people and purchase product (contributing to local economic development). Non-profits are exempt from federal corporate income taxes, and most are also exempt from state and local property and sales taxes. Nonprofits are, of course, not exempt from withholding payroll taxes for employees, and they are required to pay taxes on income from activities that are unrelated to their mission. Thus, what communities seem to lose in property and sales taxes, they gain in the production of jobs and the increased purchasing power of the population (McNamara, 2007)

Third, the difference between new business entries and exits is not computed. It is entirely possible that new businesses started and ceased to exist in the same calendar year. This is an error that could not be avoided because no records seem to exist of business exits. The impact of this issue is small-to-medium, but unavoidable under the present circumstances.

As starting a business is a complicated process, and nascent entrepreneurs do not always react instantly to changes in the economic, social, and business environments. As a result, the explanatory variables were lagged by one and two years in the analyses. So, for instance, in the first case (independent variable lagged by 1 year) new business formation in 1999 is a function of the availability of skilled labor in 1998 as well as new business formation in 1998. In the second case (independent variable lagged by 2 years), new business formation in 2000 is a function of the per capita income in 1999 as well as new business formation in 1999.

The approach of using a lagged dependent variable to correct for temporal correlation and TSCS- (panel) errors to correct for spatial correlation has several advantages (Chapter 4). First, it involves no transformation of data and is thus reasonably uncomplicated and easy to interpret the results. Second, theoretically speaking, it is reasonable to presume that new business formation in one time period is a function of new business formation in a previous time period. For instance, the existence of entrepreneurial role models (i.e., formation of new businesses) provides sources of information and support for nascent (potential) entrepreneurs. This can be in many forms, such as existing entrepreneurs relating success stories and serving as inspiration for others. In short, new businesses beget new businesses.

As mentioned above, cross-section analyses are biased if there are unobserved (city, industrial sector) effects that are excluded from the model. As a result, a fixed effects model is used to analyze the data. By including dummy variables for the cities, I aim to correct for the variation among them thus “fixing” the covariance in the intercept term (Beck & Katz, 1995).

The results of the regression models of new business formation are presented in Chapter 4. Chapter 4 also contains diagnostics tests to determine if the data set have contemporaneous correlation, heteroskedasticity, multicollinearity, or serial correlation. That is done by several methods including a graphical comparison of the distribution of residuals across cross-section (i.e., industrial sectors by city) and by year. The presence of serial correlation (autocorrelation) is tested using the LaGrange-Multiplier Test (Fazekas & Lauridsen, 1999).

Summary and Conclusion

This chapter explains the research design and methodology used to analyze city’s industrial sectors variation and its relation to new business formation. The presentation of the models introduced in this chapter is discussed further in chapter 4.

Four forms of multiple regression models with TSCS- (Panel) corrected standard errors on a fixed effects model were used to analyze how eleven IVs affect new business formation in both northern Colorado and each individual major city in the region – Fort Collins, Greeley, and Loveland. The use of TSCS data model with each city's industrial sectors as the units of analyses is a contribution to the field of new business formation research. I found no other study that utilized TSCS and city-level data to cast light on new business formation's variables or factors. Some studies have utilized MSA-level data, but not in conjunction with city-level data. Most previous studies use much larger units of analyses, such as entire countries and states.

CHAPTER 4: PRESENTATION OF FINDINGS

Introduction

In this chapter, the new business formation estimation models are presented. Interpretation of the models' findings are the topic of the following chapter. Full raw data are presented in the Appendix B. Given the cross-section time-series nature of the data general fixed-effects regression is used. There are four estimation models on which I focus later in this chapter. These are:

Model 1: Generalized Linear Model (Robust SE Type)

Model 2: Multiple Regression for Serial Correlation

Model 3: Ordinary Least Squares for Multiple Regression

Model 4: Robust Regression

Recall that the basic regression model analyzed is as follows (from previous chapter):

NEW BUSINESS FORMATION $_{\text{Retail, Manufacturing, Distributive, Service, and All Industries; LAGS = 0, 1, and 2}}$[1] per 1000 population =

f (AVERAGE AGE OF POPULATION $_{cy}$	VN [2] = AA
PERCENTAGE OF POPULATION WITH AGE 15 - 24 $_{cy}$	VN = AGE1
PERCENTAGE OF POPULATION WITH AGE 25 - 64 $_{cy}$	VN = AGE2
AVERAGE HOUSING PRICE INDEX (1998 = 1) $_{cy}$	VN = AHP
AVERAGE PER CAPITA INCOME INDEX (1998 = 1) $_{cy}$	VN = APC
PERCENTAGE OF FEMALES IN THE POPULATION $_{cy}$	VN= FEM
PERCENTAGE OF HOUSEHOLD WITH INCOME 0 - 100K	VN = HH
PERCENTAGE OF HISPANIC POPULATION[3] $_{cy}$	VN = HISP
RATE OF POPULATION CHANGE $_{cy}$	VN = POP3R
UNEMPLOYMENT RATE $_{cy}$	VN = UNEMP3R
PERCENTAGE OF WHITE POPULATION $_{cy}$	VN = WHI
CITY$_{1..3}$,	VN = CTY
YEAR $_{1998...2008}$)	VN = YR

[1] Variable Names: Retail = Ret; Manufacturing = Man; Distributive =Dist; Service = Serv; All Industries = ALL
[2] VN = Variable Name
[3] Centering transform (deducting the mean of the relevant independent variable from each measured value)

Bivariate Correlation Coefficients

Is the formation of a new business in a city influenced by socio-economic characteristics of that city? This chapter begins the quest for support of potential relationships by exploring the degree of correlations among variables included in the models (Tables 3 through 5). Interpretation of these correlations and other findings are the topic of the next chapter.

Table 4. Bivariate correlation matrix for the city of Fort Collins

IVs	RET-F	MAN-F	DIST-F	SERV-F	RMDS-F	AA-F	AGE1-F	AGE2-F	AHP-F	APC-F	FEM-F	HH-F	HISP-F	POPF3R-F	UNEMF3R-F	WHI-F
RET-F	1.00															
MAN-F	0.89	1.00														
DIST-F	0.99	0.93	1.00													
SERV-F	(0.81)	(0.74)	(0.78)	1.00												
ALL-F	0.41	0.51	0.48	0.14	1.00											
AA-F	(0.87)^{3}	(0.86)^{3}	(0.88)^{3}	0.76^{3}	(0.34)	1.00										
AGE1-F	0.64^{2}	0.35	0.57^{1}	(0.62)^{2}	(0.05)	(0.55)	1.00									
AGE2-F	(0.96)^{3}	(0.83)^{3}	(0.94)^{3}	0.78^{3}	(0.38)	0.80	(0.67)	1.00								
AHP-F	0.49	0.43	0.48	(0.70)^{2}	(0.23)	(0.54)	0.75	(0.50)	1.00							
APC-F	(0.28)	(0.35)	(0.31)	0.12	(0.36)	0.56	(0.12)	0.25	(0.05)	1.00						
FEM-F	(0.19)	0.06	(0.16)	(0.19)	(0.39)	(0.12)	(0.32)	0.32	0.07	(0.07)	1.00					
HH-F	0.74^{3}	0.64^{2}	0.71^{3}	(0.72)^{3}	0.11	(0.90)	0.60	(0.70)	0.48	(0.68)	0.12	1.00				
HISP-F	(0.74)^{3}	(0.64)^{2}	(0.69)^{2}	0.70^{2}	(0.14)	0.77	(0.43)	0.67	(0.21)	0.42	(0.22)	(0.80)	1.00			
POP3R-F	0.52^{1}	0.27	0.44	(0.75)^{3}	(0.40)	(0.47)	0.58	(0.51)	0.41	(0.18)	0.09	0.69	(0.69)	1.00		
UNEMP3R-F	(0.78)^{3}	(0.79)^{3}	(0.83)^{3}	0.57^{1}	(0.50)	0.60	(0.42)	0.74	(0.43)	0.19	0.27	(0.41)	0.29	(0.25)	1.00	
WHI-F	0.96^{3}	0.88^{3}	0.96^{3}	(0.85)^{3}	0.31	(0.89)	0.70	(0.91)	0.64	(0.32)	(0.09)	0.76	(0.67)	0.55	(0.83)	1.00
Mean	4.57	5.00	2.06	20.64	32.28	31.83	16.71	53.18	1.04	1.02	49.80	79.68	7.93	1.29	1.71	89.14
S.D.	0.36	0.34	0.08	0.68	0.47	1.09	0.55	2.92	0.04	0.05	0.43	4.17	0.66	0.32	0.15	1.62

Notes:

1) Numbers in parenthesis are negative correlations
2) The suffix “3R” indicates the variable were transformed by taking the cubic root of original data values
3) Significance is shown for DVs only: Superscript ^{3} = significant at 0.01 level, ^{2} significant at 0.05 level, and ^{1} significant at 0.10 level
4) All variables are normally distributed according to Kolmogorov-Smirnov normality test

Table 5. Bivariate correlation matrix for the city of Greeley

IVs	RET-G	MAN-G	DIST-G	SERV-G	RMDS-G	AA-G	AGE1-G	AGE2-G	AHP-G	APC-G	FEM-G	HH-G	HISP-G	POPF3R-G	UNEMF3R-G	WHI-G
RET-G	1.00															
MAN-G	0.95	1.00														
DIST-G	0.98	0.95	1.00													
SERV-G	0.83	0.89	0.84	1.00												
ALL-G	0.94	0.96	0.94	0.96	1.00											
AA-G	0.793	0.853	0.843	0.753	0.823	1.00										
AGE1-G	(0.03)	0.03	(0.13)	(0.09)	(0.07)	(0.24)	1.00									
AGE2-G	0.28	0.39	0.43	0.47	0.44	0.66	(0.64)	1.00								
AHP-G	0.42	0.49	0.42	0.15	0.31	0.51	0.43	0.06	1.00							
APC-G	(0.24)	(0.19)	(0.20)	(0.25)	(0.24)	0.05	(0.09)	0.18	0.13	1.00						
FEM-G	0.24	0.09	0.14	(0.07)	0.04	(0.17)	0.46	(0.64)	0.27	0.16	1.00					
HH-G	0.38	0.17	0.34	0.06	0.18	0.01	(0.28)	(0.12)	0.04	(0.22)	0.42	1.00				
HISP-G	(0.89)3	(0.95)3	(0.92)3	(0.82)3	(0.90)3	(0.89)	0.02	(0.52)	(0.57)	0.23	0.08	(0.12)	1.00			
POP3R-G	(0.17)	(0.06)	(0.16)	(0.11)	(0.12)	(0.25)	0.68	(0.23)	0.43	(0.08)	0.16	(0.10)	(0.00)	1.00		
UNEMP3R-G	0.20	0.07	0.05	0.01	0.05	(0.17)	0.31	(0.67)	(0.12)	0.02	0.69	0.27	0.16	(0.32)	1.00	
WHI-G	0.953	0.973	0.983	0.863	0.953	0.86	(0.13)	0.52	0.45	(0.20)	0.03	0.26	(0.96)	(0.10)	(0.05)	1.00
Mean	3.56	3.67	2,27	14.19	23.69	28.99	21.05	46.09	1.01	0.99	50.99	92.46	15.18	1.40	1.56	82.14
S.D.	0.29	0.36	0.35	1.04	1.97	2.21	1.19	1.57	0.06	0.08	0.36	1.81	4.54	0.41	0.13	4.64

Notes:

1) Numbers in parenthesis are negative correlations
2) The suffix “3R” indicates the variable were transformed by taking the cubic root of original data values
3) Significance is shown for DVs only: Superscript ^{3} = significant at 0.01 level, ^{2} significant at 0.05 level, and ^{1} significant at 0.10 level
4) All variables are normally distributed according to Kolmogorov-Smirnov normality test

Table 6. Bivariate correlation matrix for the city of Loveland

IVs	RET-F	MAN-L	DIST-L	SERV-L	RMDS-L	AA-L	AGE1-L	AGE2-L	AHP-L	APC-L	FEM-L	HH-L	HISP-L	POPF3R-L	UNEMF3R-L	WHI-L
RET-L	1.00															
MAN-L	(0.09)	1.00														
DIST-L	0.80	0.09	1.00													
SERV-L	(0.28)	0.34	0.20	1.00												
ALL-L	0.24	0.50	0.65	0.83	1.00											
AA-L	(0.12)	(0.45)	0.13	0.41	0.21	1.00										
AGE1-L	(0.32)	(0.25)	0.03	0.56^{1}	0.28	0.70	1.00									
AGE2-L	0.26	0.23	0.47	0.46	0.61	0.25	0.49	1.00								
AHP-L	(0.41)	0.12	$(0.58)^{1}$	(0.25)	-0.43	(0.52)	(0.35)	(0.26)	1.00							
APC-L	(0.07)	(0.18)	0.04	0.21	0.11	0.46	0.34	0.45	0.09	1.00						
FEM-L	0.31	0.58	0.07	(0.34)	(0.01)	(0.84)	(0.65)	0.13	0.44	(0.10)	1.00					
HH-L	0.02	0.45	(0.28)	(0.52)	(0.36)	(0.88)	(0.85)	(0.49)	0.55	(0.35)	0.75	1.00				
HISP-L	(0.04)	(0.48)	0.22	(0.50	0.32	0.82	0.88	0.48	(0.46)	0.32	(0.73)	(0.98)	1.00			
POP3R-L	(0.28)	0.10	$(0.63)^{2}$	(0.42)	(0.53)	(0.57)	(0.46)	(0.60)	0.38	(0.29)	0.38	0.67	(0.61)	1.00		
UNEMP3R-L	(0.49)	0.43	(0.07)	0.57	0.38	0.00	0.23	0.12	(0.08)	(0.10)	(0.16)	(0.04)	0.00	(0.22)	1.00	
WHI-L	0.40	0.44	0.07	(0.49)	(0.14)	(0.80)	(0.90)	(0.26)	0.33	(0.20)	0.84	0.90	(0.91)	0.48	(0.24)	1.00
Mean	4.48	6.55	2.06	15.54	28.64	37.64	12.56	53.63	1.04	1.02	50.66	82.37	7.23	1.26	1.60	91.66
S.D.	0.06	0.04	0.04	0.15	0.19	0.50	0.17	1.02	0.04	0.04	0.26	4.29	0.77	0.34	0.14	0.93

Notes:

1) Numbers in parenthesis are negative correlations
2) The suffix “3R” indicates the variable were transformed by taking the cubic root of original data values
3) Significance is shown for DVs only: Superscript ^{3} = significant at 0.01 level, ^{2} significant at 0.05 level, and ^{1} significant at 0.10 level
4) All variables are normally distributed according to Kolmogorov-Smirnov normality test

Overview of New Business Formation

Information on start-ups is generated from the sources described in Chapter 1. The data are the yearly number of new businesses between the years 1993 and 2008. The data from 1993 to 1997 were not used in this study because of a change in data collection techniques done at the beginning of the year 1998 which proved impossible to match 1998 to 2008 data to that of previous years. Interpretation of Figures 6 through 10 and other findings are the topic of the next chapter. The following graphs show new business formation from 1998 through 2008 for all three cities. Note that the y-axes are of different scales.

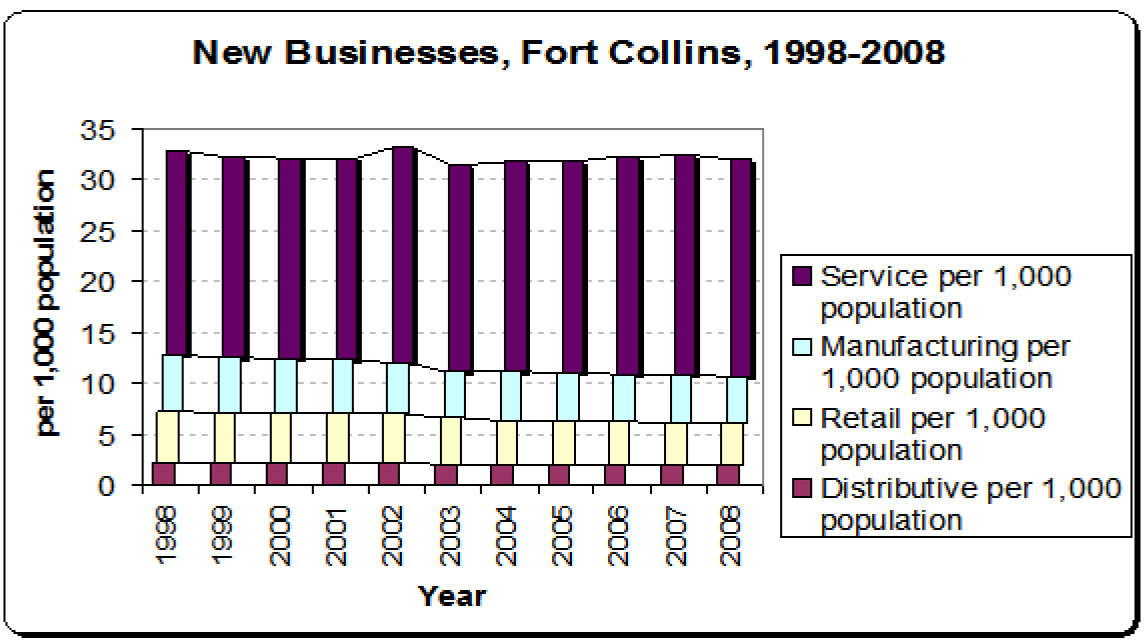

Figure 3. Number of new businesses, per 1000 population, in the city of Fort Collins, 1998 - 2008.

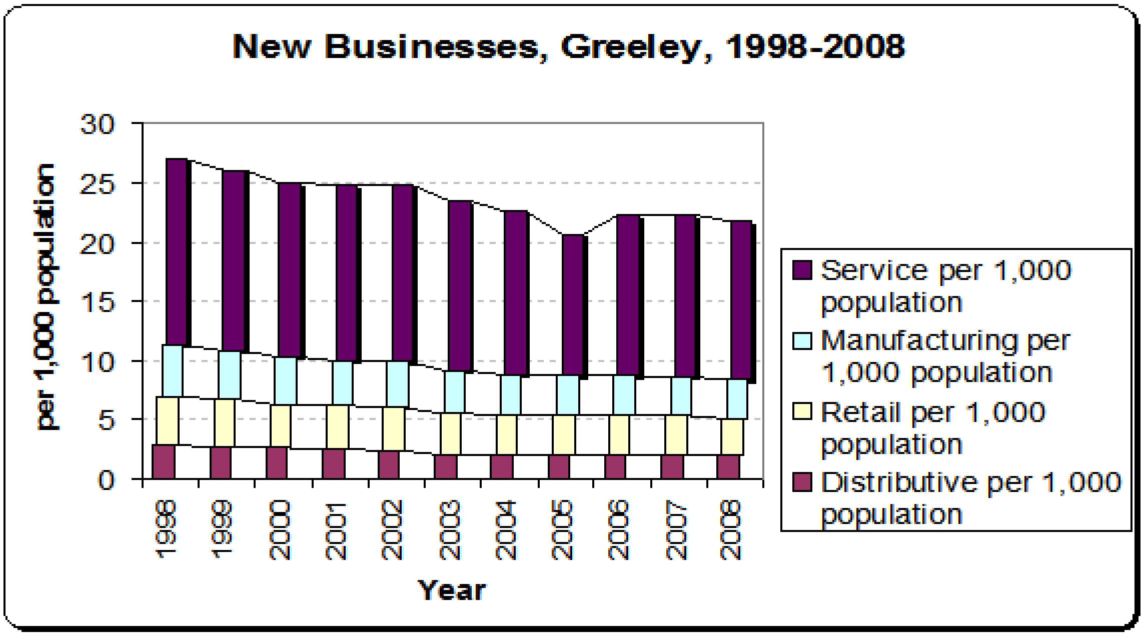

Figure 4. Number of new businesses, per 1000 population, in the city of Greeley, 1998 – 2008.

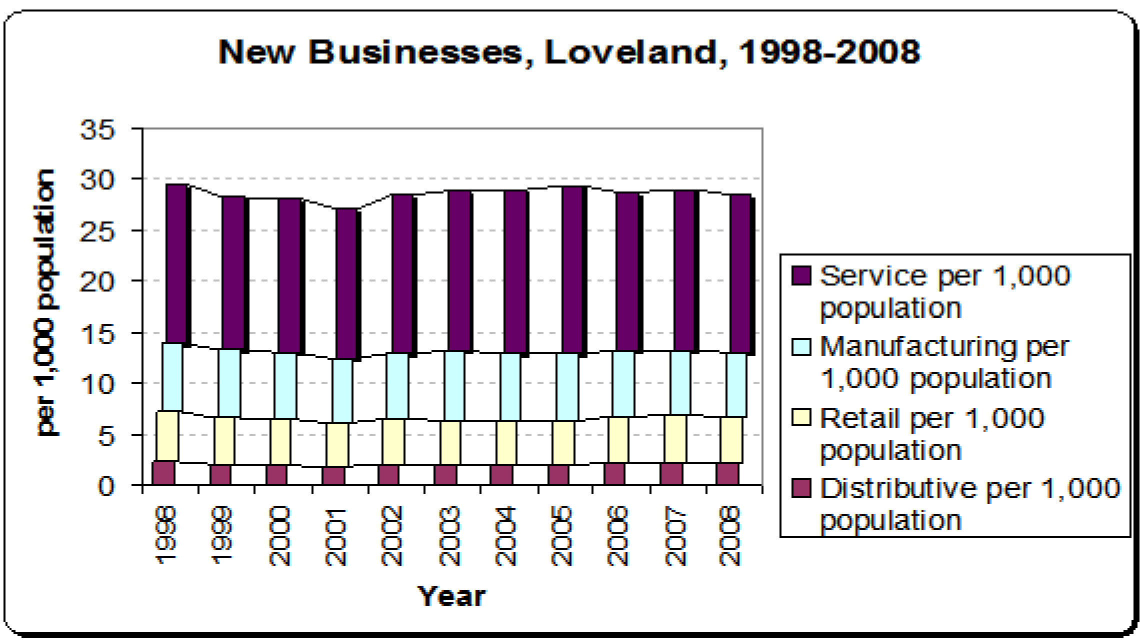

Figure 5. Number of new businesses, per 1000 population, in the city of Loveland, 1998 – 2008.

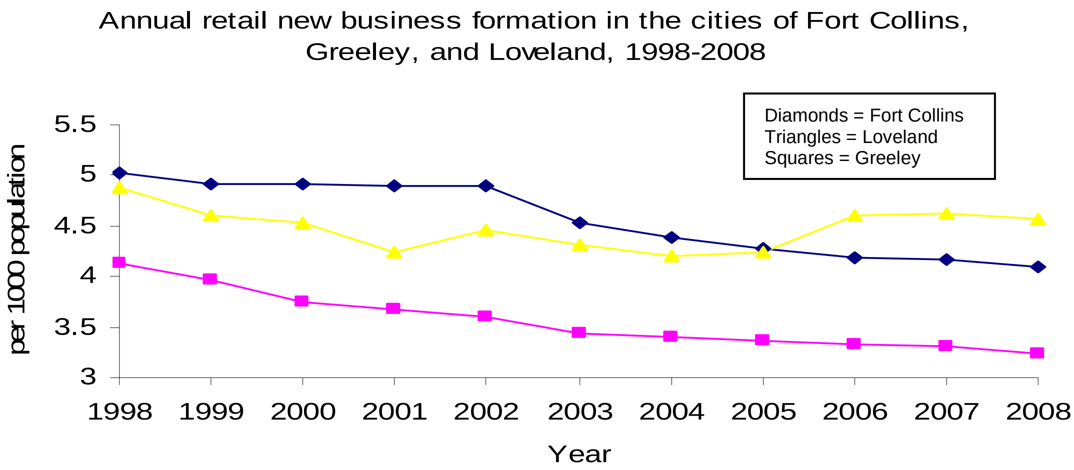

Figure 6. Annual retail new firm formation in the cities of Fort Collins, Greeley, and Loveland, 1998 – 2008.

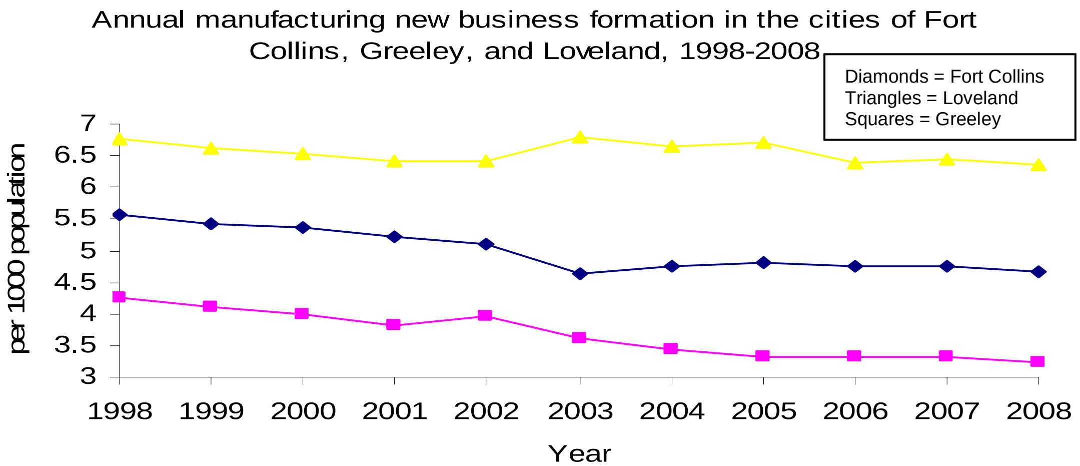

Figure 7. Annual manufacturing new firm formation in the cities of Fort Collins, Greeley, and Loveland, 1998 – 2008.

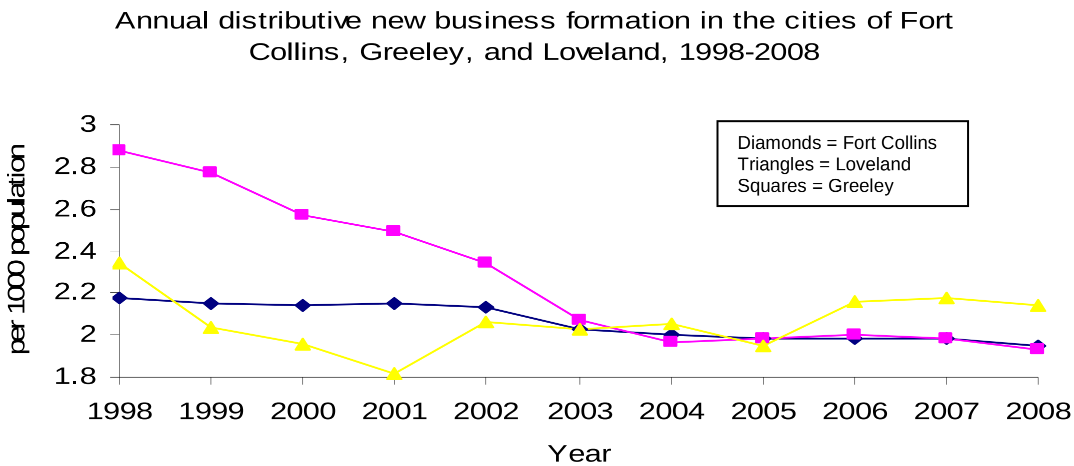

Figure 8. Annual distributive new firm formation in the cities of Fort Collins, Greeley, and Loveland, 1998 – 2008.

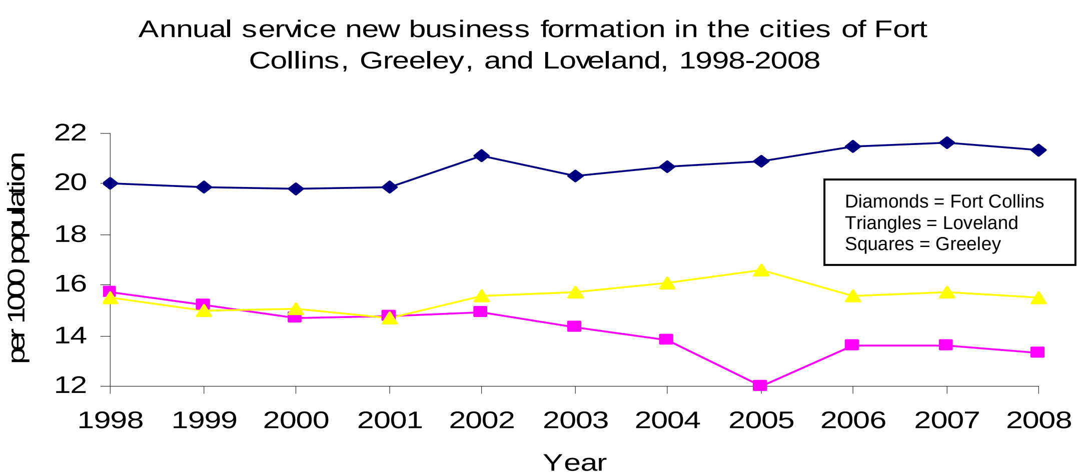

Figure 9. Annual service new firm formation in the cities of Fort Collins, Greeley, and Loveland, 1998 – 2008.

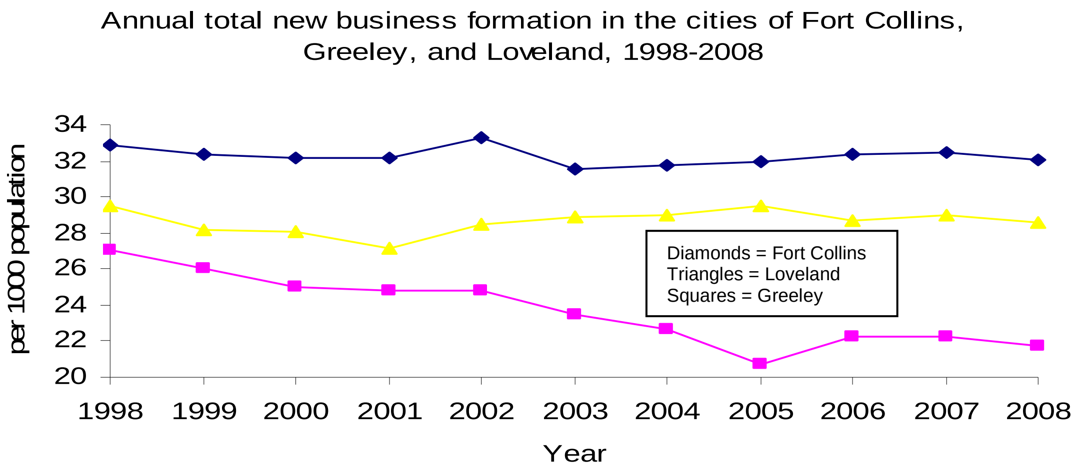

Figure 10. Annual total new firm formation in the cities of Fort Collins, Greeley, and Loveland, 1998 – 2008.

Original Models

The original model (described in the introduction of this chapter) was tested using four distinctive estimation techniques: Model 1: Generalized Linear Model (Robust S.E.), Model 2: Multiple Regression for Serial Correlation, Model 3: Ordinary Least Squares for Multiple Regression, and Model 4: Robust Regression. In each of the models, pooled estimates are developed using the eleven IVs suggested by theory and availability. City and year dummies variables are included to control for unmeasured city and time influences. DVs lags of zero, one, and two years are examined (Tables 7 through 21). Interpretation of the tables and other findings are the topic of the next chapter.

Table 7. Original models and results. Lag = 0 and DV = RET

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	-4.22 (11.30)	9.11 (25.59)	-4.22 (20.45)	-9.55 (15.56)
AgeDis				
AA	0.01 (0.02)	0.01 (0.08)	0.01 (0.05)	0.04 (0.03)
AGE1	0.14 (0.03)***	0.11 (0.12)	0.14 (0.06)**	0.12 (0.04)**
AGE2	-0.03 (0.01)**	-0.08 (0.07)	-0.03 (0.03)	-0.03 (0.02)
Value				
AHP	-2.12 (0.73)***	-2.77 (1.60)	-2.12 (1.31)	-3.83 (1.00)***
APC	1.50 (0.46)***	3.35 (1.63)*	1.50 (1.09)	2.07 (0.83)**
HH	0.02 (0.01)*	0.01 (0.02)	0.02 (0.02)	-0.003 (0.01)
Social				
FEM	0.05 (0.19)	-0.02 (0.40)	0.05 (0.35)	0.25 (0.26)
HISP	-0.01 (0.03)	-0.08 (0.11)	-0.01 (0.06)	0.02 (0.04)
WHI	0.07 (0.03)*	0.01 (0.07)	0.07 (0.06)	0.05 (0.05)
Supply				
POP3R	-0.12 (0.09)	-0.14 (0.19)	-0.12 (0.15)	-0.32 (0.11)**
UNEMP3R	-0.91 (0.32)***	-0.79 (0.70)	-0.91 (0.65)	-1.14 (0.49)**
Adjusted R^2	0.92	0.96	0.92	0.92
N	33	33	33	33
F-value	74.45***	68.15***	35.09***	59.28***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 8. Original models and results. Lag = 0 and DV = MAN

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	-3.84 (18.05)	27.47 (17.43)	-3.84 (37.87)	23.95 (0.32)***
AgeDis				
AA	-0.01 (0.04)	0.08 (0.04)	-0.01 (0.09)	-0.05 (0.001)***
AGE1	0.01 (0.05)	0.08 (0.06)	0.01 (0.12)	-0.12 (0.001)***
AGE2	-0.02 (0.03)	0.07 (0.04)*	-0.02 (0.06)	-0.04 (0.001)***
Value				
AHP	-0.75 (1.27)	-0.78 (1.12)	-0.75 (2.44)	0.82 (0.02)***
APC	-0.39 (0.97)	0.14 (0.90)	-0.39 (2.02)	0.18 (0.01)***
HH	-0.01 (0.02)	-0.04 (0.02)*	-0.01 (0.03)	-0.08 (0.0003)***
Social				
FEM	0.14 (0.28)	-0.52 (0.29)	0.14 (0.64)	-0.21 (0.01)***
HISP	0.01 (0.06)	0.10 (0.06)	0.01 (0.11)	-0.01 (0.001)***
WHI	0.08 (0.06)	-0.01 (0.06)	0.08 (0.12)	0.04 (0.001)***
Supply				
POP3R	-0.30 (0.22)	-0.35 (0.14)*	-0.30 (0.28)	-0.03 (0.002)***
UNEMP3R	-0.79 (0.52)	0.65 (0.62)	-0.79 (1.21)	-0.01 (0.01)*
Adjusted R^2	0.96	0.96	0.96	0.96
N	33	33	33	33
F-value	257.22***	58.83***	52.55***	6.7e+05***

Notes:
1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 9. Original models and results. Lag = 0 and DV = DIST

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	-15.89 (7.76)**	-14.67 (14.77)	-15.89 (14.12)	-20.89 (13.30)
<u>AgeDis</u>				
AA	0.03 (0.01)***	0.02 (0.03)	0.03 (0.03)	0.03 (0.03)
AGE1	0.03 (0.02)*	0.02 (0.05)	0.03 (0.04)	0.03(0.04)
AGE2	0.01 (0.01)	-0.01 (0.03)	0.01 (0.02)	0.02 (0.02)
<u>Value</u>				
AHP	-0.82 (0.36)**	-0.71 (0.95)	-0.82 (0.91)	-0.86 (0.85)
APC	0.79 (0.36)**	0.75 (0.76)	0.79 (0.75)	0.21 (0.71)
HH	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.006 (0.01)
<u>Social</u>				
FEM	0.14 (0.12)	0.15 (0.24)	0.14 (0.24)	0.16 (0.22)
HISP	0.04 (0.02)*	0.02 (0.05)	0.04 (0.04)	0.07 (0.04)
WHI	0.10 (0.02)***	0.10 (0.04)*	0.10 (0.04)*	0.14 (0.04)***
<u>Supply</u>				
POP3R	-0.08 (0.05)	-0.05 (0.12)	-0.08 (0.10)	0.02 (0.10)
UNEMP3R	-0.40 (0.23)*	-0.44 (0.46)	-0.40 (0.45)	-0.45 (0.42)
Adjusted R^2	0.92	0.89	0.89	0.89
N	33	33	33	33
F-value	25.22***	12.45***	13.98***	15.69***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 10. Original models and results. Lag = 0 and DV = SERV

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	82.76 (39.66)**	37.89 (100.05)	82.76 (85.50)	83.26 (105.29)
AgeDis				
AA	0.24 (0.10)**	0.43 (0.32)	0.24 (0.21)	0.25 (0.26)
AGE1	0.17 (0.14)	0.48 (0.47)	0.17 (0.27)	0.17 (0.33)
AGE2	0.39 (0.08)***	0.72 (0.28)**	0.39 (0.13)**	0.40 (0.16)**
Value				
AHP	2.50 (3.09)	4.78 (6.28)	2.50 (5.51)	2.55 (6.79)
APC	-8.32 (2.37)***	-13.33 (6.32)*	-8.32 (4.56)	-8.34 (5.62)
HH	-0.15 (0.04)***	-0.08 (0.11)	-0.15 (0.08)	-0.15 (0.11)
Social				
FEM	-2.01 (0.70)***	-2.14 (1.59)	-2.01 (1.46)	-2.03 (1.80)
HISP	0.47 (0.14)***	0.91 (0.43)*	0.47 (0.26)	0.47 (0.32)*
WHI	0.16 (0.13)	0.34 (0.28)	0.16 (0.28)	0.16 (0.35)
Supply				
POP3R	0.69 (0.35)**	0.59 (0.75)	0.69 (0.65)	0.69 (0.80)
UNEMP3R	4.69 (1.28)***	4.90 (2.75)	4.69 (2.73)	4.67 (3.37)
Adjusted R^2	0.96	0.96	0.96	0.96
N	33	33	33	33
F-value	122.75***	135.50***	57.91***	38.17***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 11. Original models and results. Lag = 0 and DV = ALL

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	57.24 (37.67)	-72.05 (87.18)	57.24 (82.09)	56.17 (101.85)
AgeDis				
AA	0.27 (0.09)***	0.58 (0.27)*	0.27 (0.20)	0.28 (0.25)
AGE1	0.35 (0.12)***	0.93 (0.40)*	0.35 (0.26)	0.35 (0.32)
AGE2	0.34 (0.08)***	0.82 (0.24)**	0.34 (0.13)**	0.35 (0.16)*
Value				
AHP	-1.19 (3.19)	-3.37 (5.48)	-1.19 (5.29)	-1.17 (6.57)
APC	-6.43 (2.40)***	-8.75 (5.43)	-6.43 (4.38)	-6.30 (5.44)
HH	-0.16 (0.04)***	-0.02 (0.09)	-0.16 (0.08)*	-0.15 (0.10)
Social				
FEM	-1.65 (0.65)**	-0.73 (1.38)	-1.65 (1.40)	-1.64 (1.74)
HISP	0.52 (0.15)***	1.20 (0.37)**	0.52 (0.24)*	0.53 (0.31)
WHI	0.43 (0.13)***	0.76 (0.25)**	0.43 (0.27)	0.43 (0.33)
Supply				
POP3R	0.20 (0.42)	-0.45 (0.66)	0.20 (0.62)	0.20 (0.77)
UNEMP3R	2.54 (1.27)**	1.25 (2.41)	2.54 (2.63)	2.52 (3.26)
Adjusted R^2	0.96	0.96	0.96	0.96
N	33	33	33	33
F-value	404.77***	284.59***	104.91***	68.21***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 12. Original models and results. Lag = 1 and DV = RET

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	3.08 (11.48)	-4.78 (18.21)	2.78 (20.73)	-3.05 (0.17)***
AgeDis				
AA	-0.03 (0.02)	-0.001 (0.06)	-0.03 (0.05)	0.008 (0.0005)***
AGE1	0.11 (0.04)***	0.08 (0.07)	0.11 (0.07)	0.17 (0.0007)***
AGE2	-0.09 (0.01)***	-0.15 (0.05)**	-0.09 (0.04)	-0.04 (0.0005)***
Value				
AHP	-1.89 (0.62)***	-3.35 (1.00)**	-1.89 (1.32)	-2.81 (0.01)***
APC	1.74 (0.35)***	4.06 (1.16)**	1.74 (1.10)	2.05 (0.01)***
HH	0.02 (0.01)***	0.02 (0.01)	0.02(0.02)	-0.005 (0.0002)***
Social				
FEM	0.01 (0.18)	0.29 (0.29)	0.01 (0.34)	0.14 (0.002)***
HISP	-0.09 (0.03)***	-0.15 (0.08)	-0.09 (0.08)	-0.007 (0.0008)***
WHI	0.05 (0.03)	0.01 (0.04)	0.05 (0.06)	0.03 (0.0006)***
Supply				
POP3R	-0.07 (0.08)	-0.14 (0.11)	-0.07 (0.16)	-0.58 (0.002)***
UNEMP3R	-0.67 (0.36)*	-1.23 (0.54)*	-0.67 (0.70)	-0.43 (0.005)***
Adjusted R^2	0.96	0.96	0.96	0.96
N	33	33	33	33
F-value	234.68***	162.04***	33.20***	4.7e+05***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 13. Original models and results. Lag = 1 and DV = MAN

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	-23.43 (14.86)	-69.03 (21.40)**	-21.81 (31.05)	-9.18 (1.71)***
<u>AgeDis</u>				
AA	0.07 (0.03)**	-0.04 (0.07)	0.07 (0.08)	0.08 (0.004)***
AGE1	0.14 (0.05)***	0.14 (0.08)	0.14 (0.11)	0.27 (0.01)***
AGE2	0.10 (0.03)***	0.11 (0.06)	0.10 (0.07)	0.14 (0.004)***
<u>Value</u>				
AHP	-1.84 (0.83)**	-2.58 (1.20)*	-1.84 (1.98)	-1.43 (0.10)***
APC	-0.31 (0.72)	-1.67 (1.39)	-0.31 (1.65)	-1.55 (0.09)***
HH	-0.01 (0.01)	0.0001 (0.02)	-0.01 (0.03)	0.009 (0.001)***
<u>Social</u>				
FEM	0.18 (0.25)	0.90 (0.34)**	0.18 (0.51)	-0.17 (0.02)***
HISP	0.19 (0.05)***	0.23 (0.10)*	0.19 (0.12)	0.22 (0.01)***
WHI	0.12 (0.05)**	0.32 (0.05)***	0.12 (0.10)	0.10 (0.005)***
<u>Supply</u>				
POP3R	-0.56 (0.13)***	-0.66 (0.13)***	-0.56 (0.25)*	-0.60 (0.01)***
UNEMP3R	-0.62 (0.53)	-1.65 (0.65)*	-0.62 (1.04)	0.11 (0.05)*
Adjusted R^2	0.96	0.96	0.96	0.96
N	33	33	33	33
F-value	344.44***	630.78***	80.39***	28468.66***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 14. Original models and results. Lag = 1 and DV = DIST

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	-10.40 (7.68)	-13.83 (10.73)	-10.64 (11.48)	-51.56 (5.61)***
AgeDis				
AA	0.0003 (0.01)	0.06 (0.03)	0.0003 (0.03)	0.006 (0.01)
AGE1	0.04 (0.01)***	0.10 (0.04)*	0.04 (0.04)	0.14 (0.01)***
AGE2	-0.03 (0.01)***	-0.001 (0.03)	-0.03 (0.02)	-0.01 (0.01)
Value				
AHP	-0.78 (0.34)**	-1.16 (0.61)	-0.78 (0.73)	-2.10 (0.30)***
APC	1.14 (0.19)***	2.18 (0.63)**	1.14 (0.61)	0.84 (0.26)**
HH	0.003 (0.01)	0.01 (0.01)	0.003 (0.01)	0.05 (0.01)***
Social				
FEM	0.10 (0.11)	0.08 (0.16)	0.10 (0.19)	0.64 (0.08)***
HISP	-0.03 (0.02)	0.01 (0.05)	-0.03 (0.04)	0.005 (0.01)
WHI	0.09 (0.02)***	0.06 (0.02)*	0.09 (0.03)*	0.19 (0.01)***
Supply				
POP3R	-0.08 (0.04)**	-0.15 (0.06)*	-0.08 (0.09)	-0.21 (0.03)***
UNEMP3R	-0.03 (0.25)	-0.02 (0.31)	-0.03 (0.38)	-0.79 (0.15)***
Adjusted R^2	0.89	0.96	0.89	0.89
N	33	33	33	33
F-value	139.11***	61.50***	15.46***	150.97***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 15. Original models and results. Lag = 1 and DV = SERV

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	41.43 (32.62)	91.13 (89.52)	48.15 (77.53)	63.92 (9.74)***
AgeDis				
AA	0.46 (0.07)***	0.50 (0.25)	0.46 (0.21)*	0.32 (0.03)***
AGE1	0.23 (0.13)*	0.57 (0.28)*	0.23 (0.27)	0.10 (0.04)*
AGE2	0.67 (0.07)***	1.00 (0.20)***	0.67 (0.18)***	0.58 (0.02)***
Value				
AHP	1.63 (2.20)	7.10 (4.02)	1.63 (4.95)	0.003 (0.60)
APC	-9.82 (1.58)***	-14.49 (4.67)**	-9.82 (4.12)**	-16.62 (0.82)***
HH	-0.20 (0.02)***	-0.13 (0.07)	-0.20 (0.08)**	-0.21 (0.01)***
Social				
FEM	-1.80 (0.59)***	-3.22 (1.16)**	-1.80 (1.29)	-1.52 (0.19)***
HISP	0.94 (0.13)***	1.25 (0.33)**	0.94 (0.31)**	0.71 (0.04)***
WHI	0.24 (0.10)**	0.31 (0.18)	0.24 (0.25)	0.15 (0.03)***
Supply				
POP3R	0.55 (0.23)**	0.70 (0.45)	0.55 (0.63)	0.41 (0.07)***
UNEMP3R	3.15 (1.14)***	5.94 (2.19)**	3.15 (2.61)	0.57 (0.47)
Adjusted R^2	0.96	0.96	0.96	0.96
N	33	33	33	33
F-value	199.85***	332.74***	74.75***	4907.20***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 16. Original models and results. Lag = 1 and DV = ALL

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	8.55 (27.58)	-6.21 (75.44)	16.34 (69.94)	-22.16 (1.27)***
AgeDis				
AA	0.51 (0.07)***	0.51 (0.25)*	0.51 (0.19)**	0.25 (0.004)***
AGE1	0.54 (0.11)***	0.88 (0.28)**	0.54 (0.25)*	0.17 (0.01)***
AGE2	0.65 (0.06)***	0.94 (0.20)***	0.65 (0.16)***	0.48 (0.003)***
Value				
AHP	-2.90 (2.10)	0.28 (3.99)	-2.90 (4.47)	-5.59 (0.07)***
APC	-7.28 (1.67)***	-9.94 (4.63)*	-7.28 (3.71)*	-13.92 (0.10)***
HH	-0.18 (0.02)***	-0.10 (0.07)	-0.18 (0.07)**	-0.20 (0.001)***
Social				
FEM	-1.46 (0.51)***	-1.97 (1.15)	-1.46 (1.16)	-0.08 (0.02)***
HISP	1.01 (0.11)***	1.31 (0.33)**	1.01 (0.28)**	0.78 (0.01)***
WHI	0.53 (0.09)***	0.70 (0.18)**	0.53 (0.22)*	0.62 (0.004)***
Supply				
POP3R	-0.16 (0.23)	-0.22 (0.45)	-0.16 (0.57)	-0.55 (0.01)***
UNEMP3R	1.77 (1.05)*	3.10 (2.17)	1.77 (2.36)	-3.02 (0.06)***
Adjusted R^2	0.96	0.96	0.96	0.96
N	33	33	33	33
F-value	563.51***	556.77***	152.14***	4.8e+05***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 17. Original models and results. Lag = 2 and DV = RET

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	-26.99 (9.92)***	-23.99 (25.02)	-26.71 (30.33)	-10.83 (7.14)
AgeDis				
AA	-0.01 (0.02)	-0.01 (0.04)	-0.01 (0.06)	0.13 (0.02)**
AGE1	0.21 (0.05)***	0.13 (0.06)	0.21 (0.10)	0.37 (0.01)***
AGE2	-0.08 (0.01)***	-0.16 (0.04)**	-0.08 (0.06)	-0.02 (0.01)
Value				
AHP	-3.06 (0.62)***	-4.64 (1.47)*	-3.06 (1.67)	-1.25 (0.40)*
APC	1.26 (0.40)***	3.07 (1.61)	1.26 (1.43)	2.46 (0.28)**
HH	0.07 (0.01)***	0.05 (0.02)	0.07 (0.03)	0.07 (0.01)***
Social				
FEM	0.39 (0.15)***	0.63 (0.41)	0.39 (0.44)	-0.26 (0.12)
HISP	-0.06 (0.02)**	-0.17 (0.07)*	-0.06 (0.09)	0.04 (0.02)
WHI	0.13 (0.03)***	0.07 (0.05)	0.13 (0.09)	0.11 (0.01)**
Supply				
POP3R	-0.20 (0.09)**	-0.27 (0.16)	-0.20 (0.21)	-0.07 (0.07)
UNEMP3R	-1.08 (0.27)***	-1.65 (0.90)	-1.08 (0.87)	1.27 (0.34)*
Adjusted R^2	0.96	0.96	0.96	0.96
N	33	33	33	33
F-value	127.58***	397.56***	31.20***	1507.26***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 18. Original models and results. Lag = 2 and DV = MAN

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	16.80 (19.76)	-64.02 (40.46)	16.70 (44.24)	See Note 7, below
AgeDis				
AA	0.003 (0.03)	-0.03 (0.09)	0.003 (0.09)	
AGE1	-0.01 (0.06)	0.12 (0.11)	-0.01 (0.09)	
AGE2	0.02 (0.03)	0.11 (0.08)	0.02 (0.09)	
Value				
AHP	0.32 (1.03)	-2.05 (2.37)	0.32 (2.44)	
APC	-1.44 (0.82)*	-2.48 (2.94)	-1.44 (2.09)	
HH	-0.06 (0.02)**	-0.01 (0.03)	-0.06 (0.05)	
Social				
FEM	-0.33 (0.29)	0.79 (0.66)	-0.33 (0.65)	
HISP	0.09 (0.04)**	0.24 (0.13)	0.09 (0.13)	
WHI	0.09 (0.06)	0.32 (0.09)*	0.09 (0.13)	
Supply				
POP3R	-0.29 (0.16)*	-0.61 (0.26)	-0.29 (0.30)	
UNEMP3R	0.54 (0.51)	-1.47 (1.46)	0.54 (1.27)	
Adjusted R^2	0.96	0.96	0.96	
N	33	33	33	
F-value	451.47***	625.86***	81.57***	

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level
7) Regression did not converge in 1000 iterations

Table 19. Original models and results. Lag = 2 and DV = DIST

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	-37.13 (7.07)***	22.89(7.85)*	-37. 07 (11.28)**	See Note 7, below
AgeDis				
AA	0.01 (0.01)**	0.02 (0.01)	0.01 (0.02)	
AGE1	0.13 (0.01)***	0.11 (0.02)***	0.13 (0.04)**	
AGE2	-0.01 (0.01)**	-0.03 (0.01)*	-0.01 (0.02)	
Value				
AHP	-1.88 (0.23)***	-1.72 (0.46)**	-1.88 (0.62)*	
APC	0.90 (0.19)***	0.87 (0.87)	0.90 (0.53)	
HH	0.04 (0.01)***	0.03 (0.01)**	0.04 (0.01)*	
Social				
FEM	0.44 (0.10)***	0.25 (0.12)	0.44 (0.16)*	
HISP	0.001 (0.01)	-0.03 (0.02)	0.001 (0.03)	
WHI	0.15 (0.02)***	0.11 (0.01)***	0.15 (0.03)***	
Supply				
POP3R	-0.21 (0.03)***	-0.20 (0.05)**	-0.21 (0.07)**	
UNEMP3R	-0.46 (0.17)***	-0.04 (0.28)	-0.46 (0.32)	
Adjusted R^2	0.92	0.96	0.92	
N	33	33	33	
F-value	105.13***	440.08***	21.95***	

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level
7) Regression did not converge in 1000 iterations

Table 20. Original models and results. Lag = 2 and DV = SERV

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	52.14 (44.75)	191.92 (99.56)	52.36 (132.65)	-262.99 (29.68)***
<u>AgeDis</u>				
AA	0.42 (0.09)***	0.36 (0.19)	0.42 (0.28)	0.67 (0.11)***
AGE1	0.17 (0.24)	0.40 (0.27)	0.17 (0.47)	-0.66 (0.06)***
AGE2	0.62 (0.09)***	0.84 (0.18)**	0.62 (0.27)*	0.67 (0.04)***
<u>Value</u>				
AHP	2.52 (2.97)	14.86 (5.87)*	2.52 (7.33)	-13.86 (1.02)***
APC	-11.03 (2.12)***	-21.97 (6.34)*	-11.03 (6.27)	-21.84 (1.19)***
HH	-0.21 (0.07)***	-0.18 (0.09)	-0.21 (0.17)	-0.29 (0.02)***
<u>Social</u>				
FEM	-1.95 (0.63)***	-5.37 (1.64)**	-1.95 (1.96)	5.65 (0.50)***
HISP	0.88 (0.14)***	1.04 (0.27)**	0.88 (0.41)*	1.26 (0.11)***
WHI	0.27 (0.13)**	0.23 (0.21)	0.27 (0.39)	0.39 (0.05)***
<u>Supply</u>				
POP3R	0.67 (0.31)**	1.54 (0.64)*	0.67 (0.92)	-1.41 (0.15)***
UNEMP3R	3.78 (1.06)***	11.32 (3.59)*	3.78 (3.82)	-19.59 (1.38)***
Adjusted R^2	0.96	0.96	0.96	0.96
N	33	33	33	33
F-value	214.99***	789.19***	53.75**	3389.27***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Table 21. Original models and results. Lag = 2 and DV = ALL

IVs	GLM-Robust Model 1	MRSC Model 2	OLS Model 3	RR Model 4
Intercept	3.03 (32.11)	75.21 (82.29)	3.50 (112.25)	-181.19 (6.09)***
<u>AgeDis</u>				
AA	0.43 (0.07)***	0.35 (0.15)	0.43 (0.24)	0.44 (0.02)***
AGE1	0.51 (0.19)***	0.80 (0.23)**	0.51 (0.40)	-0.09 (0.01)***
AGE2	0.55 (0.07)***	0.78 (0.15)**	0.55 (0.23)*	0.51 (0.01)***
<u>Value</u>				
AHP	-2.11 (2.50)	6.21 (4.84)	-2.11 (6.21)	-14.21 (0.21)***
APC	-10.33 (1.90)***	-19.49 (5.10)**	-10.33 (5.31)	-16.18 (0.24)***
HH	-0.15 (0.05)***	-0.10 (0.07)	-0.15 (0.14)	-0.21 (0.004)***
<u>Social</u>				
FEM	-1.42 (0.48)***	-3.64 (1.35)*	-1.42 (1.66)	3.32 (0.10)***
HISP	0.92 (0.11)***	1.12 (0.22)**	0.92 (0.35)**	1.02 (0.02)***
WHI	0.66 (0.10)***	0.75 (0.18)**	0.66 (0.33)	0.74 (0.01)***
<u>Supply</u>				
POP3R	-0.02 (0.28)	0.42 (0.53)	-0.02 (0.77)	-1.39 (0.03)***
UNEMP3R	2.73 (0.88)***	8.06 (2.94)*	2.73 (3.23)	-12.04 (0.28)***
Adjusted R^2	0.96	0.96	0.96	0.96
N	33	33	33	33
F-value	747.21***	2260.25***	125.14***	1.2E+05***

Notes:

1) GLM = Generalized Linear Model (Robust); MRSC = Multiple Regression for Serial Correlation; OLS = Ordinary Least Squares; RR = Robust Regression
2) AgeDis = Age Dispersion (variables AA, AGE1, and AGE2); Value = Cost and Income (variables AHP, APC, and HH); Social = Social Characteristics (variables FEM, HISP, and WHI); Supply = Entrepreneurship Availability (variables POP3R and UNEMP3R)
3) *** Significant at 0.01 level, ** at 0.05, and * at 0.10 level
4) The regression coefficient values for city and time dummies are not in the table
5) Standard errors are given in parentheses
6) The Breusch-Pagan test did not show the presence of heteroskedasticity to be significant at any significant level

Refining the Original Models

To gain more refined models, the most significant and explicatory models are re-estimated with the variables significant at the 0.01 level used in order to meaningfully examine the already significant models from previous section. The results are reported in Tables 22 through 36. Interpretation of the tables shown below and other findings are the topic of the next chapter.

Table 22. Refined Model 1 from Table 7; Lag = 0 and DV = RET

IVs	Coefficients
Intercept	2.79 (1.00)***
AgeDis	
AA	
AGE1	0.18 (0.04)***
AGE2	
Value	
AHP	-1.92 (0.59)***
APC	1.68 (0.85)**
HH	
Social	
FEM	
HISP	
WHI	
Supply	
POP3R	
UNEMP3R	-0.31 (0.23)
Adjusted R^2	0.94
N	33
F-value	109.25***

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 23. Refined Model 4 from Table 8; Lag = 0 and DV = MAN

IVs	Coefficients
Intercept	20.97 (5.49)***
AgeDis	
AA	-0.06 (0.02)**
AGE1	-0.14 (0.03)***
AGE2	-0.05 (0.01**
Value	
AHP	2.18 (0.63)***
APC	-0.35 (0.57)
HH	-0.09 (0.01)***
Social	
FEM	-0.19 (0.08)**
HISP	0.01 (0.03)
WHI	0.07 (0.02)**
Supply	
POP3R	0.14 (0.07)*
UNEMP3R	
Adjusted R^2	0.96
N	33
F-value	591.73***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 24. Refined Model 1 from Table 9; Lag = 0 and DV = DIST

IVs	Coefficients
Intercept	-5.89 (1.00)***
AgeDis	
AA	0.004 (0.01)
AGE1	
AGE2	
Value	
AHP	
APC	
HH	
Social	
FEM	
HISP	
WHI	0.08 (0.01)***
Supply	
POP3R	
UNEMP3R	
Adjusted R^2	0.89
N	33
F-value	37.30***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 25. Refined Model 1 from Table 10; Lag = 0 and DV = SERV

IVs	Coefficients
Intercept	111.61 (24.87)***
AgeDis	
AA	
AGE1	
AGE2	0.21 (0.05)***
Value	
AHP	
APC	-5.84 (2.53)**
HH	-0.17 (0.04)***
Social	
FEM	-1.77 (0.50)***
HISP	0.04 (0.07)
WHI	
Supply	
POP3R	
UNEMP3R	4.13 (0.85)***
Adjusted R^2	0.95
N	33
F-value	169.14***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 26. Refined Model 1 from Table 11; Lag = 0 and DV = ALL

IVs	Coefficients
Intercept	-38.06 (13.30)***
AgeDis	
AA	0.18 (0.09)**
AGE1	0.13 (0.12)
AGE2	0.27 (0.08)***
Value	
AHP	
APC	-7.11 (2.59)***
HH	-0.15 (0.04)***
Social	
FEM	
HISP	0.57 (0.17)***
WHI	0.71 (0.09)***
Supply	
POP3R	
UNEMP3R	
Adjusted R^2	0.97
N	33
F-value	629.65***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 27. Refined Model 4 from Table 12; Lag = 1 and DV = RET

IVs	Coefficients (Note 4, below)
Intercept	-3.04 (0.18)***
AgeDis	
AA	0.008 (0.001)***
AGE1	0.17 (0.001)***
AGE2	-0.04 (0.001)***
Value	
AHP	-2.81 (0.01)***
APC	2.05 (0.01)***
HH	-0.005 (0.0002)***
Social	
FEM	0.14 (0.003)***
HISP	-0.007 (0.001)***
WHI	0.03 (0.001)***
Supply	
POP3R	-0.58 (0.002)***
UNEMP3R	-0.43 (0.01)***
Adjusted R^2	0.96
N	33
F-value	4.4e+05***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level
4) Same results as those on Table 12: RR, Model 4

Table 28. Refined Model 4 from Table 13; Lag = 1 and DV = MAN

IVs	Coefficients (Note 4, below)
Intercept	-9.18 (1.71)***
AgeDis	
AA	0.08 (0.004)***
AGE1	0.27 (0.01)***
AGE2	0.14 (0.004)***
Value	
AHP	-1.43 (0.10)***
APC	-1.55 (0.09)***
HH	0.009 (0.001)***
Social	
FEM	-0.17 (0.02)***
HISP	0.22 (0.01)***
WHI	0.10 (0.005)***
Supply	
POP3R	-0.60 (0.01)***
UNEMP3R	0.11 (0.05)*
Adjusted R^2	0.96
N	33
F-value	28468.66***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level
4) Same results as those on Table 13: RR, Model 4

Table 29. Refined Model 4 from Table 14; Lag = 1 and DV = DIST

IVs	Coefficients
Intercept	-10.91 (1.74)***
AgeDis	
AA	
AGE1	0.11 (0.01)***
AGE2	
Value	
AHP	-1.09 (0.11)***
APC	
HH	0.02 (0.02)***
Social	
FEM	-0.02 (0.02)
HISP	
WHI	
Supply	
POP3R	-0.05 (0.01)***
UNEMP3R	0.08 (0.04)
Adjusted R^2	0.90
N	33
F-value	820.27***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 30. Refined Model 1 from Table 15; Lag = 1 and DV = SERV

IVs	Coefficients
Intercept	82.82 (14.94)***
AgeDis	
AA	0.52 (0.09)***
AGE1	
AGE2	0.55 (0.07)***
Value	
AHP	
APC	-7.74 (1.80)***
HH	-0.27 (0.03)***
Social	
FEM	-1.87 (0.30)***
HISP	0.77 (0.13)***
WHI	
Supply	
POP3R	
UNEMP3R	2.84 (0.73)***
Adjusted R^2	0.97
N	33
F-value	219.53***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 31. Refined Model 4 from Table 16; Lag = 1 and DV = ALL

IVs	Coefficients (Note 4, below)
Intercept	-22.16 (1.27)***
AgeDis	
AA	0.25 (0.004)***
AGE1	0.17 (0.01)***
AGE2	0.48 (0.003)***
Value	
AHP	-5.59 (0.07)***
APC	-13.92 (0.10)***
HH	-0.20 (0.001)***
Social	
FEM	-0.08 (0.02)***
HISP	0.78 (0.01)***
WHI	0.62 (0.004)***
Supply	
POP3R	-0.55 (0.01)***
UNEMP3R	-3.02 (0.06)***
Adjusted R^2	0.96
N	33
F-value	4.8e+05***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level
4) Same results as those on Table 16: RR, Model 4

Table 32. Refined Model 1 from Table 17; Lag = 2 and DV = RET

IVs	Coefficients
Intercept	-23.69 (9.03)***
AgeDis	
AA	
AGE1	0.16 (0.04)***
AGE2	-0.05 (0.01)***
Value	
AHP	-1.91 (0.68)***
APC	0.51 (0.55)
HH	0.05 (0.01)***
Social	
FEM	0.26 (0.16)
HISP	
WHI	0.15 (0.02)***
Supply	
POP3R	
UNEMP3R	-0.95 (0.32)***
Adjusted R^2	0.94
N	33
F-value	199.82***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 33. Refined Model 1 from Table 18; Lag = 2 and DV = MAN

IVs	Coefficients (Note 4, below)
Intercept	8.54 (1.44)***
AgeDis	
AA	
AGE1	
AGE2	
Value	
AHP	
APC	
HH	-0.05 (0.02)**
Social	
FEM	
HISP	0.001 (0.02)
WHI	
Supply	
POP3R	
UNEMP3R	
Adjusted R^2	0.98
N	33
F-value	201.42***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level
4) No original variables were significant at 0.01 level, thus only variables significant at 0.05 level were used

Table 34. Refined Model 1 from Table 19; Lag = 2 and DV = DIST

IVs	Coefficients
Intercept	-38.77 (6.30)***
AgeDis	
AA	
AGE1	0.15 (0.01)***
AGE2	
Value	
AHP	-1.96 (0.28)***
APC	0.99 (0.22)***
HH	0.04 (0.01)***
Social	
FEM	0.44 (0.10)***
HISP	
WHI	0.16 (0.01)***
Supply	
POP3R	-0.22 (0.03)***
UNEMP3R	-0.53 (0.17)***
Adjusted R^2	0.94
N	33
F-value	228.54***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 35. Refined Model 4 from Table 20; Lag = 2 and DV = SERV

IVs	Coefficients (Note 4, below)
Intercept	-262.99 (29.68)***
AgeDis	
AA	0.67 (0.11)***
AGE1	-0.66 (0.06)***
AGE2	0.67 (0.04)***
Value	
AHP	-13.86 (1.02)***
APC	-21.84 (1.19)***
HH	-0.29 (0.02)***
Social	
FEM	5.65 (0.50)***
HISP	1.26 (0.11)***
WHI	0.39 (0.05)***
Supply	
POP3R	-1.41 (0.15)***
UNEMP3R	-19.59 (1.38)***
Adjusted R^2	0.96
N	33
F-value	3389.27***

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level
4) Same results as those on Table 20: RR, Model 4

Table 36. Refined Model 4 from Table 21; Lag = 2 and DV = ALL

IVs	Coefficients (Note 4, below)
Intercept	-181.19 (6.09)***
AgeDis	
AA	0.44 (0.02)***
AGE1	-0.09 (0.01)***
AGE2	0.51 (0.01)***
Value	
AHP	-14.21 (0.21)***
APC	-16.18 (0.24)***
HH	-0.21 (0.004)***
Social	
FEM	3.32 (0.10)***
HISP	1.02 (0.02)***
WHI	0.74 (0.01)***
Supply	
POP3R	-1.39 (0.03)***
UNEMP3R	-12.04 (0.28)***
Adjusted R^2	0.96
N	33
F-value	1.2E+05***

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level
4) Same results as those on Table 21: RR, Model

Model Elaboration by Addition of Partials

Model elaboration involves using the original models (previous sections) and examining those models based on introducing association partials. Blocks of variables (AgeDis, Value, Social, and Supply) are added to the selected model in sequence to gauge the impact, if any, on the IVs already present in the model. The order of entrance of a certain block is determined by the number of significant coefficients revealed on the original model. The results are reported in Tables 37 through 51. Interpretation of the tables shown below and other findings are the topic of the next chapter.

Table 37. Model Elaboration by Addition of Partials; Based on Model 1 (GLM-Robust) from Table 7: Lag = 0 and DV = RET

Partials	IVs	Sub-Model 1-1	Sub-Model 1-2	Sub-Model 1-3	Sub-Model 1-4
	Intercept	4.69 (1.04)***	2.85 (2.06)	19.71 (4.87)***	-4.22 (11.30)
AgeDis	AA	0.06 (0.01)***	0.06 (0.01)***	0.02 (0.02)	0.01 (0.02)
	AGE1	0.08 (0.03)**	0.15 (0.03)***	0.16 (0.02)***	0.14 (0.03)***
	AGE2	-0.05 (0.01)***	-0.04 (0.01)***	-0.02 (0.02)	-0.03 (0.01)**
Value	AHP		-2.24 (0.55)***	-1.10 (0.59)*	-2.12 (0.73)***
	APC		1.79 (0.68)***	1.00 (0.51)**	1.50 (0.46)***
	HH		0.004 (0.01)	0.01 (0.01)	0.02 (0.01)*
Social	FEM			-0.38 (0.10)***	0.05 (0.19)
	HISP			-0.01 (0.03)	-0.01 (0.03)
	WHI			0.01 (0.01)	0.07 (0.03)*
Supply	POP3R				-0.12 (0.09)
	UNEMP3R				-0.91 (0.32)***
Adjusted R^2		0.92	0.93	0.94	0.92

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 38. Model Elaboration by Addition of Partials; Based on Model 4 (RR) from Table 8: Lag = 0 and DV = MAN

Partials	IVs	Sub-Model 4-1	Sub-Model 4-2	Sub-Model 4-3	Sub-Model 4-4
	Intercept	3.55 (0.64)***	9.26 (0.12)***	1.45 (0.01)***	23.95 (0.32)***
AgeDis	AA	0.06 (0.01)***	0.02 (0.001)***	-0.03 (0.002)***	-0.05 (0.001)***
	AGE1	0.08 (0.02)***	0.03 (0.002)***	-0.16 (0.003)***	-0.12 (0.001)***
	AGE2	-0.03 (0.01)***	-0.03 (0.001)***	-0.07 (0.001)***	-0.04 (0.001)***
Value	AHP		-0.31 (0.03)***	1.32 (0.05)***	0.82 (0.02)***
	APC		0.30 (0.03)***	0.22 (0.05)***	0.18 (0.01)***
	HH		-0.04 (0.001)***	-0.10 (0.001)***	-0.08 (0.0003)***
Social	FEM			-0.23 (0.007)***	-0.21 (0.01)***
	HISP			-0.02 (0.003)***	-0.01 (0.001)***
	WHI			0.02 (0.002)***	0.04 (0.001)***
Supply	POP3R				-0.03 (0.002)***
	UNEMP3R				-0.01 (0.01)*
Adjusted R^2		0.92	0.95	0.97	0.96

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 39. Model Elaboration by Addition of Partials; Based on Model 1 (GLM-Robust) from Table 9: Lag = 0 and DV = DIST

Partials	IVs	Sub-Model 1-1	Sub-Model 1-2	Sub-Model 1-3	Sub-Model 1-4
	Intercept	-1.26 (0.68)	-0.15 (1.89)	-6.15 (4.12)	-15.89 (7.76)
AgeDis	AA	0.09 (0.01)	0.08 (0.01)	0.04 (0.01)	0.03 (0.01)
	AGE1	0.04 (0.02)	0.04 (0.03)	0.04 (0.01)	0.03 (0.02)
	AGE2	-0.0004 (0.01)	-0.002 (0.01)	0.01 (0.01)	0.01 (0.01)
Value	AHP		-1.14 (0.50)	-0.26 (0.31)	-0.82 (0.36)
	APC		1.48 (0.53)	0.50 (0.29)	0.79 (0.36)
	HH		-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Social	FEM			-0.04 (0.07)	0.14 (0.12)
	HISP			0.04 (0.02)	0.04 (0.02)
	WHI			0.08 (0.01)	0.10 (0.02)
Supply	POP3R				-0.08 (0.05)
	UNEMP3R				-0.40 (0.23)
Adjusted R^2		0.81	0.81	0.88	0.90

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 40. Model Elaboration by Addition of Partials; Based on Model 1 (GLM-Robust) from Table 10: Lag = 0 and DV = SERV

Partials	IVs	Sub-Model 1-1	Sub-Model 1-2	Sub-Model 1-3	Sub-Model 1-4
	Intercept	0.71 (3.01)	19.86 (7.71)**	-38.27 (19.59)*	82.76 (39.66)**
AgeDis	AA	0.23 (0.05)***	0.19 (0.05)***	0.16 (0.11)	0.24 (0.10)**
	AGE1	0.15 (0.13)	0.08 (0.17)	0.04 (0.14)	0.17 (0.14)
	AGE2	0.19 (0.04)***	0.18 (0.05)***	0.33 (0.10)***	0.39 (0.08)***
Value	AHP		-6.45 (4.80)	-3.00 (2.90)	2.50 (3.09)
	APC		-1.10 (2.72)	-5.57 (2.80)**	-8.32 (2.37)***
	HH		-0.10 (0.04)**	-0.12 (0.04)***	-0.15 (0.04)***
Social	FEM			0.22 (0.36)	-2.01 (0.70)***
	HISP			0.47 (0.18)***	0.47 (0.14)***
	WHI			0.44 (0.09)***	0.16 (0.13)
Supply	POP3R				0.69 (0.35)**
	UNEMP3R				4.69 (1.28)***
Adjusted R^2		0.94	0.95	0.97	0.96

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 41. Model Elaboration by Addition of Partials; Based on Model 1 (GLM-Robust) from Table 11: Lag = 0 and DV = ALL

Partials	IVs	Sub-Model 1-1	Sub-Model 1-2	Sub-Model 1-3	Sub-Model 1-4
	Intercept	7.56 (3.07)**	31.17 (7.75)***	-12.81 (16.20)	57.24 (37.67)
AgeDis	AA	0.44 (0.07)***	0.39 (0.05)***	0.22 (0.09)**	0.27 (0.09)***
	AGE1	0.34 (0.13)**	0.28 (0.21)	0.26 (0.11)**	0.35 (0.12)***
	AGE2	0.12 (0.05)**	0.10 (0.06)*	0.31 (0.09)***	0.34 (0.08)***
Value	AHP		-10.26 (5.85)*	-3.56 (2.55)	-1.19 (3.19)
	APC		2.04 (3.39)	-5.33 (2.50)**	-6.43 (2.40)***
	HH		-0.14 (0.04)***	-0.14 (0.04)***	-0.16 (0.04)***
Social	FEM			-0.41 (0.25)	-1.65 (0.65)**
	HISP			0.53 (0.16)***	0.52 (0.15)***
	WHI			0.62 (0.08)***	0.43 (0.13)***
Supply	POP3R				0.20 (0.42)
	UNEMP3R				2.54 (1.27)**
Adjusted R^2		0.96	0.95	0.97	0.96

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 42. Model Elaboration by Addition of Partials; Based on Model 4 (RR) from Table 12: Lag = 1 and DV = RET

Partials	IVs	Sub-Model 4-1	Sub-Model 4-2	Sub-Model 4-3	Sub-Model 4-4
	Intercept	5.31 (1.14)***	3.02 (1.70)*	16.82 (1.14)***	-3.04 (0.18)***
<u>AgeDis</u>	AA	0.10 (0.01)***	0.07 (0.01)***	-0.03 (0.005)***	0.008 (0.001)***
	AGE1	0.06 (0.03)*	0.13 (0.03)***	0.07 (0.005)***	0.17 (0.001)***
	AGE2	-0.09 (0.01) ***	-0.05 (0.01)***	-0.14 (0.004)***	-0.04 (0.001)***
<u>Value</u>	AHP		-2.74 (0.49)***	-2.07 (0.09)***	-2.81 (0.01)***
	APC		3.38 (0.48)***	1.75 (0.09)***	2.05 (0.01)***
	HH		-0.007 (0.01)	0.02 (0.002)***	-0.005 (0.0002)***
<u>Social</u>	FEM			-0.07 (0.01)***	0.14 (0.003)***
	HISP			-0.16 (0.01)***	-0.007 (0.001)***
	WHI			-0.01 (0.004)**	0.03 (0.001)***
<u>Supply</u>	POP3R				-0.58 (0.002)***
	UNEMP3R				-0.43 (0.01)***
Adjusted R^2		0.92	0.93	0.94	0.96

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 43. Model Elaboration by Addition of Partials; Based on Model 4 (RR) from Table 13: Lag = 1 and DV = MAN

Partials	IVs	Sub-Model 4-1	Sub-Model 4-2	Sub-Model 4-3	Sub-Model 4-4
	Intercept	3.22 (0.63)***	8.75 (0.14)***	1.74 (4.87)	-9.18 (1.71)***
AgeDis	AA	0.07 (0.01)***	0.02 (0.0009)***	0.01 (0.02)	0.08 (0.004)***
	AGE1	0.09 (0.02)***	0.03 (0.002)***	0.04 (0.02)*	0.27 (0.01)***
	AGE2	-0.02 (0.01)**	-0.03 (0.001)***	0.07 (0.01)***	0.14 (0.004)***
Value	AHP		-0.29 (0.04)***	0.95 (0.40)**	-1.43 (0.10)***
	APC		0.31 (0.04)***	-1.81 (0.40)***	-1.55 (0.09)***
	HH		-0.04 (0.0007)***	-0.04 (0.008)***	0.009 (0.001)***
Social	FEM			-0.21 (0.07)	-0.17 (0.02)***
	HISP			0.17 (0.03)***	0.22 (0.01)***
	WHI			0.14 (0.19)***	0.10 (0.005)***
Supply	POP3R				-0.60 (0.01)***
	UNEMP3R				0.11 (0.05)*
Adjusted R^2		0.96	0.95	0.97	0.96

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 44. Model Elaboration by Addition of Partials; Based on Model 4 (RR) from Table 14: Lag = 1 and DV = DIST

Partials	IVs	Sub-Model 4-1	Sub-Model 4-2	Sub-Model 4-3	Sub-Model 4-4
	Intercept	-1.08 (0.46)**	2.25 (1.39)	-5.11 (0.62)***	-51.56 (5.61)***
AgeDis	AA	0.11 (0.01)***	0.11 (0.01)***	0.001 (0.002)	0.006 (0.01)
	AGE1	0.05 (0.01)***	-0.02 (0.02)	0.01 (0.003)***	0.14 (0.01)***
	AGE2	-0.02 (0.01)**	-0.04 (0.01)***	-0.03 (0.002)***	-0.01 (0.01)
Value	AHP		0.59 (0.40)	-0.54 (0.05)***	-2.10 (0.30)***
	APC		0.36 (0.39)	0.63 (0.05)***	0.84 (0.26)**
	HH		-0.02 (0.01)***	0.001 (0.001)	0.05 (0.01)***
Social	FEM			0.04 (0.01)***	0.64 (0.08)***
	HISP			-0.043 (0.004)***	0.005 (0.01)
	WHI			0.07 (0.002)***	0.19 (0.01)***
Supply	POP3R				-0.21 (0.03)***
	UNEMP3R				-0.79 (0.15)***
Adjusted R^2		0.75	0.79	0.91	0.89

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 45. Model Elaboration by Addition of Partials; Based on Model 1 (GLM-Robust) from Table 15: Lag = 1 and DV = SERV

Partials	IVs	Sub-Model 1-1	Sub-Model 1-2	Sub-Model 1-3	Sub-Model 1-4
	Intercept	0.04 (3.36)	25.01 (10.04)**	-34.30 (24.42)	41.43 (32.62)
AgeDis	AA	0.18 (0.06)***	0.12 (0.04)**	0.46 (0.08)***	0.46 (0.07)***
	AGE1	0.16 (0.14)	0.004 (0.18)	0.17 (0.11)	0.23 (0.13)*
	AGE2	0.21 (0.05)***	0.18 (0.05)***	0.68 (0.08)***	0.67 (0.07)***
Value	AHP		-5.75 (4.54)	-2.23 (2.13)	1.63 (2.20)
	APC		-2.64 (3.32)	-8.15 (2.09)***	-9.82 (1.58)***
	HH		-0.13 (0.04)***	-0.19 (0.03)***	-0.20 (0.02)***
Social	FEM			-0.41 (0.37)	-1.80 (0.59)***
	HISP			1.01 (0.14)***	0.94 (0.13)***
	WHI			0.40 (0.08)***	0.24 (0.10)**
Supply	POP3R				0.55 (0.23)**
	UNEMP3R				3.15 (1.14)***
Adjusted R^2		0.94	0.95	0.97	0.96

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 46. Model Elaboration by Addition of Partials; Based on Model 4 (RR) from Table 16: Lag = 1 and DV = ALL

Partials	IVs	Sub-Model 4-1	Sub-Model 4-2	Sub-Model 4-3	Sub-Model 4-4
	Intercept	9.31 (1.53)***	17.60 (15.15)	-31.37 (49.15)	-22.16 (1.27)***
AgeDis	AA	0.25 (0.02)***	0.41 (0.09)***	0.49 (0.22)*	0.25 (0.004)***
	AGE1	0.34 (0.05)***	1.05 (0.29)***	0.41 (0.25)	0.17 (0.01)***
	AGE2	0.18 (0.02)***	0.26 (0.11)**	0.64 (0.19)***	0.48 (0.003)***
Value	AHP		-29.36 (4.43)***	-3.18 (4.09)	-5.59 (0.07)***
	APC		8.50 (4.30)*	-7.48 (4.04)*	-13.92 (0.10)***
	HH		-0.09 (0.08)	-0.18 (0.08)*	-0.20 (0.001)***
Social	FEM			-0.64 (0.70)	-0.08 (0.02)***
	HISP			1.06 (0.33)**	0.78 (0.01)***
	WHI			0.67 (0.19)***	0.62 (0.004)***
Supply	POP3R				-0.55 (0.01)***
	UNEMP3R				-3.02 (0.06)***
Adjusted R^2		0.96	0.95	0.97	0.96

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 47. Model Elaboration by Addition of Partials; Based on Model 1 (GLM-Robust) from Table 17: Lag = 2 and DV = RET

Partials	IVs	Sub-Model 1-1	Sub-Model 1-2	Sub-Model 1-3	Sub-Model 1-4
	Intercept	4.59 (1.09)***	-0.77 (3.66)	4.61 (9.00)	-26.99 (9.92)***
AgeDis	AA	0.08 (0.02)***	0.08 (0.02)***	-0.03 (0.02)*	-0.01 (0.02)
	AGE1	0.07 (0.03)**	0.19 (0.05)***	0.16 (0.04)***	0.21 (0.05)***
	AGE2	-0.07 (0.01)***	-0.04 (0.01)**	-0.11 (0.02)***	-0.08 (0.01)***
Value	AHP		-2.32 (0.57)***	-1.47 (0.46)***	-3.06 (0.62)***
	APC		1.90 (0.87)**	0.55 (0.53)	1.26 (0.40)***
	HH		0.02 (0.02)	0.05 (0.01)***	0.07 (0.01)***
Social	FEM			-0.09 (0.12)	0.39 (0.15)***
	HISP			-0.11 (0.03)***	-0.06 (0.02)**
	WHI			0.08 (0.03)**	0.13 (0.03)***
Supply	POP3R				-0.20 (0.09)**
	UNEMP3R				-1.08 (0.27)***
Adjusted R^2		0.92	0.93	0.94	0.96

Notes:

1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 48. Model Elaboration by Addition of Partials; Based on Model 1 (GLM-Robust) from Table 18: Lag = 2 and DV = MAN

Partials	IVs	Sub-Model 1-1	Sub-Model 1-2	Sub-Model 1-3	Sub-Model 1-4
	Intercept	1.79 (1.02)*	16.07 (4.22)***	11.43 (11.97)	16.80 (19.76)
AgeDis	AA	0.04 (0.02)*	0.001 (0.02)	-0.02 (0.03)	0.003 (0.03)
	AGE1	0.07 (0.04)*	-0.14 (0.07)*	-0.11 (0.06)*	-0.01 (0.06)
	AGE2	0.004 (0.01)	-0.04 (0.01)**	0.001 (0.03)	0.02 (0.03)
Value	AHP		-0.08 (0.88)	1.31 (0.49)***	0.32 (1.03)
	APC		0.55 (0.87)	-1.85 (0.79)**	-1.44 (0.82)*
	HH		-0.09 (0.02)***	-0.07 (0.02)**	-0.06 (0.02)**
Social	FEM			-0.21 (0.16)	-0.33 (0.29)
	HISP			0.10 (0.05)*	0.09 (0.04)**
	WHI			0.13 (0.05)***	0.09 (0.06)
Supply	POP3R				-0.29 (0.16)*
	UNEMP3R				0.54 (0.51)
Adjusted R^2		0.96	0.97	0.97	0.96

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 49. Model Elaboration by Addition of Partials; Based on Model 1 (GLM-Robust) from Table 19: Lag = 2 and DV = DIST

Partials	IVs	Sub-Model 1-1	Sub-Model 1-2	Sub-Model 1-3	Sub-Model 1-4
	Intercept	-1.33 (0.64)**	-1.31 (1.94)	-20.26 (5.74)***	-37.13 (7.07)***
AgeDis	AA	0.08 (0.01)***	0.07 (0.01)***	-0.003 (0.01)	0.01 (0.01)**
	AGE1	0.05 (0.01)***	0.05 (0.03)	0.06 (0.01)***	0.13 (0.01)***
	AGE2	-0.01 (0.01)	-0.003 (0.01)	-0.04 (0.01)***	-0.01 (0.01)**
Value	AHP		-0.88 (0.44)**	-0.63 (0.19)***	-1.88 (0.23)***
	APC		2.00 (0.48)***	0.35 (0.34)	0.90 (0.19)***
	HH		-0.01 (0.01)	0.02 (0.01)***	0.04 (0.01)***
Social	FEM			0.19 (0.06)***	0.44 (0.10)***
	HISP			-0.02 (0.02)	0.001 (0.01)
	WHI			0.14 (0.02)***	0.15 (0.02)***
Supply	POP3R				-0.21 (0.03)***
	UNEMP3R				-0.46 (0.17)***
Adjusted R^2		0.66	0.74	0.91	0.92

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 50. Model Elaboration by Addition of Partials; Based on Model 4 (RR) from Table 20: Lag = 2 and DV = SERV

Partials	IVs	Sub-Model 4-1	Sub-Model 4-2	Sub-Model 4-3	Sub-Model 4-4
	Intercept	-0.85 (2.78)	-0.39 (3.60)	-57.43 (97.10)	-262.99 (29.68)***
AgeDis	AA	0.13 (0.05)**	0.06 (0.02)**	0.51 (0.32)	0.67 (0.11)***
	AGE1	0.25 (0.09)**	0.13 (0.06)*	0.31 (0.46)	-0.66 (0.06)***
	AGE2	0.23 (0.04)***	0.23 (0.02)***	0.73 (0.30)**	0.67 (0.04)***
Value	AHP		6.13 (0.76)***	-2.65 (5.65)	-13.86 (1.02)***
	APC		-0.40 (0.81)	-8.67 (6.98)	-21.84 (1.19)***
	HH		-0.02 (0.02)	-0.14 (0.18)	-0.29 (0.02)***
Social	FEM			-0.22 (1.27)	5.65 (0.50)***
	HISP			1.07 (0.46)*	1.26 (0.11)***
	WHI			0.45 (0.41)	0.39 (0.05)***
Supply	POP3R				-1.41 (0.15)***
	UNEMP3R				-19.59 (1.38)***
Adjusted R^2		0.96	0.95	0.97	0.96

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 51. Model Elaboration by Addition of Partials; Based on Model 4 (RR) from Table 21: Lag = 2 and DV = ALL

Partials	IVs	Sub-Model 4-1	Sub-Model 4-2	Sub-Model 4-3	Sub-Model 4-4
	Intercept	5.25 (7.88)	33.37 (2.40)***	-62.19 (78.26)	-181.19 (6.09)***
AgeDis	AA	0.25 (0.15)	0.11 (0.01)***	0.44 (0.26)	0.44 (0.02)***
	AGE1	0.53 (0.25)*	-0.07 (0.04)	0.44 (0.37)	-0.09 (0.01)***
	AGE2	0.17 (0.13)	0.07 (0.01)***	0.57 (0.24)*	0.51 (0.01)***
Value	AHP		5.10 (0.51)***	-3.72 (4.56)	-14.21 (0.21)***
	APC		3.88 (0.54)***	-9.62 (5.63)	-16.18 (0.24)***
	HH		-0.22 (0.01)***	-0.13 (0.14)	-0.21 (0.004)***
Social	FEM			-0.33 (1.03)	3.32 (0.10)***
	HISP			1.02 (0.37)**	1.02 (0.02)***
	WHI			0.82 (0.33)**	0.74 (0.01)***
Supply	POP3R				-1.39 (0.03)***
	UNEMP3R				-12.04 (0.28)***
Adjusted R^2		0.96	0.95	0.97	0.96

Notes:
1) The regression coefficient values for city and year dummies are not reported in the table
2) Standard errors are given in parentheses
3) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Model Elaboration by Inclusion and Exclusion of City and Year Control Variables

The last set of elaborations involves using the original best predictor models discussed in the previous sections. Several models are estimated to gauge the distinctive contributions of city and year control variables' influences. Four models are presented in Tables 52 through 66. Sub-model 1 includes all variables including city and year dummies. Sub-model 2 is similar to sub-model 1, except for the removal of the cities' controls (dummy variables). Sub-model 3 is also similar to sub-model 1, except for omitting the year controls (dummy variables). Sub-model 4 excludes both the city and year controls (dummy variables). Interpretation of the tables shown below and other findings are the topic of the next chapter.

Table 52. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 0 and DV = RET

IVs Based on Table 7, Model 1: GLM-Robust	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included; city dummies excluded)	Sub-Model 1-3 (city dummies included; year dummies excluded)	Sub-Model 1-4 (both city and year dummies excluded)
Intercept	-4.22 (11.30)	27.91 (7.95)***	-4.53 (2.12)**	4.78 (3.59)
<u>AgeDis</u>				
AA	0.01 (0.02)	0.03 (0.04)	-0.01 (0.01)	-0.08 (0.01)***
AGE1	0.14 (0.03)***	-0.03 (0.02)*	0.12 (0.03)***	-0.06 (0.02)***
AGE2	-0.03 (0.01)**	-0.04 (0.02)	-0.05 (0.01)***	-0.07 (0.02)***
<u>Value</u>				
AHP	-2.12 (0.73)***	0.99 (1.12)	-2.02 (0.48)***	-0.55 (0.73)
APC	1.50 (0.46)***	0.14 (0.97)	0.67 (0.26)**	0.32 (0.49)
HH	0.02 (0.01)*	-0.03 (0.01)***	0.01 (0.01)**	-0.04 (0.01)***
<u>Social</u>				
FEM	0.05 (0.19)	-0.48 (0.13)***	0.13 (0.04)***	-0.001 (0.06)
HISP	-0.01 (0.03)	0.05 (0.05)	-0.03 (0.01)**	0.002 (0.03)
WHI	0.07 (0.03)*	0.05 (0.04)	0.05 (0.01)***	0.12 (0.03)***
<u>Supply</u>				
POP3R	-0.12 (0.09)	0.11 (0.11)	-0.31 (0.08)***	-0.03 (0.10)
UNEMP3R	-0.91 (0.32)***	0.001 (0.29)	-0.76 (0.13)***	-0.09 (0.16)
<u>Years</u>				
1999	-0.01 (0.18)	-0.01 (0.27)		
2000	-0.31 (0.10)***	-0.45 (0.13)***		
2001	-0.24 (0.16)	-0.88 (0.19)***		
2002	-0.15 (0.27)	-0.88 (0.24)***		
2003	-0.20 (0.25)	-0.67 (0.27)**		
2004	-0.18 (0.29)	-0.76 (0.35)**		
2005	-0.11 (0.29)	-0.91 (0.37)**		
2006	-0.09 (0.33)	-0.80 (0.46)*		
2007	-0.07 (0.32)	-0.85 (0.46)*		
2008	-0.33 (0.32)	-1.02 (0.45)**		
<u>Cities</u>				
Greeley	-1.84 (0.23)***		-1.88 (0.19)***	
Loveland	0.06 (0.34)		0.10 (0.20)	
Adjusted R^2	0.92	0.85	0.89	0.75
N	33	33	33	33
F-value	74.45***	26.64***	194.49***	60.98***

Notes:
1) Standard errors are given in parentheses
2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 53. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 0 and DV = MAN

IVs Based on Table 8, Model 4: RR	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included; city dummies excluded)	Sub-Model 1-3 (city dummies included; year dummies excluded)	Sub-Model 1-4 (both city and year dummies excluded)
Intercept	23.95 (0.32)***	-34.82 (12.49)***	-1.05 (4.96)	-7.73 (8.31)
AgeDis				
AA	-0.05 (0.001)***	-0.05 (0.07)	-0.05 (0.03)*	0.03 (0.03)
AGE1	-0.12 (0.001)***	-0.20 (0.03) ***	0.05 (0.05)	-0.24 (0.04)***
AGE2	-0.04 (0.001)***	-0.05 (0.04)	-0.05 (0.02)***	-0.11 (0.04)***
Value				
AHP	0.82 (0.02)***	1.43 (1.45)	-0.77 (0.67)	1.34 (1.22)
APC	0.18 (0.01)***	-0.77 (1.45)	0.57 (0.50)	-1.13 (0.93)
HH	-0.08 (0.0003)***	-0.07 (0.02)***	-0.002 (0.01)	-0.05 (0.02)***
Social				
FEM	-0.21 (0.01)***	0.62 (0.20)***	0.21 (0.08)**	0.27 (0.15)**
HISP	-0.01 (0.001)***	0.11 (0.07)	-0.09 (0.03)**	0.04 (0.07)
WHI	0.04 (0.001)***	0.25 (0.06)***	0.02 (0.03)	0.12 (0.05)**
Supply				
POP3R	-0.03 (0.002)***	0.25 (0.20)	-0.33 (0.10)***	0.20 (0.16)
UNEMP3R	-0.01 (0.01)*	-1.38 (0.45)***	-0.63 (0.22)***	0.25 (0.38)
Years				
1999	-0.003 (0.005)	-0.58 (0.45)		
2000	-0.20 (0.003)***	-0.43 (0.25)*		
2001	-0.45 (0.005)***	-0.20 (0.30)		
2002	-0.52 (0.01)***	0.52 (0.37)*		
2003	-0.45 (0.01)***	0.18 (0.42)		
2004	-0.31 (0.01)***	0.59 (0.51)		
2005	-0.60 (0.01)***	0.46 (0.56)		
2006	-0.72 (0.01)***	0.34 (0.71)		
2007	-0.81 (0.01)***	0.17 (0.73)		
2008	-0.88 (0.01)***	0.02 (0.71)		
Cities				
Greeley	0.58 (0.01)***		-1.57 (-.38)***	
Loveland	1.64 (0.01)***		1.62 (0.29)***	
Adjusted R^2	0.96	0.94	0.98	0.95
N	33	33	33	33
F-value	257.22***	157.50***	332.60***	104.28***

Notes:
1) Standard errors are given in parentheses
2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 54. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 0 and DV = DIST

IVs Based on Table 9, Model 1	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	-15.89 (7.76)**	-14.41	-9.37 (2.01)***	-10.47 (2.07)***
<u>AgeDis</u>				
AA	0.03 (0.01)***	0.02 (0.01)**	0.01 (0.01)*	0.02 (0.006)***
AGE1	0.03 (0.02)**	0.12 (0.009)***	0.05 (0.02)**	0.10 (0.01)***
AGE2	0.01 (0.01)	0.01 (0.01)	-0.001 (0.009)	0.006 (0.008)
<u>Value</u>				
AHP	-0.82 (0.36)**	-1.56 (0.36)***	-0.80 (0.32)***	-1.20 (0.24)***
APC	0.79 (0.36)**	1.14 (0.45)***	-0.07 (0.25)	0.09 (0.30)
HH	-0.007 (0.12)	0.01 (0.006)**	-0.0007 (0.007)	0.01 (0.004)***
<u>Social</u>				
FEM	0.14 (0.02)**	0.11 (0.06)**	0.08 (0.03)***	0.10 (0.03)***
HISP	0.04 (0.02)**	0.01 (0.02)	0.005 (0.015)	-0.008 (-0.01)
WHI	0.10 (0.02)***	0.07 (0.01)***	0.07 (0.01)***	0.06 (0.01)***
<u>Supply</u>				
POP3R	-0.08 (0.05)*	-0.14 (0.05)***	-0.14 (0.05)***	-0.22 (0.03)***
UNEMP3R	-0.40 (0.23)*	-0.32 (0.14)**	-0.07 (0.10)	-0.23 (0.08)***
<u>Years</u>				
1999	0.09 (0.09)***	0.09 (0.09)		
2000	-0.29 (0.06)***	-0.24 (0.09)***		
2001	-0.10 (0.11)	-0.03 (0.09)		
2002	0.01 (0.18)	-0.01 (0.11)		
2003	-0.04 (0.15)	-0.13 (0.12)		
2004	-0.005 (0.18)	-0.06 (0.15)		
2005	-0.02 (0.20)	-0.01 (0.17)		
2006	-0.11 (0.22)	-0.10 (0.22)		
2007	-0.13 (0.22)	-0.05 (0.23)		
2008	-0.20 (0.22)	-0.15 (0.22)		
<u>Cities</u>				
Greeley	0.47 (0.20)**		0.42 (0.15)***	
Loveland	-0.43 (0.19)**		-0.15 (0.13)	
Adjusted R^2	0.89	0.85	0.89	0.89
N	33	33	33	33
F-value	25.22***	20.95***	26.69***	27.14***

Notes:
1) Standard errors are given in parentheses
2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 55. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 0 and DV = SERV

IVs Based on Table 10, Model 1	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	82.76 (39.66)**	179.67 (23.90)***	17.26 (0.06)	66.67 (15.33)***
<u>AgeDis</u>				
AA	0.24 (0.10)**	0.21 (0.12)*	-0.13 (0.06)	-0.51 (0.06)***
AGE1	0.17 (0.14)	0.41 (0.05)***	0.06 (0.13)	0.26 (0.07)***
AGE2	0.39 (0.08)***	0.45 (0.07)***	0.16 (0.04)***	0.27 (0.07)***
<u>Value</u>				
AHP	2.50 (3.09)**	4.44 (2.78)	-1.73 (2.11)	-2.21 (2.81)
APC	-8.32 (2.37)***	-9.04 (2.18)***	-1.77 (1.02)**	1.12 (1.52)
HH	-0.15 (0.04)***	-0.15 (0.03)***	-0.07 (0.04)**	-0.15 (0.04)***
<u>Social</u>				
FEM	-2.01 (0.70)***	-3.70 (0.35)***	-0.46 (0.27)*	-1.28 (0.22)***
HISP	0.47 (0.14)***	0.33 (0.13)***	0.06 (0.08)	-0.13 (0.14)
WHI	0.16 (0.13)	-0.10 (0.13)	0.24 (0.09)**	0.27 (0.12)**
<u>Supply</u>				
POP3R	0.69 (0.35)**	0.84 (0.32)***	0.15 (0.31)	-0.16 (0.32)
UNEMP3R	4.69 (1.28)***	7.73 (0.80)***	2.13 (0.47)***	2.84 (0.66)***
<u>Years</u>				
1999	-0.15 (0.70)	-0.21 (0.76)		
2000	-0.27 (0.45)	-0.23 (0.39)		
2001	-2.15 (0.69)***	-3.28 (0.55)***		
2002	-2.34 (0.93)**	-4.51 (0.68)***		
2003	-2.97 (0.95)***	-4.94 (0.77)***		
2004	-2.51 (1.11)**	04.56 (1.01)***		
2005	-3.47 (1.19)***	-5.35 (1.08)***		
2006	-4.06 (1.36)***	-5.78 (1.37)***		
2007	-3.45 (1.34)**	-4.84 (1.38)***		
2008	-3.67 (1.31)***	-5.04 (1.38)***		
<u>Cities</u>				
Greeley	-0.88 (0.93)		-2.48 (0.91)***	
Loveland	-3.45 (1.23)***		-4.59 (0.79)***	
Adjusted R^2	0.96	0.97	0.96	0.93
N	33	33	33	33
F-value	122.75***	136.55***	217.19***	114.01***

Notes:
1) Standard errors are given in parentheses
2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 56. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 0 and DV = ALL

IVs Based on Table 11, Model 1	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	57.24 (37.67)	179.44 (20.00)***	1.84 (10.94)	53.25 (15.89)***
<u>AgeDis</u>				
AA	0.27 (0.09)***	0.29 (0.10)***	-0.05 (0.07)	-0.52 (0.06)***
AGE1	0.35 (0.12)***	0.27 (0.05)***	0.28 (0.16)*	0.06 (0.08)
AGE2	0.34 (0.08)***	0.37 (0.07)***	0.06 (0.06)	0.10 (0.09)
<u>Value</u>				
AHP	-1.19 (3.19)	4.89 (2.63)**	-5.14 (2.36)**	-2.67 (2.98)
APC	-6.43 (2.40)**	-8.99 (2.51)***	-0.83 (1.33)	0.46 (2.01)
HH	-0.16 (0.04)***	-0.24 (0.03)***	-0.06 (0.04)	-0.24 (0.04)***
<u>Social</u>				
FEM	-1.65 (0.65)***	-3.74 (0.35)***	-0.09 (0.27)	-0.92 (0.26)***
HISP	0.52 (0.15)***	0.51 (0.13)*	-0.02 (0.10)	-0.09 (0.16)
WHI	0.43 (0.13)***	0.20 (0.12)*	0.43 (0.11)***	0.59 (0.13)
<u>Supply</u>				
POP3R	0.20 (0.42)	0.67 (0.37)*	-0.52 (0.37)	-0.21 (-0.31)
UNEMP3R	2.54 (1.27)**	6.24 (0.82)***	1.03 (0.61)***	2.81 (0.66)***
<u>Years</u>				
1999	-0.08 (0.77)	-0.13 (0.76)		
2000	-0.90 (0.43)**	-1.08 (0.45)**		
2001	-2.63 (0.70)***	-4.43 (0.57)***		
2002	-2.51 (0.89)***	-5.27 (0.63)***		
2003	-3.12 (0.93)***	-5.33 (0.72)***		
2004	-2.58 (1.09)**	-5.03 (0.91)***		
2005	-3.54 (1.17)***	-6.30 (0.97)***		
2006	-4.50 (1.35)***	-6.88 (1.27)***		
2007	-3.96 (1.34) ***	-6.19 (1.34)***		
2008	-4.56 (1.28)***	-6.64 (1.26)***		
<u>Cities</u>				
Greeley	-3.39 (0.99)**		-5.27 (1.11)***	
Loveland	-2.57 (1.02)**		-2.93 (0.84)***	
Adjusted R^2	0.96	0.97	0.96	0.95
N	33	33	33	33
F-value	404.77***	343.71***	243.83***	128.73***

Notes:

1) Standard errors are given in parentheses

2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 57. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 1 and DV = RET

IVs Based on Table 12, Model 4	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	-3.05 (0.17)***	45.54 (2.55)***	-3.17 (1.01)***	5.18 (6.80)
AgeDis				
AA	0.008 (0.0005)***	-0.03 (0.01)*	0.02 (0.006)***	-0.06 (0.03)*
AGE1	0.17 (0.0007)***	-0.15 (0.008)***	0.06 (0.01)***	-0.04 (0.03)
AGE2	-0.04 (0.0005)***	-0.18 (0.01)***	-0.07 (0.006)***	-0.06 (0.04)
Value				
AHP	-2.81 (0.01)***	1.04 (0.27)***	-1.33 (0.17)***	-0.17 (1.28)
APC	2.05 (0.009)***	0.20 (0.27)	0.44 (0.10)***	0.41 (0.78)
HH	-0.005 (0.002)***	-0.02 (0.004)***	0.01 (0.003)***	-0.04 (0.01)**
Social				
FEM	0.14 (0.002)***	-0.42 (0.04)***	0.11 (0.02)***	-0.05 (0.14)
HISP	-0.007 (0.0008)***	-0.17 (0.02)***	-0.01 (0.009)**	0.01 (0.07)
WHI	-0.03 (0.0006)***	-0.06 (0.01)***	0.05 (0.006)***	0.13 (0.04)**
Supply				
POP3R	-0.58 (0.002)***	-0.27 (0.04)***	-0.18 (0.02)***	-0.02 (0.15)
UNEMP3R	-0.43 (0.005)***	0.53 (0.09)***	-0.49 (0.04)***	0.02 (0.31)
Years				
1999				
2000	-0.63 (0.004)***	0.21 (0.10)**		
2001	-0.38 (0.004)***	-0.22 (0.10)**		
2002	-0.60 (0.006)***	-0.52 (0.13)***		
2003	-0.91 (0.008)***	-0.07 (0.14)		
2004	-0.73 (0.008)***	-0.20 (0.17)		
2005	-0.78 (0.008)***	-0.21 (0.18)		
2006	-0.98 (0.01)***	0.30 (0.23)		
2007	-1.03 (0.01)***	0.24 (0.23)		
2008	-1.07 (0.04)***	0.20 (0.23)		
Cities				
Greeley	0.43 (0.005)***		-1.64 (0.07)***	
Loveland	-3.05 (0.17)***		-0.29 (0.05)***	
Adjusted R^2	0.96	0.89	0.94	0.89
N	33	33	33	33
F-value	234.68***	55.78***	287.68***	53.07***

Notes:

1) Standard errors are given in parentheses

2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 58. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 1 and DV = MAN

IVs Based on Table 13, Model 4	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	-9.18 (1.71)***	-39.51 (1.19)***	-10.50 (2.91)***	-15.89 (9.15)*
AgeDis				
AA	0.08 (0.004)***	0.007 (0.007)	-0.007 (0.01)	0.05 (0.04)
AGE1	0.27 (0.006)***	-0.18 (0.004)***	0.08 (0.02)**	-0.19 (0.05)
AGE2	0.14 (0.004)***	0.001 (0.006)	-0.01 (0.01)	-0.10 (0.05)*
Value				
AHP	-1.43 (0.10)***	-1.44 (0.12)***	0.004 (0.50)	1.01 (1.72)
APC	-1.55 (0.09)***	1.08 (0.13)***	0.10 (0.29)	-1.36 (1.05)
HH	0.009 (0.001)***	-0.08 (0.002)***	0.008 (0.009)	-0.04 (0.02)*
Social				
FEM	-0.17 (0.02)***	0.70 (0.01)***	0.12 (0.06)*	0.28 (0.19)
HISP	0.22 (0.007)***	0.19 (0.009)***	0.02 (0.02)	0.08 (0.09)
WHI	0.10 (0.005)***	0.23 (0.006)***	0.09 (0.06)**	0.17 (0.06)**
Supply				
POP3R	-0.60 (0.01)***	-0.57 (0.01)***	-0.14 (0.06)**	0.08 (0.21)
UNEMP3R	0.11 (0.05)*	-0.96 (0.04)***	-0.19 (0.13)	0.63 (0.42)
Years				
1999				
2000	-0.06 (0.03)*	-0.62 (0.05)***		
2001	-0.40 (0.03)***	-0.09 (0.04)*		
2002	-0.79 (0.05)***	-0.33 (0.06)***		
2003	-0.97 (0.05)***	0.11 (0.06)		
2004	-0.94 (0.05)***	-0.27 (0.08)***		
2005	-1.001 (0.06)***	-0.13 (0.08)		
2006	-1.84 (0.07)***	-1.08 (0.10)***		
2007	-1.67 (0.07)***	-1.40 (0.11)***		
2008	-1.71 (0.07)***	-1.13 (0.10)***		
Cities				
Greeley	-1.93 (0.03)***		-1.56 (0.21)***	
Loveland	2.31 (0.05)***		1.47 (0.16)***	
Adjusted R^2	0.96	0.97	0.98	0.95
N	33	33	33	33
F-value	344.34***	106.74***	373.02***	89.49***

Notes:
1) Standard errors are given in parentheses
2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 59. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 1 and DV = DIST

IVs Based on Table 14, Model 4	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	-51.56 (5.61)***	-10.91 (0.87)***	-10.15 (3.13)***	-11.63 (3.01)***
<u>AgeDis</u>				
AA	0.01 (0.01)	0.02 (0.005)***	0.02 (0.01)	0.03 (0.01)**
AGE1	0.14 (0.01)***	0.12 (0.002)***	0.05 (0.03)	0.11 (0.01)***
AGE2	-0.01 (0.01)	-0.01 (0.004)	-0.001 (0.01)	0.01 (0.01)
<u>Value</u>				
AHP	-2.10 (0.30)***	-1.09 (0.09)***	-0.56 (0.54)	-1.04 (0.57)*
APC	0.84 (0.26)**	1.24 (0.09)***	-0.14 (0.32)	0.08 (0.34)
HH	0.05 (0.01)***	0.02 (0.001)***	-0.001 (0.01)	0.01 (0.01)*
<u>Social</u>				
FEM	0.64 (0.08)***	0.05 (0.01)***	0.06 (0.07)	0.07 (0.06)
HISP	0.01 (0.01)	-0.01 (0.01)**	0.02 (0.02)	0.004 (0.03)
WHI	0.19 (0.01)***	0.07 (0.004)***	0.09 (0.02)***	0.07 (0.02)***
<u>Supply</u>				
POP3R	-0.21 (0.03)***	-0.18 (0.01)***	-0.13 (0.07)*	-0.23 (0.07)***
UNEMP3R	-0.79 (0.15)***	-0.12 (0.03)***	0.05 (0.14)	-0.13 (0.13)
<u>Years</u>				
1999				
2000	0.16 (0.13)	-0.33 (0.03)***		
2001	0.72 (0.13)***	-0.18 (0.03)***		
2002	1.02 (0.16)***	-0.23 (0.04)***		
2003	0.83 (0.16)***	-0.17 (0.05)***		
2004	1.07 (0.19)***	-0.11 (0.05)*		
2005	1.16 (0.20)***	-0.05 (0.06)		
2006	1.26 (0.23)***	-0.003 (0.07)		
2007	1.33 (0.24)***	0.02 (0.08)		
2008	1.25 (0.23)***	-0.02 (0.07)		
<u>Cities</u>				
Greeley	-0.75 (0.18)***		0.49 (0.22)	
Loveland	-0.75 (0.12)***		-0.20 (0.18)	
Adjusted R^2	0.90	0.89	0.89	0.86
N	33	33	33	33
F-value	139.11***	62.53***	41.14***	16.76***

Notes:
1) Standard errors are given in parentheses
2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 60. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 1 and DV = SERV

IVs Based on Table 15, Model 1	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	41.43 (32.62)	167.11 (24.78)***	16.95 (12.16)	61.54 (15.70)***
AgeDis				
AA	0.46 (0.07)***	0.40 (0.11)***	-0.005 (0.07)	-0.41 (0.07)***
AGE1	0.23 (0.13)*	0.52 (0.04)***	0.08 (0.13)	0.33 (0.09)***
AGE2	0.67 (0.07)***	0.69 (0.07)***	0.19 (0.07)**	0.41 (0.09)***
Value				
AHP	1.63 (2.20)	4.42 (2.31)*	-0.98 (3.12)	1.57 (3.89)
APC	-9.82 (1.58)***	-10.41 (1.91)***	-2.03 (1.23)	-0.48 (1.70)
HH	-0.20 (0.02)***	-0.19 (0.02)***	-0.06 (0.04)*	-0.11 (0.04)***
Social				
FEM	-1.80 (0.59)***	-3.98 (0.33)***	-0.56 (0.36)	-1.69 (0.34)***
HISP	0.94 (0.13)***	0.70 (0.13)***	0.10 (0.12)	0.07 (0.17)
WHI	0.24 (0.10)**	-0.08 (0.13)	0.26 (0.11)**	0.35 (0.13)***
Supply				
POP3R	0.55 (0.23)**	0.72 (0.28)**	0.21 (0.40)	0.17 (0.44)
UNEMP3R	3.15 (1.14)***	7.56 (0.69)***	2.21 (0.54)***	2.97 (0.79)***
Years				
1999				
2000	6.72 (1.19)***	7.86 (1.63)***		
2001	5.48 (0.80)***	6.89 (1.07)***		
2002	3.77 (0.71)***	3.72 (0.92)***		
2003	3.91 (0.67)***	2.43 (0.75)**		
2004	2.59 (0.53)***	1.47 (0.62)**		
2005	2.91 (0.48)***	1.70 (0.49)***		
2006	1.65 (0.43)***	0.48 (0.48)		
2007	-0.15 (0.23)	-0.71 (0.22)***		
2008	0.24 (0.22)	0.15 (0.28)		
Cities				
Greeley	-1.40 (0.44)***		-2.42 (0.93)*	
Loveland	-4.54 (1.20)***		-4.49 (0.78)***	
Adjusted R^2	0.96	0.97	0.96	0.93
N	33	33	33	33
F-value	199.85***	342.34***	187.92***	103.17***

Notes:
1) Standard errors are given in parentheses
2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 61. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 1 and DV = ALL

IVs Based on Table 16, Model 4	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	-22.16 (1.27)***	168.20 (7.23)***	-12.50 (6.63)*	49.10 (18.16)**
AgeDis				
AA	0.25 (0.004)***	0.52 (0.04)***	0.17 (0.04)***	-0.43 (0.08)***
AGE1	0.17 (0.005)***	0.38 (0.02)***	0.11 (0.06)	0.13 (0.10)
AGE2	0.48 (0.003)***	0.55 (0.03)***	0.07 0.03()*	0.20 (0.11)*
Value				
AHP	-5.59 (0.07)***	5.52 (0.77)***	4.08 (1.15)***	-5.46 (3.43)
APC	-13.92 (0.10)***	-8.76 (0.79)***	-4.12 (0.67)***	2.63 (2.08)
HH	-0.20 (0.001)***	-0.31 (0.01)***	-0.04 (0.02)**	-0.20 (0.04)***
Social				
FEM	-0.08 (0.02)**	-3.91 (0.11)***	0.05 (0.14)	-1.24 (0.39)***
HISP	0.78 (0.05)***	0.92 (0.05)***	0.12 (0.06)*	0.08 (0.19)
WHI	0.62 (0.004)***	0.23 (0.03)***	0.33 (0.04)***	0.66 (0.13)***
Supply				
POP3R	-0.55 (0.01)***	0.36 (0.11)**	-0.05 (0.15)	0.14 (0.42)
UNEMP3R	-3.02 (0.06)***	6.98 (0.26)***	1.67 (0.31)***	2.58 (0.83)***
Years				
1999				
2000	3.94 (0.07)***	-2.14 (0.30)***		
2001	3.65 (0.04)***	-5.68 (0.30)***		
2002	2.50 (0.03)***	-6.46 (0.37)***		
2003	3.82 (0.02)***	-7.06 (0.41)***		
2004	3.03 (0.02)***	-7.08 (0.48)***		
2005	4.09 (0.01)***	-8.48 (0.51)***		
2006	2.48 (0.01)***	-10.24 (0.65)***		
2007	0.37 (0.01)***	-9.18 (0.67)***		
2008	-0.46 (0.01)***	-9.67 (0.65)***		
Cities				
Greeley	-5.04 (0.02)***		-5.42 (0.47)***	
Loveland	-5.18 (0.04)***		-4.58 (0.38)***	
Adjusted R^2	0.96	0.97	0.98	0.96
N	33	33	33	33
F-value	563.51***	264.77***	354.63***	135.10***

Notes:

1) Standard errors are given in parentheses

2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 62. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 2 and DV = RET

IVs Based on Table 17, Model 1	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	-26.99 (9.92)***	-26.25 (7.45)***	-5.61 (5.43)	10.33 (4.11)**
AgeDis				
AA	-0.01 (0.02)	-0.07 (0.03)**	0.03 (0.02)	-0.02 (0.02)
AGE1	0.21 (0.05)***	-0.08 (0.02)***	0.15 (0.04)***	-0.03 (0.02)
AGE2	-0.08 (0.01)***	-0.16 (0.03)***	-0.05 (0.02)**	-0.08 (0.02)***
Value				
AHP	-3.06 (0.62)***	0.44 (0.72)	-1.78 (0.65)***	-0.49 (0.76)
APC	1.26 (0.40)***	0.13 (1.00)	0.91 (0.46)*	1.38 (0.52)***
HH	0.07 (0.01)***	-0.01 (0.01)	0.02 (0.01)*	-0.04 (0.01)***
Social				
FEM	0.39 (0.15)**	-0.27 (0.10)***	0.06 (0.08)	0.12 (0.09)
HISP	-0.06 (0.02)**	-0.13 (0.05)**	-0.00009 (0.02)	0.004 (0.04)
WHI	0.13 (0.03)***	0.07 (0.04)	0.06 (0.01)***	0.10 (0.02)***
Supply				
POP3R	-0.20 (0.09)**	0.20 (0.09)**	-0.32 (0.09)***	-0.01 (0.12)
UNEMP3R	-1.08 (0.27)***	-0.01 (0.35)	-0.57 (0.14)***	0.12 (0.20)
Years				
1999				
2000	-0.80 (0.25)***	-0.49 (0.40)		
2001	-0.54 (0.24)**	-0.91 (0.38)**		
2002	-0.34 (0.22)	-0.85 (0.36)**		
2003	-0.43 (0.18)**	-0.39 (0.31)		
2004	-0.23 (0.15)	-0.32 (0.24)		
2005	-0.03 (0.13)	-0.34 (0.21)		
2006	0.17 (0.06)***	0.21 (0.09)**		
2007	0.27 (0.05)***	0.23 (0.08)***		
2008				
Cities				
Greeley	-2.78 (0.35)***		-2.00 (0.35)***	
Loveland	-0.18 (0.28)		-0.01 (0.21)	
Adjusted R^2	0.97	0.92	0.96	0.92
N	33	33	33	33
F-value	127.58***	68.49***	438.61***	109.38***

Notes:

1) Standard errors are given in parentheses

2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 63. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 2 and DV = MAN

IVs Based on Table 18, Model 1	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	16.80 (19.76)	-30.71 (7.73)***	-3.95 (8.48)	-23.67 (7.09)***
AgeDis				
AA	0.003 (0.03)	0.02 (0.03)	-0.05 (0.02)**	0.05 (0.02)**
AGE1	-0.01 (0.06)	-0.15 (0.02)***	0.02 (0.07)	-0.15 (0.04)***
AGE2	0.02 (0.03)	-0.001 (0.02)	-0.03 (0.03)	-0.10 (0.03)***
Value				
AHP	0.32 (1.03)	-0.12 (1.07)	0.27 (0.86)	0.08 (0.97)
APC	-1.44 (0.82)*	-2.00 (1.43)	-0.08 (0.55)	-1.89 (0.84)**
HH	-0.06 (0.02)**	-0.06 (0.01)***	-0.02 (0.02)	-0.04 (0.01)***
Social				
FEM	-0.33 (0.29)	0.46 (0.13)***	0.03 (0.12)	0.38 (0.09)***
HISP	0.09 (0.04)**	0.19 (0.05)***	0.004 (0.04)	0.08 (0.06)
WHI	0.09 (0.06)	0.24 (0.04)***	0.12 (0.03)***	0.21 (0.04)***
Supply				
POP3R	-0.29 (0.16)*	-0.29 (0.17)*	-0.16 (0.16)	-0.02 (0.12)
UNEMP3R	0.54 (0.51)	-0.97 (0.42)**	0.33 (0.28)	0.79 (0.32)**
Years				
1999				
2000	1.14 (0.46)**	0.49 (0.42)		
2001	0.68 (0.39)*	0.48 (0.43)		
2002	0.45 (0.35)	0.83 (0.40)**		
2003	0.61 (0.32)*	0.92 (0.37)**		
2004	0.57 (0.22)**	0.95 (0.26)***		
2005	0.39 (0.21)*	0.73 (0.25)***		
2006	-0.08 (0.09)	0.10 (0.10)		
2007	-0.09 (0.07)	-0.07(0.08)		
2008				
Cities				
Greeley	0.26 (0.62)		-0.47 (0.66)	
Loveland	1.90 (0.43)***		1.78 (0.20)***	
Adjusted R^2	0.97	0.97	0.98	0.96
N	33	33	33	33
F-value	451.47***	170.17***	519.72***	139.67***

Notes:
1) Standard errors are given in parentheses
2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level
3) yr2 = 1999, yr3 = 2000, yr4 = 2001, yr5 = 2002, yr6 = 2003, yr7 = 2004, yr8 = 2005, yr9 = 2006, yr10 = 2007, yr11 = 2008
4) cty2 = Greeley and cty3 = Loveland

Table 64. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 2 and DV = DIST

IVs Based on Table 19, Model 1	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	-37.13 (7.07)***	-16.73 (2.52)***	-5.81 (3.09)*	-7.30 (1.90)***
<u>AgeDis</u>				
AA	0.01 (0.01)**	0.005 (0.01)	0.04 (0.01)***	0.05 (0.005)***
AGE1	0.13 (0.01)***	0.12 (0.01)***	0.06 (0.01)***	0.12 (0.01)***
AGE2	-0.01 (0.01)**	-0.02 (0.01)**	-0.003 (0.01)	0.01 (0.01)
<u>Value</u>				
AHP	-1.88 (0.23)***	-1.26 (0.17)***	-0.50 (0.20)**	-0.74 (0.24)***
APC	0.90 (0.19)***	0.89 (0.25)***	0.52 (0.31)*	0.59 (0.26)**
HH	0.04 (0.01)***	0.03 (0.004)***	0.001 (0.006)	0.01 (0.002)***
<u>Social</u>				
FEM	0.44 (0.10)***	0.13 (0.03)***	-0.02 (0.03)	-0.01 (0.02)
HISP	0.001 (0.01)	-0.03 (0.01)**	0.01 (0.01)	0.01 (0.01)
WHI	0.15 (0.02)***	0.10 (0.01)***	0.07 (0.01)***	0.05 (0.01)***
<u>Supply</u>				
POP3R	-0.21 (0.03)***	-0.15 (0.03)***	-0.12 (0.03)***	-0.19 (0.03)***
UNEMP3R	-0.46 (0.17)***	0.09 (0.12)	0.10 (0.09)	-0.08 (0.09)
<u>Years</u>				
1999				
2000	-0.76 (0.15)***	-0.54 (0.11)***		
2001	-0.34 (0.09)***	-0.34 (0.10)***		
2002	-0.18 (0.07)**	-0.35 (0.10)***		
2003	-0.31 (0.06)***	-0.39 (0.09)***		
2004	-0.14 (0.04)***	-0.26 (0.07)***		
2005	-0.03 (0.04)	-0.16 (0.06)**		
2006	-0.01 (0.01)	-0.05 (0.02)**		
2007	0.06 (0.01)***	0.05 (0.01)***		
2008				
<u>Cities</u>				
Greeley	-0.46 (0.19)**		0.45 (0.16)***	
Loveland	-0.54 (0.12)***		-0.15 (0.10)	
Adjusted R^2	0.94	0.92	0.91	0.89
N	33	33	33	33
F-value	105.13***	22.02***	40.43***	60.59***

Notes:
1) Standard errors are given in parentheses
2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 65. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 2 and DV = SERV

IVs Based on Table 20, Model 4	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	-262.99 (29.68)***	146.19 (41.10)***	33.96 (22.42)	88.75 (22.89)***
AgeDis				
AA	0.67 (0.11)**	0.37 (0.25)	-0.01 (0.10)	-0.45 (0.09)***
AGE1	-0.66 (0.06)***	0.59 (0.14)***	-0.44 (0.16)**	0.16 (0.11)
AGE2	0.67 (0.04)***	0.66 (0.22)**	0.09 (0.08)	0.34 (0.11)***
Value				
AHP	-13.86 (1.02)***	6.29 (4.39)	7.96 (2.30)***	-6.04 (3.30)*
APC	-21.84 (1.19)***	-13.03 (5.72)*	-3.20 (2.04)	5.89 (2.77)*
HH	-0.29 (0.02)***	-0.17 (0.09)	-0.21 (0.06)***	-0.15 (0.04)***
Social				
FEM	5.65 (0.50)***	-3.78 (0.67)***	-0.08 (0.36)	-1.63 (0.41)***
HISP	1.26 (0.11)***	0.72 (0.34)*	-0.01 (0.12)	-0.06 (0.18)
WHI	0.39 (0.05)***	0.05 (0.26)	0.001 (0.10)	0.17 (0.15)
Supply				
POP3R	-1.41 (0.15)***	0.45 (0.63)	1.00 (0.34)**	0.64 (0.41)
UNEMP3R	-19.59 (1.38)***	7.48 (1.91)***	2.22 (0.73)**	1.72 (0.83)*
Years				
1999				
2000	5.05 (0.55)***	5.61 (2.68)*		
2001	7.25 (0.68)***	2.35 (2.71)		
2002	12.11 (0.92)***	1.29 (2.48)		
2003	10.36 (0.73)***	0.46 (2.09)		
2004	11.41 (0.67)***	0.95 (1.56)		
2005	8.56 (0.57)***	-0.37 (1.38)		
2006	3.58 (0.29)***	-1.37 (0.50)**		
2007	1.87 (0.16)***	-0.43 (0.49)		
2008				
Cities				
Greeley	12.89 (1.10)***		-0.37 (1.43)	
Loveland	-18.48 (1.15)***		-5.64 (0.89)***	
Adjusted R^2	0.97	0.97	0.96	0.95
N	33	33	33	33
F-value	214.99***	348.03***	164.24***	130.07***

Notes:

1) Standard errors are given in parentheses

2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Table 66. Model Elaboration by Inclusion and Exclusion of City and Year Control Variables; Lag = 2 and DV = ALL

IVs Based on Table 21, Model 4	Sub-Model 1-1 (city and year dummies included)	Sub-Model 1-2 (year dummies included)	Sub-Model 1-3 (city dummies included)	Sub-Model 1-4 (city and year dummies excluded)
Intercept	-181.19 (6.09)***	146.49 (4.38)***	10.02 (45.91)	76.65 (30.53)**
<u>AgeDis</u>				
AA	0.44 (0.02)***	0.41 (0.02)***	0.03 (0.21)	-0.30 (0.13)**
AGE1	-0.09 (0.01)***	0.46 (0.01)***	0.28 (0.33)	0.12 (0.15)
AGE2	0.51 (0.01)***	0.55 (0.02)***	0.08 (0.16)	0.13 (0.14)
<u>Value</u>				
AHP	-14.21 (0.21)***	3.89 (0.46)***	-2.51 (4.72)	0.09 (4.40)
APC	-16.18 (0.24)***	-11.68 (0.61)***	0.23 (4.18)	4.14 (3.70)
HH	-0.21 (0.004)***	-0.26 (0.01)***	-0.08 (0.12)	-0.22 (0.06)***
<u>Social</u>				
FEM	3.32 (0.10)***	-3.62 (0.07)***	-0.58 (0.74)	-1.57 (0.55)**
HISP	1.02 (0.02)***	0.75 (0.03)***	0.10 (0.25)	0.001 (0.24)
WHI	0.74 (0.01)***	0.29 (0.02)***	0.51 (0.21)**	0.47 (0.20)**
<u>Supply</u>				
POP3R	-1.39 (0.03)***	0.04 (0.06)	-0.32 (0.70)	0.18 (0.54)
UNEMP3R	-12.04 (0.28)***	5.46 (0.20)***	2.28 (1.50)	3.13 (1.11)**
<u>Years</u>				
1999				
2000	4.04 (0.11)***	6.11 (0.28)***		
2001	4.99 (0.14)***	2.67 (0.28)***		
2002	8.10 (0.18)***	2.15 (0.26)***		
2003	6.79 (0.15)***	1.59 (0.22)***		
2004	8.09 (0.13)***	1.96 (0.16)***		
2005	5.99 (0.11)***	0.56 (0.14)***		
2006	2.03 (0.06)***	-1.12 (0.05)***		
2007	1.35 (0.03)***	-0.62 (0.05)***		
2008				
<u>Cities</u>				
Greeley	-10.78 (0.22)***		-3.92 (2.93)	
Loveland	-11.58 (0.23)***		-2.88 (1.82)	
Adjusted R^2	0.97	0.97	0.98	0.96
N	33	33	33	33
F-value	747.21***	346.16***	289.83***	187.27***

Notes:

1) Standard errors are given in parentheses

2) *** Significant at 0.01 level, ** at 0.05 level, and * at 0.10 level

Conclusion

Four primary models are presented in this chapter: 1) Original Models (Tables 7 through 21), Original Models Refined (Tables 22 through 36), Model Elaboration by Addition of Partials (Tables 37 through 51), and Model Elaboration by Inclusion and Exclusion of City and Year Control Sub-models (Tables 52 through 66). Discussions of these four primary models are the main topic of next chapter. Summary, policy implications, appraisal of the research questions, and evaluation of hypotheses finish off this study in the last chapter.

CHAPTER 5: DISCUSSION

Introduction

In this chapter, the new business formation estimation models presented in the previous chapter are analyzed and interpreted. Interpretations are offered of the empirical results of the various statistical tests for the different models presented. The analytical steps portrayed in this chapter describe a deliberate research methodology path -- the sequence order mirrors the sequence order of the previous chapter.

Bivariate Correlation Coefficients

Collinearity and multicollinearity can be a problem in multiple regressions. If two or more IVs are highly correlated, it is difficult to know how important each of them is as a predictor. Multicollinearity happens when a combination of IVs makes one or more of the IVs largely or completely unnecessary. Multicollinearity was not a major issue in this research, except between the variables WHI and HISP and, to a lesser degree, between the variables AGE1 and AGE2. It is important to note that even extreme multicollinearity (so long as it is not perfect) does not violate the classical linear regression model or the ordinary least square assumptions. Table 66 displays the Variance-Inflation Factor (VIF) ratios. It is interpreted as the ratio of the actual variance of estimated regression coefficient to what the variance of the same coefficient would have been if the underlying IV were uncorrelated with the remaining IVs. In addition, it is assumed that VIF values greater than 10 indicates the presence of multicollinearity (Gujarati, 1995; Halcoussis, 2005; Maddala, 1988; Studenmund, 2006).

Table 67. IVs: Variance-Inflation Factor (VIF)

Variable	VIF	1/VIF
HISP	48.31	0.020699
WHI	40.36	0.024776
AGE2	12.11	0.082598
AGE1	10.90	0.091733
HH	8.76	0.114198
AA	7.70	0.129901
FEM	3.95	0.252947
AHP	2.03	0.491435
UNEMP3R	1.69	0.590685
POP3R	1.67	0.600087
APC	1.57	0.635403
Mean VIF	12.64	

Fort Collins

Table 3, Chapter 4, presents Fort Collins (-F) zero-order correlations, averages, and standard deviations of all variables (DVs and IVs), except for the year and city dummy variables, included in the models. The results for each individual industrial sector (retail, manufacturing, distributive, service, and all combined) are discussed below.

Retail

Correlation coefficients for RET-F are found to be statistically significant at the 0.10 level with variable POP3R; significant at 0.05 level with variable AGE1-F; and significant at 0.01 level with variables AA-F, AGE2-F, HH-F, HISP-F, UNEMP3R-F, and WHI-F. ALL significant levels have their signs consistent with the relevant hypothesis of this research and from the literature. The positive correlation between RET-F and POP3R-F indicates the demand-pull effect, in retail new business formation, takes place with an increase in population. The positive correlation between RET-F and AGE1-F indicates the positive influence of individuals 25 years of age or younger in new business formation rate. The negative correlations between RET-F and both AA-F and AGE2-F further highlights the positive effect of young adults in the new business formation of the retail industrial sector. The positive correlation between RET-F and HH-F shows the positive influence of certain level of income in retail new business formation rates. The opposing negative and positive correlation values for HISP-F and WHI-F variables respectively, show the positive influence of the White population in retail new business formation rates, in contrast of that of Hispanic origin. The negative correlation and significance between UNEM3R-F and RET-F hint that retail new business formation is negatively associated with unemployment rates.

Manufacturing

Correlation coefficients for MAN-F are found to be statistically significant at the 0.05 level with variables HH-F and HISP-F; and significant at 0.01 level with variables AA-F, AGE2-F, UNEMP3R-F, and WHI-F. ALL significant levels have their signs consistent with the relevant hypothesis of this research and from the literature. MAN-F and HH-F are positively associated, indicating that the same factors are in play in MAN-F as they are in RET-F. Similarly, the negative influence of both AA-F and AGE2-F on MAN-F seems to indicate that the same factors are in play in MAN-F as they are in RET-F. Also, the opposing negative and positive significant values for HISP-F and WHI-F variables indicates that the same factors are in play in MAN-F as they are in RET-F. The negative influence between MAN-F and UNEMP3R-F indicates that the same factors are in play in MAN-F as they are in RET-F.

Distributive

Correlation coefficients for DIST-F are found to be statistically significant at the 0.10 level with variable AGE1-F; significant at 0.05 level with variable HISP-F; and significant at 0.01 level with variables AA-F, AGE2-F, HH-F, UNEMP3R-F, and WHI-F. The correlations between DIST-F and the variables AA-F, AGE2-F, HH-F, HISP-F, UNEMP3R-F, and WHI-F are the same as that exhibited in MAN-F; it also indicate that the same factors are in play in DIST-F as they are in MAN-F. The positive correlation between DIST-F and AGE1-F indicates that the same factors are in play in DIST-F as they are in RET-F.

Service

Correlation coefficients for SERV-F are found to be statistically significant at the 0.10 level with variable UNEMP3R-F; significant at 0.05 level with variables

AGE1-F, AHP-F, and HISP-F; and significant at 0.01 level with variables AA-F, AGE2-F, HH-F, POP3R-F, and WHI-F. The positive correlation between SERV-F and UNEMP3R-F is different than previous industrial sectors (all display negative correlations). This may suggest that the unemployed are more able to swiftly start service-based new businesses, possibly due to lower costs associated with them (Carias, Oliveira, & Lima, 2007). The correlations between SERV-F and the variables AGE1-F, AHP-F, and HISP-F are also opposite of the previous industrial sectors – the negative correlation between SERV-F and AGE1-F indicates the positive influence of this variable in new service-based businesses rates, in contrast to the other industrial sectors; the positive correlation between SERV-F and AGE2-F further underlines this point. The negative correlations between SERV-F and both AHP-F and HH-F seems to support the notion that individuals with lower incomes are more likely to start new businesses in this industrial sector. The negative and positive correlations between SERV-F and both WHI-F and HISP-F, respectively, reveal the relative importance of the Hispanic population on this industrial sector, as compared of that of White population. And the negative correlation between SERV-F and POP3R-F perhaps indicates the greater importance of the other industrial sectors in new business formation when the rate of population is increasing.

Greeley

Table 4, Chapter 4, presents Greeley (-G) zero-order correlations, averages, and standard deviations of all variables (DVs and IVs), except for the year and city dummy variables, included in the models. The results for each individual industrial sector (retail, manufacturing, distributive, service, and all combined) are discussed below.

Retail

Correlation coefficients for RET-G are found to be statistically significant at the 0.01 level with variables AA-G, HISP-G, and WHI-G. The strong positive correlation between RET-G and AA-G indicates that in Greeley, retail-based new business formation is positively influenced by increased average age of the population – a weak, non-significant AGE1-G further reinforces the concept. The opposing negative and positive correlation values for HISP-G and WHI-G variables respectively, show the influence of retail new business formation rates by the White population in contrast of that of Hispanic origin.

Manufacturing

Likewise to RET-G, correlation coefficients for MAN-G are found to be statistically significant at the 0.01 level with variables AA-G, HISP_G, and WHI-G.

Distributive

Likewise to RET-G and MAN-G, correlation coefficients for DIST-G are found to be statistically significant at the 0.01 level with variables AA-G, HISP-G, and WHI-G.

Service

Likewise to RET-G, MAN-G, and DIST-G, correlation coefficients for SERV-G are found to be statistically significant at the 0.01 level with variables AA-G, HISP-G, and WHI-G.

All

Likewise to RET-G, MAN-G, DIST-G, and SERV-G, correlation coefficients for ALL-G are found to be statistically significant at the 0.01 level with variables AA-G, HISP-G, and WHI-G.

Loveland

Table 5, Chapter 4, presents Loveland (-L) zero-order correlations, averages, and standard deviations of all variables (DVs and IVs), except for the year and city dummy variables, included in the models. The results for each individual industrial sectors (retail, manufacturing, distributive, service, and all combined) are discussed below.

Retail

Correlation coefficients for RET-L are found not to be statistically significant at any of the levels considered in this study.

Manufacturing

Correlation coefficients for MAN-L are found not to be statistically significant at any of the levels considered in this study.

Distributive

Correlation coefficients for DIST-L are found to be statistically significant at the significant at 0.10 level with the variable AHP-L; and significant at the 0.05 level with the variable POP3R-L. Although none of these correlations are relatively strong, the negative correlation between AHP-L and distributive-based new business formation is well documented and previously seen in this research. Unexpectedly is the negative and significant correlation between POP3R-L and distributive-based new business formation – past research (Chapter 2) have demonstrated the strong relationship between rate of population change and new business formation.

Service

Correlation coefficients for SERV-L are found to be statistically significant at the significant at 0.10 level with the variable AGE1-L. This relatively strong positive correlation contrasts with the findings between SERV-F and AGE1-F (see FC, above). SERV-L is negatively associated with AA, in contrast with the positively association of FC and AA –- of importance is the fact that the average population age difference between FC and LV is 5 years.

All

Correlation coefficients for ALL-L are not statistically significant at any of the levels considered in this study.

Original Models Testing and Selection

The description, comparison, and contrast of each of the models in Tables 7 through 21 were presented in Chapters 3 and 4. In this chapter and this section, statistically significant results are described, separately by model, city, industrial sector, and lag. Tables 7 through 11 represent the zero lags original models, adjusted R^2, and F-values for all model linear regression estimates, except for the year and city dummy variables. Tables 12 through 16 represent the one year lag and Tables 17 through 21 the two year lag. The results for each individual industrial sector (retail, manufacturing, distributive, service, and all combined) are discussed below. Because of the limited number of data values, as described in Chapter 1, only coefficients significant at 0.01 are used in the final equation. The conclusion stated below is based on the sample used in these regressions. A different (perhaps larger) sample might produce different results. Each of the models were selected because they contain the most predictors which were statistically significant and, in some cases, also the highest F-value. Recall that each of these models contain all the values of the dataset, that is, data for all three cities, including year and city dummies. Later sections aim to narrow and re-estimate these models.

Original Models Testing and Selection; Retail & Lag = 0: From Table 7

The GLM-Robust was selected. The following variables were found to be statistically significant: HH and WHI (at 0.10 level), AGE2 (at 0.05 level), and AGE1, AHP, APC, and UNEMP3R (at 0.01 level). Using the estimated coefficients we can write our prediction equation (variables significant at the 0.01 level) as:

NBF/1,000 population = – 4.22 + 0.14 (AGE1) – 2.12 (AHP) + 1.50 (APC) –
– 0.91 (UNEMP3R)

Table 68 focuses on each of the variables (and their coefficients) that are significant at 0.01 level. All number assumptions (for Tables 69 through 97) are based on the principle of all other things being equal. All references of percentage (for Tables 69 through 97) are that of percentage points.[1] The message from this table, also likewise valid for all subsequent tables, is that for Retail & Lag = 0 (under the Original Models section), the following Northern Colorado characteristics influence new business formation rates (per 1,000 population): AGE1 (positive 0.14), AHP (negative 2.12), APC (positive 1.50), and UNEMP3R (negative 0.91). Furthermore, the table contains the potential increase/decrease of new business formation rates if each of these variables is increased/decreased by 1 percent point.

Table 68. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; RET & Lag = 0

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE1	0.14	0.1414	0.1386
AHP	-2.12	-2.1412	-2.0988
APC	1.50	1.5150	1.4850
UNEMP3R	-0.91	-0.9191	-0.9009

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal); Calculation example for AGE1: [0.14±(0.14/100)]

[1] Simply put, percentage is relative, while percentage points are absolute

Original Models Testing and Selection; Manufacturing & Lag = 0: From Table 8

The Robust Regression was selected. The following variables were found to be statistically significant: UNEMP3R (at 0.10 level) and all others at 0.01 level. Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

$$\begin{aligned} \text{NBF/1,000 population} = & -23.95 - 0.05\,(\text{AA}) - 0.12\,(\text{AGE1}) - 0.04\,(\text{AGE2}) + \\ & + 0.82 - (\text{AHP}) + 0.18\,(\text{APC}) - 0.08\,(\text{HH}) - 0.21\,(\text{FEM}) - \\ & - 0.01\,(\text{HISP}) + 0.04\,(\text{WHI}) - 0.03\,(\text{POP3R}) \end{aligned}$$

Table 69 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 69. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; MAN & Lag = 0

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	-0.05	-0.0505	-0.0495
AGE1	-0.12	-0.1212	-0.1188
AGE2	-0.04	-0.0404	-0.0396
AHP	0.82	0.8282	0.8118
APC	0.18	0.1818	0.1782
HH	-0.08	-0.0808	-0.0792
FEM	-0.21	-0.2121	-0.2079
HISP	-0.01	-0.0101	-0.0099
WHI	0.04	0.0404	0.0396
POP3R	-0.03	-0.0303	-0.0297

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; Distributive & Lag = 0: From Table 9

The GLM-Robust was selected. The following variables were found to be statistically significant: AGE1, HISP, and UNEMP3R (at 0.10 level), AHP and APC (at 0.05 level), and AA and WHI (at 0.01 level). Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

NBF/1,000 population = – 15.89 + 0.03 (AA) + 0.10 (WHI)

Table 70 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 70. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; DIST & Lag = 0

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.03	0.0303	0.0297
WHI	0.10	0.1010	0.0990

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; Service & Lag = 0: From Table 10

The GLM-Robust was selected. The following variables were found to be statistically significant: AA and POP3R (at 0.05 level) and AGE2, APC, HH, FEM, HISP, and UNEMP3R (at 0.01 level). Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

NBF/1,000 population = – 82.76 + 0.39 (AGE2) – 8.32 (APC) – 0.15 (HH) –

– 2.01 (FEM) + 0.47 (HISP) + 4.69 (UNEMP3R)

Table 71 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 71. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; SERV & Lag = 0

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE2	0.39	0.3939	0.3861
APC	-8.32	-8.4032	-8.2368
HH	-0.15	-0.1515	-0.1485
FEM	-2.01	-2.0301	-1.9899
HISP	0.47	0.4747	0.4653
UNEMP3R	4.69	4.7369	4.6431

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; ALL & Lag = 0: From Table 11

The GLM-Robust was selected. The following variables were found to be statistically significant: UNEMP3R and FEM (at 0.05 level); AA, AGE1, AGE2, APC, HH, HISP, and WHI (at 0.01 level). Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

NBF/1,000 population = + 57.24 + 0.27 (AA) + 0.35 (AGE1) + 0.34 (AGE2) –
– 6.43 (APC) – 0.16 (HH) + 0.52 (HISP) + 0.43 (WHI)

Table 72 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 72. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; ALL & Lag = 0

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.27	0.2727	0.2673
AGE1	0.35	0.3535	0.3465
AGE2	0.34	0.3434	0.3366
APC	-6.43	-6.4943	-6.3657
HH	-0.16	-0.1616	-0.1584
HISP	0.52	0.5252	0.5148
WHI	0.43	0.4343	0.4257

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; Retail & Lag = 1: From Table 12

The Robust Regression was selected. All variables were found to be statistically significant at 0.01 level. Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

$$
\begin{aligned}
\text{NBF/1,000 population} = & - 3.05 + 0.008\ (\text{AA}) + 0.17\ (\text{AGE1}) - 0.04\ (\text{AGE2}) - \\
& - 2.81\ (\text{AHP}) + 2.05\ (\text{APC}) - 0.005\ (\text{HH}) + 0.14\ (\text{FEM}) - \\
& - 0.007\ (\text{HISP}) + 0.03\ (\text{WHI}) - 0.58\ (\text{POP3R}) - \\
& - 0.43\ (\text{UNEMP3R})
\end{aligned}
$$

Table 73 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 73. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; RET & Lag = 1

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.008	0.0081	0.0079
AGE1	0.17	0.1717	0.1683
AGE2	-0.04	-0.0404	-0.0396
AHP	-2.81	-2.8381	-2.7819
APC	2.05	2.0705	2.0295
HH	-0.005	-0.0051	-0.0050
FEM	0.14	0.1414	0.1386
HISP	-0.007	-0.0071	-0.0069
WHI	0.03	0.0303	0.0297
POP3R	-0.58	-0.5858	-0.5742
UNEMP3R	-0.43	-0.4343	-0.4257

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; Manufacturing & Lag = 1: From Table 13

The Robust Regression was selected. Except for UNEMP3R, all variables were found to be statistically significant at 0.01 level. Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

NBF/1,000 population = – 9.18 + 0.08 (AA) + 0.27 (AGE1) + 0.14 (AGE2) –
– 1.43 (AHP) – 1.55 (APC) + 0.009 (HH) – 0.17 (FEM) +
+ 0.22 (HISP) + 0.10 (WHI) – 0.60 (POP3R)

Table 74 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 74. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; MAN & Lag = 1

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.08	0.0808	0.0792
AGE1	0.27	0.2727	0.2673
AGE2	0.14	0.1414	0.1386
AHP	-1.43	-1.4443	-1.4157
APC	-1.55	-1.5655	-1.5345
HH	0.009	0.0091	0.0089
FEM	-0.17	-0.1717	-0.1683
HISP	0.22	0.2222	0.2178
WHI	0.10	0.1010	0.0990
POP3R	-0.60	-0.6060	-0.5940

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; Distributive & Lag = 1: From Table 14

The Robust Regression was selected. The following variables were found to be statistically significant: APC (at 0.05 level); AGE1, HH, FEM, WHI, POP3R, and UNEMP3R (at 0.01 level). Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

$$\begin{aligned}\text{NBF/1,000 population} = & - 51.56 + 0.14\ (\text{AGE1}) - 2.10\ (\text{AHP}) + 0.05\ (\text{HH}) + \\ & + 0.64\ (\text{FEM}) + 0.19\ (\text{WHI}) - 0.21\ (\text{POP3R}) - \\ & - 0.79\ (\text{UNEMP3R})\end{aligned}$$

Table 75 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 75. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; DIST & Lag = 1

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE1	0.14	0.1414	0.1386
AHP	-2.10	-2.1210	-2.0790
HH	0.05	0.0505	0.0495
FEM	0.64	0.6464	0.6336
WHI	0.19	0.1919	0.1881
POP3R	-0.21	-0.2121	-0.2079
UNEMP3R	-0.79	-0.7979	-0.7821

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; Service & Lag = 1: From Table 15

The GLM-Robust was selected. The following variables were found to be statistically significant: AGE1 (at 0.10 level); WHI and POP3R (at 0.05 level) and AA, AGE2, APC, HH, FEM, HISP, and UNEMP3R (at 0.01 level). Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

NBF/1,000 population = + 41.43 + 0.46 (AA) + 0.67 (AGE2) – 9.82 (APC) –
– 0.20 (HH) – 1.80 (FEM) + 0.94 (HISP) +
+ 3.15 (UNEMP3R)

Table 76 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 76. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; SERV & Lag = 1

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.46	0.4646	0.4554
AGE2	0.67	0.6767	0.6633
APC	-9.82	-9.9182	-9.7218
HH	-0.20	-0.2020	-0.1980
FEM	-1.80	-1.8180	-1.7820
HISP	0.94	0.9494	0.9306
UNEMP3R	3.15	3.1815	3.1185

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; ALLI & Lag = 1: From Table 16

The Robust Regression was selected. All variables were found to be statistically significant at 0.01 level. Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

NBF/1,000 population = – 22.16 + 0.25 (AA) + 0.17 (AGE1) + 0.48 (AGE2) –
– 5.59 (AHP) – 13.92 (APC) – 0.20 (HH) – 0.08 (FEM) +
+ 0.78 (HISP) + 0.62 (WHI) – 0.55 (POP3R) –
– 3.02 (UNEMP3R)

Table 77 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 77. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; ALL & Lag = 1

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.25	0.2525	0.2499
AGE1	0.17	0.1717	0.1699
AGE2	0.48	0.4848	0.4799
AHP	-5.59	-5.6459	-5.5894
APC	-13.92	-14.0592	-13.9186
HH	-0.20	-0.2020	-0.1999
FEM	-0.08	-0.0808	-0.0799
HISP	0.78	0.7878	0.7799
WHI	0.62	0.6262	0.6199
POP3R	-0.55	-0.5555	-0.5499
UNEMP3R	-3.02	-3.0502	-3.0197

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; Retail & Lag = 2: From Table 17

The GLM-Robust was selected. The following variables were found to be statistically significant: POP3R (at 0.05 level) and AGE1, AGE2, AHP, APC, HH, FEM, HISP, WHI, and UNEMP3R (at 0.01 level). Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

$$
\begin{aligned}
\text{NBF/1,000 population} = &– 26.99 + 0.21\ (\text{AGE1}) – 0.08\ (\text{AGE2}) – 3.06\ (\text{AHP}) + \\
&+ 1.26\ (\text{APC}) + 0.07\ (\text{HH}) + 0.39\ (\text{FEM}) – 0.06\ (\text{HISP}) + \\
&+ 0.13\ (\text{WHI}) – 1.08\ (\text{UNEMP3R})
\end{aligned}
$$

Table 78 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 78. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; RET & Lag = 2

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE1	0.21	0.2121	0.2099
AGE2	-0.08	-0.0808	-0.0799
AHP	-3.06	-3.0906	-3.0596
APC	1.26	1.2726	1.2598
HH	0.07	0.0707	0.0699
FEM	0.39	0.3939	0.3899
HISP	-0.06	-0.0606	-0.0599
WHI	0.13	0.1313	0.1299
UNEMP3R	-1.08	-1.0908	-1.0798

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; Manufacturing & Lag = 2: From Table 18

The GLM-Robust was selected. The following variables were found to be statistically significant: APC and POP3R (at 0.10 level) and HH and HISP (at 0.05 level). Using the estimated coefficients we can write our predicted equation (variables significant at the 0.05 level – since no variables were significant at 0.01 level) as:

NBF/1,000 population = 16.80 – 0.06 (HH) + 0.09 (HISP)

Table 79 focuses on each of the variables (and their coefficients) that are significant at 0.05 level.

Table 79. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; MAN & Lag = 2

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
HH	-0.06	-0.0606	-0.0599
HISP	0.09	0.0909	0.0899

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; Distributive & Lag = 2: From Table 19

The GLM-Robust was selected. The following variables were found to be statistically significant: AA and AGE2 (at 0.05 level) and AGE1, AHP, APC, HH, FEM, WHI, POP3R, and UNEMP3R (at 0.01 level). Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

$$\begin{aligned}\text{NBF/1,000 population} = & -37.13 + 0.13\,(\text{AGE1}) - 1.88\,(\text{AHP}) + 0.90\,(\text{APC}) + \\ & + 0.04\,(\text{HH}) + 0.44\,(\text{FEM}) + 0.15\,(\text{WHI}) - 0.21\,(\text{POP3R}) - \\ & - 0.46\,(\text{UNEMP3R})\end{aligned}$$

Table 80 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 80. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; DIST & Lag = 2

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE1	0.13	0.1313	0.1299
AHP	-1.88	-1.8988	-1.8798
APC	0.90	0.9090	0.8999
HH	0.04	0.0404	0.0399
FEM	0.44	0.4444	0.4399
WHI	0.15	0.1515	0.1499
POP3R	-0.21	-0.2121	-0.2099
UNEMP3R	-0.46	-0.4646	-0.4599

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; Service & Lag = 2: From Table 20

The Robust Regression was selected. All variables were found to be statistically significant at 0.01 level. Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

$$\begin{aligned} \text{NBF/1,000 population} = & - 262.99 + 0.67\ (\text{AA}) - 0.66\ (\text{AGE1}) + 0.67\ (\text{AGE2}) - \\ & - 13.86\ (\text{AHP}) - 21.84\ (\text{APC}) - 0.29\ (\text{HH}) + 5.65\ (\text{FEM}) + \\ & + 1.26\ (\text{HISP}) + 0.39\ (\text{WHI}) - 1.41\ (\text{POP3R}) - \\ & - 19.59\ (\text{UNEMP3R}) \end{aligned}$$

Table 81 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 81. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; SERV & Lag = 2

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.67	0.6767	0.6699
AGE1	-0.66	-0.6666	-0.6599
AGE2	0.67	0.6767	0.6699
AHP	-13.86	-13.9986	-13.8586
APC	-21.84	-22.0584	-21.8378
HH	-0.29	-0.2929	-0.2899
FEM	5.65	5.7065	5.6494
HISP	1.26	1.2726	1.2598
WHI	0.39	0.3939	0.3899
POP3R	-1.41	-1.4241	-1.4098
UNEMP3R	-19.59	-19.7859	-19.588

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Original Models Testing and Selection; ALL & Lag = 2: From Table 21

The Robust Regression was selected. All variables were found to be statistically significant at 0.01 level. Using the estimated coefficients we can write our predicted equation (variables significant at the 0.01 level) as:

NBF/1,000 population = – 181.19 + 0.44 (AA) – 0.09 (AGE1) + 0.51 (AGE2) –
– 14.21 (AHP) – 16.18 (APC) – 0.21 (HH) + 3.32 (FEM) +
+ 1.02 (HISP) + 0.74 (WHI) – 1.39 (POP3R) –
– 12.04 (UNEMP3R)

Table 82 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 82. Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; ALL & Lag = 2

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.44	0.4444	0.4399
AGE1	-0.09	-0.0909	-0.0899
AGE2	0.51	0.5151	0.5099
AHP	-14.21	-14.3521	-14.2086
APC	-16.18	-16.3418	-16.1784
HH	-0.21	-0.2121	-0.2099
FEM	3.32	3.3532	3.3196
HISP	1.02	1.0302	1.0198
WHI	0.74	0.7474	0.7399
POP3R	-1.39	-1.4039	-1.3898
UNEMP3R	-12.04	-12.1604	-12.0388

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection

The selected models from Tables 7 through 21 were re-estimated after excluding all non-significant variables and variables other than those significant at 0.01 level. The results, for each of the selected models, are reported below.

Refining the Original Models Testing and Selection from Table 22; Retail & Lag = 0

The main differences between the model shown on Table 68 and Table 83 (below) are:

APC significance level now 0.05,

UNEMP3R is no longer significant, and

Constant changed sign.

Table 83 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 83. Refining the Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; RET & Lag = 0

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE1	0.18	0.1818	0.1799
AHP	-1.92	-1.9392	-1.9198

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 23; Manufacturing & Lag = 0

The main differences between the model shown on Table 69 and Table 84 (below) are:

Constant, APC, HISP, and POP3R changed signs,

AA, AGE2, and WHI significant levels decreased to 0.05,

UNEMP3R significant level decreased to 0.10,

APC and HISP are no longer significant

Table 84 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 84. Refining the Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; MAN & Lag = 0

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE1	-0.14	-0.1414	-0.1399
AHP	2.18	2.2018	2.1797
HH	-0.09	-0.0909	-0.0899

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 24; Distributive & Lag = 0

The main difference between the model shown on Table 70 and Table 85 (below) is:

AA is no longer significant

Table 85 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 85. Refining the Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; MAN & Lag = 0

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
WHI	0.08	0.0808	0.0799

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 25; Service & Lag = 0

The main difference between the model shown on Table 71 and Table 86 (below) is:

APC significance level decreased to 0.05

HISP is no longer significant

Table 86 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 86. Refining the Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; SERV & Lag = 0

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE2	0.21	0.2121	0.2079
HH	-0.17	-0.1717	-0.1683
FEM	-1.77	-1.7877	-1.7523
UNEMP3R	4.13	4.1713	4.0887

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 26; RMDS & Lag = 0

The main difference between the model shown on Table 72 and Table 87 (below) is:

AA significance level decreased to 0.05

AGE1 is no longer significant

Table 87 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 87. Refining the Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; ALL & Lag = 0

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE2	0.27	0.2727	0.2673
APC	-7.11	-7.1811	-7.0389
HH	-0.15	-0.1515	-0.1485
HISP	0.57	0.5757	0.5643
WHI	0.71	0.7171	0.7029

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 27; Retail & Lag = 1

There is no difference between the model shown on Table 73 and Table 88 (below). Table 88 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 88. Refining the Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; RET & Lag = 1

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.008	0.0081	0.0079
AGE1	0.17	0.1717	0.1683
AGE2	-0.04	-0.0404	-0.0396
AHP	-2.81	-2.8381	-2.7819
APC	2.05	2.0705	2.0295
HH	-0.005	-0.0051	-0.0050
FEM	0.14	0.1414	0.1386
HISP	-0.007	-0.0071	-0.0069
WHI	0.03	0.0303	0.0297
POP3R	-0.58	-0.5858	-0.5742
UNEMP3R	-0.43	-0.4343	-0.4257

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 28; Manufacturing & Lag = 1

The main difference between the model shown on Table 74 and Table 89 (below) is:

UNEMP3R significance level decreased to 0.10

Table 89 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 89. Refining the Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; MAN & Lag = 1

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.08	0.0808	0.0792
AGE1	0.27	0.2727	0.2673
AGE2	0.14	0.1414	0.1386
AHP	-1.43	-1.4443	-1.4157
APC	-1.55	-1.5655	-1.5345
HH	0.009	0.0091	0.0089
FEM	-0.17	-0.1717	-0.1683
HISP	0.22	0.2222	0.2178
WHI	0.10	0.1010	0.0990
POP3R	-0.60	-0.6060	-0.5940

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 29; Distributive & Lag = 1

The main difference between the model shown on Table 75 and Table 90 (below) is:

FEM and UNEMP3R are no longer significant

Table 90 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 90. Refining the Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; DIST & Lag = 1

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE1	0.11	0.1111	0.1089
AHP	-1.09	-1.1009	-1.0791
HH	0.02	0.0202	0.0198
POP3R	-0.05	-0.0505	-0.0495

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 30; Service & Lag = 1

There is no difference between the model shown on Table 76 and Table 91 (below). Table 91 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 91. Refining the Original Models Testing and Selection; Consequences of coefficient changes on NBF per 1,000 people; SERV & Lag = 1

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.52	0.5252	0.5148
AGE2	0.55	0.5555	0.5445
APC	-7.74	-7.8174	-7.6626
HH	-0.27	-0.2727	-0.2673
FEM	-1.87	-1.8887	-1.8513
HISP	0.77	0.7777	0.7623
UNEMP3R	2.84	2.8684	2.8116

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 31; RMDS & Lag = 1

There is no difference between the model shown on Table 77 and Table 92 (below). Table 92 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 92. Refining the Original Models Testing and Selection Consequences of coefficient changes on NBF per 1,000 people; ALL & Lag = 1

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.25	0.2525	0.2475
AGE1	0.17	0.1717	0.1683
AGE2	0.48	0.4848	0.4752
AHP	-5.59	-5.6459	-5.5341
APC	-13.92	-14.0592	-13.7808
HH	-0.2	-0.2020	-0.1980
FEM	-0.08	-0.0808	-0.0792
HISP	0.78	0.7878	0.7722
WHI	0.62	0.6262	0.6138
POP3R	-0.55	-0.5555	-0.5445
UNEMP3R	-3.02	-3.0502	-2.9898

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 32; Retail & Lag = 2

The main difference between the model shown on Table 78 and Table 93 is:

APC and FEM are no longer significant

Table 93 focuses on each of the variables (and their coefficients) that are significant at 0.01 level.

Table 93. Refining the Original Models Testing and Selection Consequences of coefficient changes on NBF per 1,000 people; RET & Lag = 2

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE1	0.16	0.1616	0.1584
AGE2	-0.05	-0.0505	-0.0495
AHP	-1.91	-1.9291	-1.8909
HH	0.05	0.0505	0.0495
WHI	0.15	0.1515	0.1485
UNEMP3R	-0.95	-0.9595	-0.9405

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 33; Manufacturing & Lag = 2

The main difference between the model shown on Table 79 and Table 94 (below) is:

HH significance level decreased to 0.05

HISP is no longer significant

Table 94 focuses on each of the variables (and their coefficients) that are significant at 0.05 level (no variable was significant at 0.01 level).

Table 94. Refining the Original Models Testing and Selection Consequences of coefficient changes on NBF per 1,000 people; MAN & Lag = 2

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
HH	-0.05	-0.0505	-0.0495

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 34; Distributive & Lag = 2

There is no difference between the model shown in Table 80 and Table 95 (below). Table 95 focuses on each of the variables (and their coefficients) that are significant at 0.05 level (no variable was significant at 0.01 level).

Table 95. Refining the Original Models Testing and Selection Consequences of coefficient changes on NBF per 1,000 people; MAN & Lag = 2

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AGE1	0.15	0.1515	0.1485
AHP	-1.96	-1.9796	-1.9404
APC	0.99	0.9999	0.9801
HH	0.04	0.0404	0.0396
FEM	0.44	0.4444	0.4356
WHI	0.16	0.1616	0.1584
POP3R	-0.22	-0.2222	-0.2178
UNEMP3R	-0.53	-0.5353	-0.5247

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 35; Service & Lag = 2

There is no difference between the model shown on Table 81 and Table 96 (below). Table 96 focuses on each of the variables (and their coefficients) that are significant at 0.05 level (no variable was significant at 0.01 level).

Table 96. Refining the Original Models Testing and Selection Consequences of coefficient changes on NBF per 1,000 people; SERV & Lag = 2

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.67	0.6767	0.6633
AGE1	-0.66	-0.6666	-0.6534
AGE2	0.67	0.6767	0.6633
AHP	-13.86	-13.9986	-13.7214
APC	-21.84	-22.0584	-21.6216
HH	-0.29	-0.2929	-0.2871
FEM	5.65	5.7065	5.5935
HISP	1.26	1.2726	1.2474
WHI	0.39	0.3939	0.3861
POP3R	-1.41	-1.4241	-1.3959
UNEMP3R	-19.59	-19.7859	-19.3941

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Refining the Original Models Testing and Selection from Table 36; RMDS & Lag = 2

There is no difference between the model shown on Table 82 and Table 97 (below). Table 97 focuses on each of the variables (and their coefficients) that are significant at 0.05 level (no variable was significant at 0.01 level).

Table 97. Refining the Original Models Testing and Selection Consequences of coefficient changes on NBF per 1,000 people; ALL & Lag = 2

Variable	Coefficient	1% Increase → NBF/1,000	1% Decrease → NBF/1,000
AA	0.44	0.4444	0.4356
AGE1	-0.09	-0.0909	-0.0891
AGE2	0.51	0.5151	0.5049
AHP	-14.21	-14.3521	-14.0679
APC	-16.18	-16.3418	-16.0182
HH	-0.21	-0.2121	-0.2079
FEM	3.32	3.3532	3.2868
HISP	1.02	1.0302	1.0098
WHI	0.74	0.7474	0.7326
POP3R	-1.39	-1.4039	-1.3761
UNEMP3R	-12.04	-12.1604	-11.9196

Notes: 1% Increase (or Decrease) → NBF/1,000: represents the effect on NBF per 1,000 if the IV changes by 1% (all other things being equal)

Model Elaboration by Addition of Partials Testing and Selection

The selected models from Tables 7 through 21 were re-estimated by introducing association partials, first AgeDis variables (AA, AGE1, and AGE2), then Value variables (AHP, APC, and HH), next Social variables (FEM, HISP, and WHI), last, the Supply variables (POP3R and UNEMP3R) – Tables 36 through 50. The significant results at 0.01 level (SIG) are reported below and summarized in Tables 98 through 112.

Model Elaboration by Addition of Partials Testing and Selection, Retail & Lag = 0:

Table 37

Table 98. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; RET & Lag = 0

Variable	AgeDis	Value	Social	Supply
Intercept	SIG		SIG	
AA	SIG	SIG		
AGE1		SIG	SIG	SIG
AGE2	SIG	SIG		
AHP		SIG		SIG
APC		SIG		SIG
HH				
FEM			SIG	
HISP				
WHI				
POP3R				
UNEMP3R				SIG

Model Elaboration by Addition of Partials Testing and Selection, Manufacturing &

Lag = 0: Table 38

Table 99. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; MAN & Lag = 0

Variable	AgeDis	Value	Social	Supply
Intercept	SIG	SIG	SIG	SIG
AA	SIG	SIG	SIG	SIG
AGE1	SIG	SIG	SIG	SIG
AGE2	SIG	SIG	SIG	SIG
AHP		SIG	SIG	SIG
APC		SIG	SIG	SIG
HH		SIG	SIG	SIG
FEM			SIG	SIG
HISP			SIG	SIG
WHI			SIG	SIG
POP3R				SIG
UNEMP3R				

Model Elaboration by Addition of Partials Testing and Selection, Distributive & Lag = 0: Table 39

Table 100. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; DIST & Lag = 0

Variable	AgeDis	Value	Social	Supply
Intercept				
AA				
AGE1				
AGE2				
AHP				
APC				
HH				
FEM				
HISP				
WHI				
POP3R				
UNEMP3R				

Note: No variables were significant at any level (0.10, 0.05, or 0.01)

Model Elaboration by Addition of Partials Testing and Selection, Service & Lag = 0:

Table 40

Table 101. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; SERV & Lag = 0

Variable	AgeDis	Value	Social	Supply
Intercept				
AA	SIG	SIG	SIG	
AGE1				
AGE2	SIG	SIG		SIG
AHP				
APC				SIG
HH			SIG	SIG
FEM				SIG
HISP			SIG	SIG
WHI			SIG	
POP3R				
UNEMP3R				SIG

Model Elaboration by Addition of Partials Testing and Selection, ALL & Lag = 0:

Table 41

Table 102. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; ALL & Lag = 0

Variable	AgeDis	Value	Social	Supply
Intercept				
AA	SIG	SIG		SIG
AGE1				SIG
AGE2			SIG	SIG
AHP				
APC				SIG
HH		SIG	SIG	SIG
FEM				
HISP			SIG	SIG
WHI			SIG	SIG
POP3R				
UNEMP3R				

Model Elaboration by Addition of Partials Testing and Selection, Retail & Lag = 1:

Table 42

Table 103. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; RET & Lag = 1

Variable	AgeDis	Value	Social	Supply
Intercept	SIG		SIG	SIG
AA	SIG	SIG	SIG	SIG
AGE1		SIG	SIG	SIG
AGE2	SIG	SIG	SIG	SIG
AHP		SIG	SIG	SIG
APC		SIG	SIG	SIG
HH			SIG	SIG
FEM			SIG	SIG
HISP			SIG	SIG
WHI				SIG
POP3R				SIG
UNEMP3R				SIG

Model Elaboration by Addition of Partials Testing and Selection, Manufacturing & Lag = 1: Table 43

Table 104. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; MAN & Lag = 1

Variable	AgeDis	Value	Social	Supply
Intercept	SIG	SIG		SIG
AA	SIG	SIG		SIG
AGE1	SIG	SIG		SIG
AGE2		SIG	SIG	SIG
AHP		SIG		SIG
APC		SIG	SIG	SIG
HH		SIG	SIG	SIG
FEM				SIG
HISP			SIG	SIG
WHI			SIG	SIG
POP3R				SIG
UNEMP3R				

Model Elaboration by Addition of Partials Testing and Selection, Distributive & Lag = 1: Table 44

Table 105. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; DIST & Lag = 1

Variable	AgeDis	Value	Social	Supply
Intercept			SIG	SIG
AA	SIG	SIG		
AGE1	SIG		SIG	SIG
AGE2		SIG	SIG	
AHP			SIG	SIG
APC			SIG	
HH		SIG		SIG
FEM			SIG	SIG
HISP			SIG	
WHI			SIG	SIG
POP3R				SIG
UNEMP3R				SIG

Model Elaboration by Addition of Partials Testing and Selection, Service & Lag = 1:

Table 45

Table 106. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; SERV & Lag = 1

Variable	AgeDis	Value	Social	Supply
Intercept				
AA	SIG		SIG	SIG
AGE1				
AGE2	SIG	SIG	SIG	SIG
AHP				
APC			SIG	SIG
HH		SIG	SIG	SIG
FEM				SIG
HISP			SIG	SIG
WHI			SIG	
POP3R				
UNEMP3R				SIG

Model Elaboration by Addition of Partials Testing and Selection, ALL & Lag = 1:

Table 46

Table 107. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; ALL & Lag = 1

Variable	AgeDis	Value	Social	Supply
Intercept	SIG			SIG
AA	SIG	SIG		SIG
AGE1	SIG	SIG		SIG
AGE2	SIG		SIG	SIG
AHP		SIG		SIG
APC				SIG
HH				SIG
FEM				SIG
HISP				SIG
WHI			SIG	SIG
POP3R				SIG
UNEMP3R				SIG

Model Elaboration by Addition of Partials Testing and Selection, Retail & Lag = 2:

Table 47

Table 108. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; RET & Lag = 2

Variable	AgeDis	Value	Social	Supply
Intercept	SIG			SIG
AA	SIG	SIG		
AGE1		SIG	SIG	SIG
AGE2	SIG		SIG	SIG
AHP		SIG	SIG	SIG
APC				SIG
HH			SIG	SIG
FEM				SIG
HISP			SIG	
WHI				SIG
POP3R				
UNEMP3R				SIG

Model Elaboration by Addition of Partials Testing and Selection, Manufacturing & Lag = 2: Table 48

Table 109. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; MAN & Lag = 2

Variable	AgeDis	Value	Social	Supply
Intercept				
AA				
AGE1				
AGE2				
AHP			SIG	
APC				
HH		SIG		
FEM				
HISP				
WHI			SIG	
POP3R				
UNEMP3R				

Model Elaboration by Addition of Partials Testing and Selection, Distributive & Lag = 2: Table 49

Table 110. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; DIST & Lag = 2

Variable	AgeDis	Value	Social	Supply
Intercept			SIG	SIG
AA	SIG	SIG		
AGE1	SIG		SIG	SIG
AGE2			SIG	
AHP			SIG	SIG
APC		SIG		SIG
HH			SIG	SIG
FEM			SIG	SIG
HISP				
WHI			SIG	SIG
POP3R				SIG
UNEMP3R				SIG

Model Elaboration by Addition of Partials Testing and Selection, Service & Lag = 2:

Table 50

Table 111. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; SERV & Lag = 2

Variable	AgeDis	Value	Social	Supply
Intercept				SIG
AA				SIG
AGE1				SIG
AGE2	SIG	SIG		SIG
AHP		SIG		SIG
APC				SIG
HH				SIG
FEM				SIG
HISP				SIG
WHI				SIG
POP3R				SIG
UNEMP3R				SIG

Model Elaboration by Addition of Partials Testing and Selection, ALL & Lag = 2:

Table 51

Table 112. Model Elaboration by Addition of Partials Testing and Selection, showing significant results at 0.01 level as partials are added; ALL & Lag = 2

Variable	AgeDis	Value	Social	Supply
Intercept		SIG		SIG
AA		SIG		SIG
AGE1				SIG
AGE2		SIG		SIG
AHP		SIG		SIG
APC		SIG		SIG
HH		SIG		SIG
FEM				SIG
HISP				SIG
WHI				SIG
POP3R				SIG
UNEMP3R				SIG

Model Elaboration by Exclusion of Non-Significant Variables

The selected models from Tables 22 through 36 were re-estimated after excluding all non-significant variables. Only the variables significant at 0.01 level were used in order to meaningfully narrow the already significant models from previous section. The significant results are reported in Tables 113 through 127. The city and time dummies are part of these models (i.e., the City and Year headings on the following tables). The year dummies indicate the influence of these controls on specific years as compared to the base year: 1998. The city dummies indicate the rates change of the variables in relation to the base city: Fort Collins. Interpretation of the tables shown below and other findings are the topic of the next chapter.

Model Elaboration by Exclusion of Non-Significant Variables, Retail & Lag = 0: Table 52

Table 113. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; Retail & Lag = 0

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept		SIG		
AA				SIG
AGE1	SIG		SIG	SIG
AGE2			SIG	SIG
AHP	SIG		SIG	
APC	SIG			
HH		SIG		SIG
FEM		SIG	SIG	
HISP				
WHI			SIG	SIG
POP3R			SIG	
UNEMP3R	SIG		SIG	
1999				
2000	SIG	SIG		
2001		SIG		
2002		SIG		
2003				
2004				
2005				
2006				
2007				
2008				
Greeley	SIG		SIG	
Loveland				

Model Elaboration by Exclusion of Non-Significant Variables, Manufacturing & Lag = 0: Table 53

Table 114. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; Manufacturing & Lag = 0

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept	SIG	SIG		
AA	SIG			
AGE1	SIG	SIG		SIG
AGE2	SIG		SIG	SIG
AHP	SIG			
APC	SIG			
HH	SIG	SIG		SIG
FEM	SIG	SIG		
HISP	SIG			
WHI	SIG	SIG		
POP3R	SIG		SIG	
UNEMP3R		SIG	SIG	
1999				
2000	SIG			
2001	SIG			
2002	SIG			
2003	SIG			
2004	SIG			
2005	SIG			
2006	SIG			
2007	SIG			
2008	SIG			
Greeley	SIG		SIG	
Loveland	SIG		SIG	

Model Elaboration by Exclusion of Non-Significant Variables, Distributive & Lag = 0:

Table 54

Table 115. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; Distributive & Lag = 0

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept			SIG	SIG
AA	SIG			SIG
AGE1		SIG		SIG
AGE2				
AHP		SIG	SIG	SIG
APC		SIG		
HH				SIG
FEM			SIG	SIG
HISP				
WHI	SIG	SIG	SIG	SIG
POP3R		SIG	SIG	SIG
UNEMP3R				SIG
1999	SIG			
2000	SIG	SIG		
2001				
2002				
2003				
2004				
2005				
2006				
2007				
2008				
Greeley			SIG	
Loveland				

Model Elaboration by Exclusion of Non-Significant Variables, Service & Lag = 0:

Table 55

Table 116. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; Service & Lag = 0

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept		SIG		SIG
AA				SIG
AGE1		SIG		SIG
AGE2	SIG	SIG	SIG	SIG
AHP				
APC	SIG	SIG		
HH	SIG	SIG		SIG
FEM	SIG	SIG		SIG
HISP	SIG	SIG		
WHI				
POP3R		SIG		
UNEMP3R	SIG	SIG	SIG	SIG
1999				
2000				
2001	SIG	SIG		
2002		SIG		
2003	SIG	SIG		
2004		SIG		
2005	SIG	SIG		
2006	SIG	SIG		
2007		SIG		
2008	SIG	SIG		
Greeley			SIG	
Loveland	SIG		SIG	

Model Elaboration by Exclusion of Non-Significant Variables, ALL & Lag = 0: Table 56

Table 117. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; ALL & Lag = 0

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept		SIG		SIG
AA	SIG	SIG		SIG
AGE1	SIG	SIG		
AGE2	SIG	SIG		
AHP				
APC		SIG		
HH	SIG	SIG		SIG
FEM	SIG	SIG		SIG
HISP	SIG			
WHI	SIG		SIG	
POP3R				
UNEMP3R		SIG	SIG	SIG
1999				
2000				
2001	SIG	SIG		
2002	SIG	SIG		
2003	SIG	SIG		
2004		SIG		
2005	SIG	SIG		
2006	SIG	SIG		
2007	SIG	SIG		
2008	SIG	SIG		
Greeley			SIG	
Loveland			SIG	

Model Elaboration by Exclusion of Non-Significant Variables, Retail & Lag = 1: Table 57

Table 118. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; RET & Lag = 1

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept	SIG	SIG	SIG	
AA	SIG		SIG	
AGE1	SIG	SIG	SIG	
AGE2	SIG	SIG	SIG	
AHP	SIG	SIG	SIG	
APC	SIG		SIG	
HH	SIG	SIG	SIG	
FEM	SIG	SIG	SIG	
HISP	SIG	SIG		
WHI	SIG	SIG	SIG	
POP3R	SIG	SIG	SIG	
UNEMP3R	SIG	SIG	SIG	
1999	SIG			
2000	SIG			
2001	SIG			
2002	SIG	SIG		
2003	SIG			
2004	SIG			
2005	SIG			
2006	SIG			
2007	SIG			
2008	SIG			
Greeley	SIG		SIG	
Loveland	SIG		SIG	

Model Elaboration by Exclusion of Non-Significant Variables, Manufacturing & Lag = 1: Table 58

Table 119. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; MAN & Lag = 1

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept	SIG	SIG	SIG	
AA	SIG			
AGE1	SIG	SIG		
AGE2	SIG			
AHP	SIG	SIG		
APC	SIG	SIG		
HH	SIG	SIG		
FEM	SIG	SIG		
HISP	SIG	SIG		
WHI	SIG	SIG		
POP3R	SIG	SIG		
UNEMP3R		SIG		
1999				
2000	SIG	SIG		
2001	SIG			
2002	SIG	SIG		
2003	SIG			
2004	SIG	SIG		
2005	SIG			
2006	SIG	SIG		
2007	SIG	SIG		
2008	SIG	SIG		
Greeley	SIG		SIG	
Loveland	SIG		SIG	

Model Elaboration by Exclusion of Non-Significant Variables, Distributive & Lag = 1:

Table 59

Table 120. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; DIST & Lag = 1

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept	SIG	SIG	SIG	SIG
AA		SIG		
AGE1	SIG	SIG		SIG
AGE2				
AHP	SIG	SIG		
APC		SIG		
HH	SIG	SIG		
FEM	SIG	SIG		
HISP				
WHI	SIG	SIG	SIG	SIG
POP3R	SIG	SIG		SIG
UNEMP3R	SIG	SIG		
1999				
2000		SIG		
2001	SIG	SIG		
2002	SIG	SIG		
2003	SIG	SIG		
2004	SIG			
2005	SIG			
2006	SIG			
2007	SIG			
2008	SIG			
Greeley	SIG			
Loveland	SIG			

Model Elaboration by Exclusion of Non-Significant Variables, Service & Lag = 1:

Table 60

Table 121. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; SERV & Lag = 1

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept		SIG		SIG
AA	SIG	SIG		SIG
AGE1		SIG		SIG
AGE2	SIG	SIG		SIG
AHP				
APC	SIG	SIG		
HH	SIG	SIG		SIG
FEM	SIG	SIG		SIG
HISP	SIG	SIG		
WHI				SIG
POP3R				
UNEMP3R	SIG	SIG	SIG	SIG
1999				
2000	SIG	SIG		
2001	SIG	SIG		
2002	SIG	SIG		
2003	SIG			
2004	SIG			
2005	SIG	SIG		
2006	SIG			
2007		SIG		
2008				
Greeley	SIG			
Loveland	SIG		SIG	

Model Elaboration by Exclusion of Non-Significant Variables, ALL & Lag = 1: Table 61

Table 122. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; ALL & Lag = 1

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept	SIG	SIG		
AA	SIG	SIG	SIG	SIG
AGE1	SIG	SIG		
AGE2	SIG	SIG		
AHP	SIG	SIG	SIG	
APC	SIG	SIG	SIG	
HH	SIG	SIG		SIG
FEM		SIG		SIG
HISP	SIG	SIG		
WHI	SIG	SIG	SIG	SIG
POP3R	SIG			
UNEMP3R	SIG	SIG	SIG	SIG
1999				
2000	SIG	SIG		
2001	SIG	SIG		
2002	SIG	SIG		
2003	SIG	SIG		
2004	SIG	SIG		
2005	SIG	SIG		
2006	SIG	SIG		
2007	SIG	SIG		
2008	SIG	SIG		
Greeley	SIG		SIG	
Loveland	SIG		SIG	

Model Elaboration by Exclusion of Non-Significant Variables, Retail & Lag = 2: Table 62

Table 123. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; RET & Lag = 2

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept	SIG	SIG		
AA				
AGE1	SIG	SIG	SIG	
AGE2	SIG	SIG		SIG
AHP	SIG		SIG	
APC	SIG			SIG
HH	SIG			SIG
FEM		SIG		
HISP				
WHI	SIG		SIG	SIG
POP3R			SIG	
UNEMP3R	SIG		SIG	
1999				
2000	SIG			
2001				
2002				
2003				
2004				
2005				
2006	SIG			
2007	SIG	SIG		
2008				
Greeley			SIG	
Loveland				

Model Elaboration by Exclusion of Non-Significant Variables, Manufacturing & Lag = 2: Table 63

Table 124. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; MAN & Lag = 2

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept		SIG		SIG
AA				
AGE1		SIG		SIG
AGE2				SIG
AHP				
APC				
HH		SIG		SIG
FEM		SIG		SIG
HISP		SIG		
WHI		SIG	SIG	SIG
POP3R				
UNEMP3R				
1999				
2000				
2001				
2002				
2003				
2004		SIG		
2005		SIG		
2006				
2007				
2008				
Greeley				
Loveland	SIG		SIG	

Model Elaboration by Exclusion of Non-Significant Variables, Distributive & Lag = 2:

Table 64

Table 125. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; DIST & Lag = 2

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept	SIG	SIG		SIG
AA			SIG	SIG
AGE1	SIG	SIG	SIG	SIG
AGE2				
AHP	SIG	SIG		SIG
APC	SIG	SIG		
HH	SIG	SIG		SIG
FEM	SIG	SIG		
HISP				
WHI	SIG	SIG	SIG	SIG
POP3R	SIG	SIG	SIG	SIG
UNEMP3R	SIG			
1999				
2000	SIG	SIG		
2001	SIG	SIG		
2002		SIG		
2003	SIG	SIG		
2004	SIG	SIG		
2005				
2006				
2007	SIG	SIG		
2008				
Greeley			SIG	
Loveland	SIG			

Model Elaboration by Exclusion of Non-Significant Variables, Service & Lag = 2:

Table 65

Table 126. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; SERV & Lag = 2

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept	SIG	SIG		SIG
AA				SIG
AGE1	SIG	SIG		
AGE2	SIG			SIG
AHP	SIG			
APC	SIG			
HH	SIG		SIG	SIG
FEM	SIG	SIG		SIG
HISP	SIG			
WHI	SIG			
POP3R	SIG			
UNEMP3R	SIG	SIG		
1999				
2000	SIG			
2001	SIG			
2002	SIG			
2003	SIG			
2004	SIG			
2005	SIG			
2006	SIG			
2007	SIG			
2008				
Greeley	SIG			
Loveland	SIG		SIG	

Model Elaboration by Exclusion of Non-Significant Variables, ALL & Lag = 2: Table 66

Table 127. Model Elaboration by Exclusion of Non-Significant Variables, showing significant results at 0.01 level; ALL & Lag = 2

Variable	City and Year Included	Year Included	City Included	Year and City Excluded
Intercept	SIG	SIG		
AA	SIG	SIG		
AGE1	SIG	SIG		
AGE2	SIG	SIG		
AHP	SIG	SIG		
APC	SIG	SIG		
HH	SIG	SIG		SIG
FEM	SIG	SIG		
HISP	SIG	SIG		
WHI	SIG	SIG		
POP3R	SIG			
UNEMP3R	SIG	SIG		
1999				
2000	SIG	SIG		
2001	SIG	SIG		
2002	SIG	SIG		
2003	SIG	SIG		
2004	SIG	SIG		
2005	SIG	SIG		
2006	SIG	SIG		
2007	SIG	SIG		
2008				
Greeley	SIG			
Loveland	SIG			

In conclusion, the four primary models outlined in the previous chapters were analyzed and publicized. In the next and final chapter, interpretation of the data, summary, policy implications, appraisal of the research questions, and evaluation of hypotheses are evaluated and finalized.

CHAPTER 6: RESULTS, CONCLUSIONS AND SUMMARIES

Recall that the major objective of this research was to explore cities-wide (Fort Collins (FC), Greeley (GR), and Loveland (LV)) factors as determinants of new business formation for the 1998-2008 years. Four different time-series cross-sectional models of new business formation for four industry sectors were developed, plus all the industrial sectors combined. This research explored 11 predictors judged to exert influence on new business formation in Northern Colorado. The following conclusions appear to be particularly significant:

From Original Models

The objective of comparing the model results of the alternatives was to see if statistical significance of a variable persists from one model to another (robust or not), and to quantify the number of significant variables at the 0.01 significant level as related to lags.

Retail

It is evident from an examination of Tables 7, 12, and 17 that new business formation-retail is better predicted at the two-year lag level, followed by the one-year lag. The zero-year lag is not as significant as the other two lags.

Manufacturing

It is evident from an examination of Tables 8, 13, and 18 that new business formation at the manufacturing-level is better predicted at the one-year lag level, followed by zero-year lag. The two-year lag is not as significant as the other two lags.

Distributive

It is evident from an examination of Tables 9, 14, and 19 that new business formation at the distributive-level is better predicted at the two-year lag level, followed by one-year lag level. The zero-year lag is not as significant as the other two lags.

Service

It is evident from an examination of Tables 10, 15, and 20 that new business formation at the service-level is better predicted at the two-year lag level, followed by one-year lag level. The zero-year lag is not as significant as the other two lags.

All Businesses (ALL)

It is evident from an examination of Tables 11, 16, and 21 that new business formation at the all businesses-level is better predicted at the two-year and one-year lag levels. The zero-year lag is not as significant as the other two lags.

Table 128 summarizes the above findings:

Table 128. Summary of Preferred Models from the Original Models

Lag	Retail	Manufacturing	Distributive	Service	All Businesses
Zero-Year					
One-Year		Preferred			
Two-Year	Preferred		Preferred	Preferred	Preferred

From Refining the Original Models

The results, reported below and summarized in Table 129, are in the majority of cases, in harmony with the results in the more fully Original Models (Tables 7 through 21). Exceptions are noted.

Retail

It is evident from an examination of Tables 22, 27, and 32 that new business formation at the retail-level is better predicted at the one-year lag level, followed by the two-year lag level. The zero-year lag is not as significant as the other two lags.

Manufacturing

It is evident from an examination of Tables 23, 28, and 33 that new business formation at the manufacturing-level is better predicted at the one-year lag level, followed by zero-year lag level. The two-year lag is not as significant as the other two lags.

Distributive

It is evident from an examination of Tables 24, 29, and 34 that new business formation at the distributive-level is better predicted at the two-year lag level, followed by one-year lag level. The zero-year lag is not as significant as the other two lags.

Service

It is evident from an examination of Tables 25, 30, and 35 that new business formation at the service-level is better predicted at the two-year lag level, followed by one-year lag level. The zero-year lag is not as significant as the other two lags.

All Businesses

It is evident from an examination of Tables 26, 31, and 36 the all businesses-level that new business formation is better predicted at the two-year and one-year lag levels. The zero-year lag is not as significant as the other two lags.

Table 129 summarizes the above Original Models findings:

Table 129. Summary of Preferred Models from the Refined Original Models

<table>
<tr><th>Lag</th><th>Retail</th><th>Manufacturing</th><th>Distributive</th><th>Service</th><th>All Businesses</th></tr>
<tr><td>Zero Year</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>One Year</td><td rowspan="2">Preferred</td><td>Preferred</td><td></td><td></td><td rowspan="2">Preferred</td></tr>
<tr><td>Two Year</td><td></td><td>Preferred</td><td>Preferred</td></tr>
</table>

From Model Elaboration by Addition of Partials

The results, reported below and summarized in Tables 130 through 136, estimate any impacts on the relationships involving factors already present in the model (Tables 37 through 51). Of great consequence is the similar sequence/pattern in the statistical significance, coefficients, and coefficients' signs (that is, a subsequent model does not alter the pattern of results obtained from a preceding model).

Retail

The previous sections (Original Models and Refining Original Models) established the impact of two-year lag and the one-year lag models as superior predictors of retail-based new business formation. In the one-year lag model (Tables 42 and 130), the coefficients and signs of the factors from AgeDis block did not alter from Model 1 when subsequent blocks were added, except for AA, from Sub-Model 2 to Sub-Model 3. Also in the one-year lag model, HH (from Value block) changed sign and significance from Sub-Model 2 to Sub-Model 3 and Sub-Model 4; FEM and WHI (from Social block) changed signs from Sub-Model 3 to Sub-Model 4.

In the two-year lag model (Tables 47 and 131), the coefficients and signs of the factors from AgeDis block did not alter from Model 1 when subsequent blocks were added, except for AA, from Sub-Model 2 to Sub-Models 3 and 4. Also in the two-year lag model, HH (from Value block) changed sign and significance from Sub-Model 2 to Sub-Models 3 and 4; FEM (from Social block) changed sign from Sub-Model 3 to Sub-Model 4.

The substance of these outcomes suggest that the coefficients that do not alter pattern of results from one Sub-Model to the next, represent relationships that are reasonably vigorous, even after factors for a different kind of influence (that is, AgeDis, Value, Social, and Supply), are introduced. Therefore, consistence increases our confidence in the factors.

For retail-based new business formation, Table 130 summarizes the findings.

Table 130. Pattern results from one-year lag model, Table 42

Block	Variable	Note
AgeDis	AA	—
	AGE1	Evidence of statistically significant POSITIVE influence on retail-based new business formation
	AGE2	Evidence of statistically significant NEGATIVE influence on retail-based new business formation
Value	AHP	Evidence of statistically significant NEGATIVE influence on retail-based new business formation
	APC	Evidence of statistically significant POSITIVE influence on retail-based new business formation
	HH	—
Social	FEM	—
	HISP	Evidence of statistically significant NEGATIVE influence on retail-based new business formation
	WHI	—
Supply	POP3R	Evidence of statistically significant NEGATIVE influence on retail-based new business formation – based on the increase of adjusted r-squared value
	UNEMP3R	Evidence of statistically significant NEGATIVE influence on retail-based new business formation – based on the increase of adjusted r-squared value

Table 131. Pattern results from two-year lag model, Table 47

Block	Variable	Note
AgeDis	AA	—
	AGE1	Evidence of statistically significant POSITIVE influence on retail-based new business formation
	AGE2	Evidence of statistically significant NEGATIVE influence on retail-based new business formation
Value	AHP	Evidence of statistically significant NEGATIVE influence on retail-based new business formation
	APC	Evidence of statistically significant POSITIVE influence on retail-based new business formation
	HH	—
Social	FEM	—
	HISP	Evidence of statistically significant NEGATIVE influence on retail-based new business formation
	WHI	Evidence of statistically significant POSITIVE influence on retail-based new business formation
Supply	POP3R	Evidence of statistically significant NEGATIVE influence on retail-based new business formation – based on the increase of adjusted r-squared value
	UNEMP3R	Evidence of statistically significant NEGATIVE influence on retail-based new business formation – based on the increase of adjusted r-squared value

Manufacturing

The previous sections (Original Models and Refining Original Models) established the impact of one-year lag model as superior predictor of manufacturing-based new business formation. In the one-year lag model (Tables 43 and 132), the coefficients and signs of the factors from AgeDis block did not alter from Model 1 when subsequent blocks were added, except for AGE2, from Sub-Model 2 to Sub-Model 3. Also in the one-year lag model, AHP, APC, and HH (from Value block) changed sign and significance from Sub-Model 2 to Sub-Model 3 and Sub-Model 4.

The substance of these outcomes suggest that the coefficients that do not alter pattern of results from one Sub-Model to the next, represent relationships that are reasonably vigorous, even after factors for a different kind of influence (that is, AgeDis, Value, Social, and Supply), are introduced. Therefore, consistence increases our confidence in the factors.

For manufacturing-based new business formation, Table 131 summarizes the findings.

Table 132. Pattern results from one-year lag model, Table 43

Block	Variable	Note
AgeDis	AA	Evidence of statistically significant POSITIVE influence on manufacturing-based new business formation
	AGE1	Evidence of statistically significant POSITIVE influence on manufacturing -based new business formation
	AGE2	—
Value	AHP	—
	APC	—
	HH	—
Social	FEM	Evidence of statistically significant NEGATIVE influence on manufacturing -based new business formation
	HISP	Evidence of statistically significant POSITIVE influence on manufacturing -based new business formation
	WHI	Evidence of statistically significant POSITIVE influence on manufacturing -based new business formation
Supply	POP3R	—
	UNEMP3R	—

Distributive

The previous sections (Original Models and Refining Original Models) established the impact of two-year lag model as superior predictor of distributive-based new business formation. In the two-year lag model (Tables 49 and 133), the coefficients and signs of the coefficients (factors) from AgeDis block did not alter from Model 1 when subsequent blocks were added, except for AA, from Sub-Model 2 to Sub-Model 3. Also in the one-year lag model, HH (from Value block) changed sign and significance from Sub-Model 2 to Sub-Model 3 and Sub-Model 4.

The substance of these outcomes suggest that the coefficients that do not alter pattern of results from one Sub-Model to the next, represent relationships that are reasonably vigorous, even after factors for a different kind of influence (that is, AgeDis, Value, Social, and Supply), are introduced. Therefore, consistence increases our confidence in the factors.

For distributive-based new business formation, Table 133 summarizes the findings.

Table 133. Pattern results from two-year lag model, Table 49

Block	Variable	Note
AgeDis	AA	—
	AGE1	Evidence of statistically significant POSITIVE influence on distributive-based new business formation
	AGE2	Evidence of statistically significant NEGATIVE influence on distributive - based new business formation
Value	AHP	Evidence of statistically significant NEGATIVE influence on distributive - based new business formation
	APC	Evidence of statistically significant POSITIVE influence on distributive - based new business formation
	HH	—
Social	FEM	Evidence of statistically significant POSITIVE influence on distributive - based new business formation
	HISP	—
	WHI	Evidence of statistically significant POSITIVE influence on distributive - based new business formation
Supply	POP3R	Evidence of statistically significant NEGATIVE influence on distributive - based new business formation – based on the increase of adjusted r-squared value
	UNEMP3R	Evidence of statistically significant NEGATIVE influence on distributive - based new business formation – based on the increase of adjusted r-squared value

Service

The previous sections (Original Models and Refining Original Models) established the impact of two-year lag model as superior predictor of service-based new business formation. In the two-year lag model (Tables 50 and 134), the coefficients and signs of the factors from AgeDis block did not alter from Model 1 when subsequent blocks were added, except for AGE1, from Sub-Model 3 to Sub-Model 4. Also in the one-year lag model, AHP (from Value block) changed sign and significance from Sub-Model 2 to Sub-Model 3 and Sub-Model 4.

The substance of these outcomes suggest that the coefficients that do not alter pattern of results from one Sub-Model to the next, represent relationships that are reasonably vigorous, even after factors for a different kind of influence (that is, AgeDis, Value, Social, and Supply), are introduced. Therefore, consistency increases our confidence in the factors.

For service-based new business formation, Table 134 summarizes the findings.

Table 134. Pattern results from two-year lag model, Table 50

Block	Variable	Note
AgeDis	AA	Evidence of statistically significant POSITIVE influence on service-based new business formation
	AGE1	—
	AGE2	Evidence of statistically significant POSITIVE influence on service - based new business formation
Value	AHP	—
	APC	Evidence of statistically significant NEGATIVE influence on service - based new business formation
	HH	Evidence of statistically significant NEGATIVE influence on service - based new business formation
Social	FEM	—
	HISP	Evidence of statistically significant POSITIVE influence on service - based new business formation
	WHI	Evidence of statistically significant POSITIVE influence on service - based new business formation
Supply	POP3R	—
	UNEMP3R	—

All Businesses

The previous sections (Original Models and Refining Original Models) established the impact of two-year lag and the one-year lag models as superior predictors of all businesses-based new business formation. In the one-year lag model (Tables 46 and 135), no coefficients and signs of the factors from AgeDis block alter from Model 1 when subsequent blocks were added. Also in the one-year lag model, APC (from Value block) changed sign and significance from Sub-Model 2 to Sub-Model 3 and Sub-Model 4.

In the two-year lag model (Tables 51 and 136), the coefficients and signs of the factors from AgeDis block did not alter from Model 1 when subsequent blocks were added, except for AGE1, from Sub-Model 1 to Sub-Models 2, 3, and 4. Also in the two-year lag model, AHP and APC (from Value block) changed sign and significance from Sub-Model 2 to Sub-Models 3 and 4; FEM (from Social block) changed sign from Sub-Model 3 to Sub-Model 4.

The substance of these outcomes suggest that the coefficients that do not alter pattern of results from one Sub-Model to another, represent relationships that are reasonably vigorous, even after factors for a different kind of influence (that is, AgeDis, Value, Social, and Supply), are introduced. Therefore, consistence increases our confidence in the factors.

For all businesses-based new business formation, Tables 135 and 136 summarize the findings.

Table 135. Pattern results from one-year lag model, Table 46

Block	Variable	Note
AgeDis	AA	Evidence of statistically significant POSITIVE influence on all new business formation
	AGE1	Evidence of statistically significant POSITIVE influence on all new business formation
	AGE2	Evidence of statistically significant POSITIVE influence on all new business formation
Value	AHP	Evidence of statistically significant NEGATIVE influence on all new business formation
	APC	—
	HH	Evidence of statistically significant NEGATIVE influence on all new business formation
Social	FEM	Evidence of statistically significant NEGATIVE influence on all new business formation
	HISP	Evidence of statistically significant POSITIVE influence on all new business formation
	WHI	Evidence of statistically significant POSITIVE influence on all new business formation
Supply	POP3R	—
	UNEMP3R	—

Table 136. Pattern results from two-year lag model, Table 51

Block	Variable	Note
AgeDis	AA	Evidence of statistically significant POSITIVE influence on all new business formation
	AGE1	—
	AGE2	Evidence of statistically significant POSITIVE influence on all new business formation
Value	AHP	—
	APC	—
	HH	Evidence of statistically significant NEGATIVE influence on all new business formation
Social	FEM	—
	HISP	Evidence of statistically significant POSITIVE influence on all new business formation
	WHI	Evidence of statistically significant POSITIVE influence on all new business formation
Supply	POP3R	—
	UNEMP3R	—

From Model Elaboration by Inclusion and Exclusion

The results, reported and summarized below, estimate the separate contributions of controls for unmeasured place (city) and time (year) influences (Tables 52 through 66, but specifically Tables 57 and 62 (RET), 58 (MAN), 64 (DIST), 65 (SERV), and 61 and 66 (ALL). In most cases, when Sub-Model 4 is compared to Sub-Model 1, the adjusted r-squared (a.k.a. explanatory power) of Sub-Model 4 is on average 10 percent that of Sub-Model 1. Clearly, the addition of controls for place (city) and time (year) contributes explanatory power to the more inclusive model.

There are four main types of outcomes that warrant attention. The first outcome describes some of the significances across Sub-Models, the second outcome involves identification of hidden influences exerted by unmeasured factors, the third outcome type involves the identification of the influences of controls for the year influences (recall that YR2 = 1999, YR3 = 2000, YR4 = 2001, YR5 = 2002, YR6 = 2003, YR7 = 2004, YR8 = 2005, YR9 = 2006, YR10 = 2007, YR11 = 2008). Last, the fourth outcome involves describing the coefficient value for city dummies on Sub-Model 3 (recall that CTY1 = Fort Collins, CTY2 = Greeley, and CTY3 = Loveland. When appropriate and valid, all of these outcomes are explained under each industrial sector.

Retail

The previous sections (Original Models, Refining Original Models, and Model Elaboration by Addition of Partials) established the impact of two-year lag and one-year lag models as superior predictors of retail-based new business formation. In the one-year lag model the following types of categories warrant attention:

Type 1 Category: Three of the factors generally retain statistical significance and signs across Sub-Models: AGE2, APC, and POP3R. Three of the factors retained their significance in Sub-Model 4 while experiencing a sign reversal: AA, HH, and WHI. AA coefficient is negative in the absence of place and time influences (positive otherwise), HH coefficient is negative in the absence of place and time influences (positive when year dummies are excluded), and WHI coefficient is positive I the absence of place and time influences (negative otherwise).

Type 2 Category: Eight significant factors in Sub-Model 1 lost their statistical significance in Sub-Model 4, after control or place and time dummies were removed: AGE1, AGE2, AHP, APC, FEM, HISP, POP3R, and UNEMP3R. APC is mostly influenced by the place controls, while HISP seems to be slightly influenced by the year controls.

Type 3 Category: Sub-Model 2 indicates that for each year between 1999 and 2005, excluding 2000, retail-based (one-year lag) new business formation proceeded at rates significantly below that of 1998. Furthermore, these negative effects (year effects) were expanded and replicated after city dummies were introduced in Sub-Model 1. The year-specific influences expose the following pattern: 1) for the 1999-2000 period the rate of retail-based (one-year lag) was lower; 2) for the period of 2001-2002 significantly lower (more negative); 3) for the

2002-2005 period, the rate increased (became less negative); 4) for the 2006-2008 period, it became positive.

Type 4 Category: Based on Sub-Model 3, both Greeley and Loveland have negative coefficients. The negative coefficient of Greeley is about 5.5 times the negative value of that of Loveland.

In the two-year lag model the following types of categories warrant attention:

Type 1 Category: Three of the factors generally retain statistical significance and signs across Sub-Models: AGE2, APC, and WHI. One factor retained their significance in Sub-Model 4 while experiencing a sign reversal: HH. AA coefficient is negative in the absence of place and time influences (positive when year dummies are excluded).

Type 2 Category: Six significant factors in Sub-Model 1 lost their statistical significance in Sub-Model 4, after control or place and time dummies were removed: AGE1, AHP, FEM, HISP, POP3R, and UNEMP3R. AHP and UNEMP3R are mostly influenced by the place controls, while FEM and HISP are mostly influenced by the year controls.

Type 3 Category: Sub-Model 2 indicates that for each year between 1999 and 2005, retail-based (two-year lag) new business formation proceeded at rates significantly below that of 1998. Furthermore, these negative effects (year effects) were replicated after city dummies were introduced in Sub-Model 1. The year-specific influences expose the following pattern: 1) for the 1999-2002 period the rate of retail-based (two-year lag) was significant lower and decreased; 2) for the period of 2003-2002 it increased (became less negative); 3) for the 2006-2008 period, the rate became positive.

Type 4 Category: Based on Sub-Model 3, both Greeley and Loveland have negative coefficients. The negative coefficient of Loveland is about zero, and the negative value of Greeley is -2.00.

Manufacturing

The previous sections (Original Models, Refining Original Models, and Model Elaboration by Addition of Partials) established the impact of one-year lag as superior predictor of manufacturing-based new business formation. In the one-year lag model the following types of categories warrant attention:

Type 1 Category: One factor generally retained statistical significance and sign across Sub-Models: WHI. Two of the factors retained their significance in Sub-Model 4 while experiencing a sign reversal: AGE2 and HH.

Type 2 Category: Seven significant factors in Sub-Model 1 lost their statistical significance in Sub-Model 4, after control or place and time dummies were removed: AA, AGE1, AHP, APC, FEM, HISP, and POP3R. Both HH and UNEMP3R are mostly influenced by the year controls.

Type 3 Category: Sub-Model 2 indicates that for each year between 1999 and 2008, excluding 2003, manufacturing-based (one-year lag) new business formation proceeded at rates significantly below that of 1998. Furthermore, these negative effects (year effects) were replicated after city dummies were introduced in Sub-Model 1. The year-specific influences expose the following pattern: 1) for the 1999-

2005 period the rate of retail-based (one-year lag) was significant lower than 1998; 2) for the period of 2006-2008 it decreased (became more negative).

Type 4 Category: Based on Sub-Model 3, the coefficients are about the same, with opposite signs: Greeley is negative and Loveland is positive.

Distributive

The previous sections (Original Models, Refining Original Models, and Model Elaboration by Addition of Partials) established the impact of two-year lag as superior predictor of distributive-based new business formation. In the two-year lag model the following types of categories warrant attention:

Type 1 Category: Seven factors generally retained statistical significance and signs across Sub-Models: AA, AGE1, AHP, APC, HH, WHI, and POP3R.

Type 2 Category: Three significant factors in Sub-Model 1 lost their statistical significance in Sub-Model 4, after control or place and time dummies were removed: AGE2, FEM, and UNEMP3R. HISP is mostly influenced by the place controls, as the inclusion of place dummies (and absence of year dummies), made the model statistically significant.

Type 3 Category: Type 3 Category: Sub-Model 2 indicates that for each year between 1999 and 2006, distributive-based (two-year lag) new business formation proceeded at rates significantly below that of 1998. Furthermore, these negative effects (year effects) were replicated after city dummies were introduced in Sub-Model 1. The year-specific influences expose the following pattern: 1) for the 1999-2003 period the rate of retail-based (two-year lag) was significant lower than 1998 and decreasing (becoming more negative); 2) for the period of 2004-2006 it increased (became less negative); 3) for the period of 2007-2008 it became positive.

Type 4 Category: Based on Sub-Model 3, the coefficient of Greeley is positive (0.45) and the coefficient of Loveland is negative (-0.15).

Service

The previous sections (Original Models, Refining Original Models, and Model Elaboration by Addition of Partials) established the impact of two-year lag as superior predictor of service-based new business formation. In the two-year lag model the following types of categories warrant attention:

Type 1 Category: Two factors generally retained statistical significance and signs across Sub-Models: AGE2 and HH. Five of the factors retained their significance in Sub-Model 4 while experiencing a sign reversal: AA, AHP, APC, FEM, and UNEMP3R.

Type 2 Category: Four significant factors in Sub-Model 1 lost their statistical significance in Sub-Model 4, after control or place and time dummies were removed: AGE1, HISP, WHI, and POP3R. AGE2 and APC are mostly influenced by the place controls, as the inclusion of place dummies (and absence of year dummies), made the model not statistically significant.

Type 3 Category: Sub-Model 2 indicates that for each year between 1999 and 2006, service-based (two-year lag) new business formation proceeded at rates significantly higher that of 1998. Furthermore, these positive effects (year effects) were replicated after city dummies were introduced in Sub-Model 1. The year-specific influences expose the following pattern: 1) for the 1999-2004 period the rate of retail-based (two-year lag) was significant higher than 1998; 2) for the period of 2005-2008 it decreased and became more negative.

Type 4 Category: Based on Sub-Model 3, the coefficient of Greeley is negative (-0.37) and the coefficient of Loveland is also negative (-5.64).

All Businesses

The previous sections (Original Models, Refining Original Models, and Model Elaboration by Addition of Partials) established the impact of two-year lag and the one-year lag models as superior predictors of new business formation. In the one-year lag model the following types of categories warrant attention:

Type 1 Category: Three of the factors generally retain statistical significance and signs across Sub-Models: AGE2, HH, and WHI. Three of the factors retained their significance in Sub-Model 4 while experiencing a sign reversal: AA, FEM, and UNEMP3R.

Type 2 Category: Five significant factors in Sub-Model 1 lost their statistical significance in Sub-Model 4, after control or place and time dummies were removed: AGE1, AHP, APC, HISP, and POP3R. FEM is mostly influenced by the place controls, while HISP seems to be slightly influenced by the year controls.

Type 3 Category: Sub-Model 2 indicates that for each year between 1999 and 2008, (one-year lag) new business formation proceeded at rates significantly below that of 1998. These negative effects (year effects) were not replicated after city dummies were introduced in Sub-Model 1, indicating a strong city effect. The year-specific influences expose the only pattern: the rate of new businesses (one-year lag) was significantly lower that that of 1998 and decreasing (becoming more negative).

Type 4 Category: Based on Sub-Model 3, both Greeley and Loveland have negative coefficients. The negative coefficient of Greeley is about 25 percent lower than the value of Loveland.

In the two-year lag model the following types of categories warrant attention:

Type 1 Category: Two of the factors generally retain statistical significance and signs across Sub-Models: HH and WHI. Three factors retained their significance in Sub-Model 4 while experiencing a sign reversal: AA, FEM, and UNEMP3R.

Type 2 Category: Six significant factors in Sub-Model 1 lost their statistical significance in Sub-Model 4, after control or place and time dummies were removed: AGE1, AGE2, AHP, APC, HISP, and POP3R. HH, FEM, and UNEMP3R are mostly influenced by the place controls, as the inclusion of place dummies (and absence of year dummies), made the model not statistically significant.

Type 3 Category: Sub-Model 2 indicates that for each year between 1999 and 2005, all businesses-based (two-year lag) new business formation proceeded at rates significantly higher that of 1998. Furthermore, these positive effects (year effects) were replicated after city dummies were introduced in Sub-Model 1. The year-specific influences expose the following pattern: 1) for the 1999-2005 period the rate of retail-based (two-year lag) was significant higher; 2) for the period of 2006-2008 it decreased and became negative.

Type 4 Category: Based on Sub-Model 3, both Greeley and Loveland have negative coefficients. The negative coefficient of Loveland is -2.88, and the negative value of Greeley is -3.92, or about 25 percent lower than that of Loveland.

Answers to the Research Questions

Recall the following research questions from Chapter 1 (with their respective answers below each of them):

Research Question 1: Which city (Fort Collins, Greeley, and Loveland) characteristics (IVs) help explain variation in rates of new business formation across both time and space?

Retail industrial sector, one year lag — a positive and significant impact of AA (average age of population), AGE1 (percentage of population (15 to 24)), APC (average per capita income), FEM (percentage of females in the population), and WHI (percentage of Whites in the population); a negative and significant impact of AGE2 (percentage of population (25 to 64)), AHP (average housing price), HH (average household income), HISP (percentage of Hispanics in population), POP3R (cubic root of total population), and UNEMP3R (cubic root of unemployment rate).

Manufacturing industrial sector, one year lag — a positive and significant impact of AA, AGE1, AGE2, HH, HISP, WHI, and UNEMP3R; negative and significant impact of AHP, APC, FEM, and POP3R.

Distributive industrial sector, two year lag — a positive and significant impact of AGE1, APC, HH, FEM, and WHI; negative and significant impact of AHP, POP3R, and UNEMP3R.

Service industrial sector, two year lag — a positive and significant impact of AA, AGE2, FEM, HISP, and WHI; negative and significant impact of AGE1, AHP, APC, HH, POP3R, and UNEMP3R.

All Industrial sectors one and two year lags — a positive and significant impact of AA, AGE1, AGE2, HISP, and WHI (one year lag); negative and significant impact of AHP, APC, HH, FEM, POP3R, and UNEMP3R (one-year lag); a positive and significant impact of AA, AGE1, FEM, HISP, and WHI (two-year lag); negative and significant impact of AGE2, AHP, APC, HH, POP3R, and UNEMP3R (two-year lag).

Research Question 2: What is the relative importance of different variables on the rate of overall new business formation across both time and space?

The following variables seem to possess a higher influence (based on the number of appearance in all the models) on the rate of overall new business formation: Highest influence: AGE2, APC, HISP, and WHI. Median influence: AGE1, AHP, AA, and FEM. Lowest influence: POP3R, UNEMP3R, and HH.

Research Question 3: Is it possible the interaction between different variables can have an impact on the rate of new business formation across both time and space?

The answer to this question was fully expressed on the section starting on Page 218.

Research Question 4: What are the implications for the development of entrepreneurship and likewise new business formation theories?

Please refer to the section of Policy Implications starting on Page 241.

Answers to the Hypotheses

Recall the following hypotheses from Chapter 1 (with their respective answers below each of them). The answers/findings outlined below come from the diverse and numerous statistical analyses in this study – the results from which are succinctly outlined on pages 200 through 227.

Hypothesis 1: Total retail-related business formation ratio (per 1000 population) is higher in cities with a higher average age of population.

This hypothesis is partially supported by the results: while Loveland has the highest AA, it has the second highest rate of retail-related business formation. Greeley has both the lowest AA and rate of retail-related business formation.

Hypothesis 2: Total retail-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (15 to 24).

This hypothesis is not supported by the results: Greeley has both the highest AGE1 and the lowest rate of retail-related business formation.

Hypothesis 3: Total retail-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (25 to 64).

This hypothesis is partially supported by the results: while Loveland has the highest AGE2, it has the second highest rate of retail-related business formation. Greeley has both the lowest AGE2 and rate of retail-related business formation.

Hypothesis 4: Total retail-related business formation ratio (per 1000 population) is higher in cities with a lower average housing price.

This hypothesis is partially supported by the results: while Loveland has the highest AHP rate, it has the second highest rate of retail-related business formation. Greeley has both the lowest AHP rate and rate of retail-related business formation.

Hypothesis 5: Total retail-related business formation ratio (per 1000 population) is higher in cities with a lower average per capita income (wealth).

This hypothesis is not supported by the results: Fort Collins has both the highest APC rate and rate of retail-related business formation. Greeley has both the lowest APC rate and rate of retail-related business formation.

Hypothesis 6: Total retail-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of households with incomes less than $100,000 per year.

This hypothesis is not supported by the results: Greeley has both the highest HH rate and the lowest rate of retail-related business formation.

Hypothesis 7: Total retail-related business formation ratio (per 1000 population) is higher in cities with a lower percentage of females in population.

This hypothesis is partially supported by the results: Fort Collins has both the lowest FEM rate and the highest rate of retail-related business formation. Greeley has the highest FEM rate and the lowest rate of retail-related business formation.

Hypothesis 8: Total retail-related business formation ratio (per 1000 population) is higher in cities with a lower percentage of Hispanics in population.

This hypothesis is partially supported by the results: Fort Collins has both the second lowest HISP rate and the highest rate of retail-related business formation. Greeley has the highest HISP rate and the lowest rate of retail-related business formation.

Hypothesis 9: Total retail-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of Whites in population.

This hypothesis is partially supported by the results: Fort Collins has both the second highest WHI rate and the highest rate of retail-related business formation. Loveland has the highest WHI rate and the second highest rate of retail-related business formation.

Hypothesis 10: Total retail-related business formation ratio (per 1000 population) is higher in cities with a higher total population rate.

This hypothesis is partially supported by the results: Fort Collins has both the second highest POP rate and the highest rate of retail-related business formation. Greeley has the highest POP rate and the lowest rate of retail-related business formation.

Hypothesis 11: Total retail-related business formation ratio (per 1000 population) is higher in cities with a higher unemployment rate.

This hypothesis is fully supported by the results.

Hypothesis 12: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a higher average age of population.

This hypothesis is fully supported by the results.

Hypothesis 13: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (15 to 24).

This hypothesis is not supported by the results.

Hypothesis 14: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (25 to 64).

This hypothesis is not supported by the results.

Hypothesis 15: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a lower average housing price.

This hypothesis is not supported by the results.

Hypothesis 16: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a lower average per capita income (wealth).

This hypothesis is partially supported by the results: Loveland has the second highest APC rate and the highest rate of manufacturing-related business formation. Greeley has the lowest APC rate and the lowest rate of manufacturing-related business formation.

Hypothesis 17: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of households with incomes less than $100,000 per year.

This hypothesis is fully supported by the results.

Hypothesis 18: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a lower percentage of females in population.

This hypothesis is not supported by the results.

Hypothesis 19: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a lower percentage of Hispanics in population.

This hypothesis is not supported by the results: Greeley has the highest HISP rate and the lowest rate of manufacturing-related business formation.

Hypothesis 20: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of Whites in population.

This hypothesis is not supported by the results: Greeley has the lowest WHI rate and the lowest rate of manufacturing-related business formation. Loveland has the highest WHI rate and the highest rate of manufacturing-related business formation.

Hypothesis 21: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a higher total population rate.

This hypothesis is not supported by the results: Loveland has the lowest POP rate and the highest rate of manufacturing-related business formation.

Hypothesis 22: Total manufacturing-related business formation ratio (per 1000 population) is higher in cities with a higher unemployment rate.

This hypothesis is not supported by the results.

Hypothesis 23: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a higher average age of population.

This hypothesis is partially supported by the results: Greeley has the lowest AA and the highest rate of distributive-related business formation. Loveland has the highest AA and the second highest rate of distributive-related business formation.

Hypothesis 24: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (15 to 24).

This hypothesis is supported by the results: Greeley has the highest AGE1 and the highest rate of distributive-related business formation. Loveland has the lowest AGE1 and the second highest rate of distributive-related business formation.

Hypothesis 25: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (25 to 64).

This hypothesis is not supported by the results.

Hypothesis 26: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a lower average housing price.

This hypothesis is fully supported by the results.

Hypothesis 27: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a lower average per capita income (wealth).

This hypothesis is fully supported by the results.

Hypothesis 28: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of households with incomes less than $100,000 per year.

This hypothesis is fully supported by the results.

Hypothesis 29: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a lower percentage of females in population.

This hypothesis is not supported by the results.

Hypothesis 30: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a lower percentage of Hispanics in population.

This hypothesis is not supported by the results.

Hypothesis 31: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of Whites in population.

This hypothesis is not supported by the results.

Hypothesis 32: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a higher total population rate.

This hypothesis is fully supported by the results.

Hypothesis 33: Total distributive-related business formation ratio (per 1000 population) is higher in cities with a higher unemployment rate.

This hypothesis is not supported by the results.

Hypothesis 34: Total service-related business formation ratio (per 1000 population) is higher in cities with a higher average age of population.

This hypothesis is partially supported by the results: Greeley has the lowest AA and the lowest rate of service-related business formation. Loveland has the highest AA and the second highest rate of service-related business formation.

Hypothesis 35: Total service-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (15 to 24).

This hypothesis is not supported by the results.

Hypothesis 36: Total service-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (25 to 64).

This hypothesis is partially supported by the results: Fort Collins has the second highest AGE2 and the highest rate of service-related business formation. Greeley has the lowest AGE2 and the lowest rate of service-related business formation.

Hypothesis 37: Total service-related business formation ratio (per 1000 population) is higher in cities with a lower average housing price.

This hypothesis is not supported by the results.

Hypothesis 38: Total service-related business formation ratio (per 1000 population) is higher in cities with a lower average per capita income (wealth).

This hypothesis is not supported by the results.

Hypothesis 39: Total service-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of households with incomes less than $100,000 per year.

This hypothesis is not supported by the results.

Hypothesis 40: Total service-related business formation ratio (per 1000 population) is higher in cities with a lower percentage of females in population.

This hypothesis is fully supported by the results.

Hypothesis 41: Total service-related business formation ratio (per 1000 population) is higher in cities with a lower percentage of Hispanics in population.

This hypothesis is partially supported by the results: Fort Collins has the second lowest HISP rate and the highest rate of service-related business formation.

Greeley has the highest HISP rate and the lowest rate of service-related business formation.

Hypothesis 42: Total service-related business formation ratio (per 1000 population) is higher in cities with a higher percentage of Whites in population.

This hypothesis is partially supported by the results: Fort Collins has the second highest WHI rate and the highest rate of service-related business formation. Greeley has the lowest WHI rate and the lowest rate of service-related business formation.

Hypothesis 43: Total service-related business formation ratio (per 1000 population) is higher in cities with a higher total population.

This hypothesis is not supported by the results.

Hypothesis 44: Total service-related business formation ratio (per 1000 population) is higher in cities with a higher unemployment rate.

This hypothesis is fully supported by the results.

Hypothesis 45: Total new business formation ratio (per 1000 population) is higher in cities with a higher average age of population.

This hypothesis is partially supported by the results: Greeley has the lowest AA and the lowest rate of all business formation. Loveland has the highest AA and the second highest rate of all business formation.

Hypothesis 46: Total new business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (15 to 24).

This hypothesis is not supported by the results.

Hypothesis 47: Total new business formation ratio (per 1000 population) is higher in cities with a higher percentage of population (25 to 64).

This hypothesis is not supported by the results.

Hypothesis 48: Total new business formation ratio (per 1000 population) is higher in cities with a lower average housing price.

This hypothesis is not supported by the results.

Hypothesis 49: Total new business formation ratio (per 1000 population) is higher in cities with a lower average per capita income (wealth).

This hypothesis is not supported by the results.

Hypothesis 50: Total new business formation ratio (per 1000 population) is higher in cities with a higher percentage of households with incomes less than $100,000 per year.

This hypothesis is not supported by the results.

Hypothesis 51: Total new business formation ratio (per 1000 population) is higher in cities with a lower percentage of females in population.

This hypothesis is fully supported by the results.

Hypothesis 52: Total new business formation ratio (per 1000 population) is higher in cities with a lower percentage of Hispanics in population.

This hypothesis is partially supported by the results: Fort Collins has the second lowest HISP rate and the highest rate of new business formation. Greeley has the highest HISP rate and the lowest rate of new business formation.

Hypothesis 53: Total new business formation ratio (per 1000 population) is higher in cities with a higher percentage of Whites in population.

This hypothesis is partially supported by the results: Fort Collins has the second highest WHI rate and the highest rate of new business formation. Greeley has the lowest WHI rate and the lowest rate of new business formation.

Hypothesis 54: Total new business formation ratio (per 1000 population) is higher in cities with a higher total population rate.

This hypothesis is not supported by the results.

Hypothesis 55: Total new business formation ratio (per 1000 population) is higher in cities with a higher unemployment rate.

This hypothesis is fully supported by the results.

Policy Implications

One central implication is the variation of new business formation appears to be determined by factors potentially open to local policy interventions, although any intervention might be implemented with great difficulty. Local governments and related business partners (e.g., Chamber of Commerce and local business incubators) may not have enough direct control over many of the factors analyzed in this study to justify interventions, particularly if the ultimate objective is to increase overall or targeted new business formation.

How can local government policies influence new business formation, in terms of the factors analyzed in this study? Two policy implication questions follow: 1) Are there ways local government might influence new business formation by indirectly manipulating the factors studied? If yes, the second question is 2) how might it proceed in doing so?

The influences of direct and indirect policy measures as they relate to each of the eleven factors are explored. There may be spatial variations in both the support of community leaders and the actual influence of these factors in relation to new business formation activity (Johnson & Parker, 1996). I aim, in each paragraph, to address the two policy implication questions posed. If some of the answers to the "how to" are not referenced it is because they are formed by my own professional and academic experience on the subject.

If some of these "how to" ideas are already in place, it may mean that I am not aware of them. This could suggest that a majority of the local population would not know about these ideas either. As a result, I welcome open yet constructive deliberations about them; these deliberations must focus on improving the economic well being of communities by increasing the rate of new business formation (and thus employment and salary level). I strongly believe this is absolutely not the time for the hands off approach that many leaders seem to default to concerning entrepreneurs and entrepreneurship.

An extensive search was conducted in databases such as LexisNexis, PAIS International, and Urban Studies Abstracts to determine if any community or region was or had been implementing public policies to harvest the factors/variables studied in this dissertation, yet no references were found. The findings are reported after the public policy discussion of each of the factors.

A higher average age (AA) of the population seems to be related to new business formation over time, possibly reflecting greater experience of potential entrepreneurs and also labor market discrimination against older employees (Goetz & Rupasingha, 2009). Economic wealth increases with age and older individuals with capital may choose to invest it in business start-ups. Two specific ways policy makers (that is, the government and partners) can leverage this factor is to:

1) Facilitate and promote knowledge transfer of older and more experienced nascent entrepreneurs via community sponsored forums, and

2) Direct knowledge transfer efforts into the desired mix of business industrial categories (based on the factors-influence-direction shown in Figure 1).

The factors percentage of population (15 to 24) (AGE1) and percentage of population (25 to 64) (AGE2) are associated with the factor AA (discussed above) and, as a result, specific policy levers will not be discussed further.

An example of the importance of average age of population in new business formation can be seen in the 2009 descriptive study from the Kaufmann Foundation (Fairlie, 2009, p. 3): “The oldest age group (ages fifty-five to sixty-four) experienced the largest increase in entrepreneurial activity from 2007 to 2008 (0.31 percent to 0.36 percent), making it the age group with the highest entrepreneurial activity rate.” No reference was found of a community or region implementing public policies to harvest this factor/variable using the databases mentioned above.

Based on the findings of this study, average housing price (AHP) seems to have a negative influence on new business formation rates across all industrial sectors. This finding is contrary to the belief that higher housing values are positive and significant to new business formation due to the importance of personal collateral to secure business-related loans (Goetz & Rupasingha, 2009). Despite the need for further study to confirm this discordant finding, policy makers can influence the value of this factor by 1) supporting the construction of lower to medium income housing, and 2) passing zoning laws discouraging the building of outliers (high-priced dwellings) within the community's economic influence.

Example of the importance and usage of average housing price in new business formation can be seen on the County of Santa Cruz website, California (Santa Cruz Chamber of Commerce, 2011): "The lack of affordable housing in Santa Cruz County severely constrains the capability of the area's employers to attract and retain employees. It is a deterrent to drawing new businesses to our area." (para. 2, Background)

The coefficient of the factor average per capita income (APC) was mixed in this research (Figure 1). Per capita income reflects aggregate demand in an economy (Robson, 1998). A negative coefficient for APC may suggest individuals are more likely to seek self-employment opportunities in periods of economic downturns because they is an ''option of last resort,'' as often argued by Small Business Administration (U.S. Small Business Administration, 2006). This is especially relevant in the economic climate of 2008 to 2011.

An example of the importance of APC in new business formation can be seen in the state-wide data compilation done by Sobel and Hall (2008, p. 39): "Examining the measures of entrepreneurial activity, a similar pattern emerges—states with the most economic freedom have higher rates of entrepreneurial activity." No reference was found of a community or region implementing public policies to harvest this factor/variable using the databases mentioned above.

Any local government not availing itself of the opportunity to increase new business formation comes within reach of carelessness and lack of professional judgment. There are many things communities could be doing to benefit from the present economic downturn as it relates to small business formation; Some of them are 1) adopt a buy local position, with strong buy-in and buy-in incentives from the community; 2) work closely with government agencies such as the Small Business Administration to attain and distribute small business loans; 3) allocate those personnel involved in the local government’s economic development activities to actively and proactively interact with nascent entrepreneurs in the form of personal coaching, mentoring, streamlining regulations, etc.

The factor HH is associated with the factor percentage of households with income less than $100,000 per year (APC) (discussed above) and as a result, its policy will not be discussed further.

The social factors, percentage of females in population (FEM), percentage of Hispanics in population (HISP), and percentage of Whites in the population (WHI) will be concurrently discussed. The percentage of women in the total labor force is included because women are less likely than men to be self-employed (Minniti, Arenius, & Langowitz, 2005; Minniti & Nardone, 2007). The same circumstances are also seen by Hispanics and African Americans. The factor WHI seems to exert a positive influence across all industrial sectors as expected. Governments and their policy partners should use the results of these factors proactively. As Northern Colorado communities are becoming more culturally diverse, programs that specifically address the personal, professional, and economic needs of women and Hispanics may be needed. Entrepreneurs, as all individuals, are diverse and require individual attention to bloom and grow. What are some of these needs? For women it may entail specific support such as a child/elder care co-ops or options to trade care hours for a certain number of hours in their business and some social/connecting/down time. For Hispanics it may involve classes or seminars on countering prejudice and the role of ethnic networking, institutional regulations, and societal structures (Wang & Li, 2007).

Some examples of the importance of social factors in new business formation are as follows (note that no references were found of a community or region implementing public policies to use this factor/variable for new business formation, using the databases mentioned above).

1) Percentage of females in population: According to Fairlie (2009, pp. 2, 3), "The entrepreneurial activity rate for men increased slightly from 0.41 percent in 2007 to 0.42 percent in 2008. The Kauffman Index for women increased from 0.20 percent to 0.24 percent, but the increase for women only returned entrepreneurship levels to where they were in the mid-2000s."

2) Percentage of Hispanics in population: According to Fairlie (2009, pp. 2, 3), "The entrepreneurial activity rate among Latinos increased from 0.40 percent in 2007 to 0.48 percent in 2008, continuing an upward trend that started in 2005. Asian

Americans also experienced a large increase in entrepreneurship rates, from 0.29 percent in 2007 to 0.35 in 2008."

3) Percentage of Whites in population: According to Fairlie (2009, pp. 2-3), "Non-Latino white business-creation rates increased slightly from 2007 to 2008 (0.30 percent to 0.31 percent), whereas African American rates declined slightly (0.23 percent to 0.22 percent)."

Literature for the factors total population (POP) and unemployment rate (UNEMP) is extensive (Acs & Armington, 2005; Fritsch & Mueller, 2007; Hoyt, Jepsen, & Troske, 2007; Reynolds & Maki, 1993; Tervo & Niittykangas, 1994). Results on the strength of UNEMP on new business formation rates are to some extent mixed but point toward a positive influence. Goetz and Rupasingha (2009) found, in certain unemployment rate ranges, a U-shaped relationship may develop at which a low point forms, separating the positive and negative influence of UNEMP on new business formation rates. Nonetheless, the across-all-industries negative influence found in this study is somewhat disquieting and invites further research. Research exploring this factor, in my opinion, should be concentrated in individual communities, instead of the aggregate, as the rate of this factor fluctuates wildly even between geographically close communities such as the ones studied here.

Examples of the importance of unemployment in new business formation can be read in Nicklaus (2010, pp. 1-2): "For Missouri, dueling sets of data highlight the growth of self-employment in the current economy. A recent study by the Kauffman Foundation said that the state's rate of entrepreneurial activity nearly doubled last year. Missourians started 27 new businesses per 100,000 adult residents in 2009, up from 15 per 100,000 the previous year. It was an encouraging finding, because in 2008 the Show-Me State ranked 49th — next to last — in startup activity. We moved up to 32nd place last year."

Even though many cities list business services on their websites (e.g., applying for a business license) and a majority of counties' unemployment centers offer beginning seminars in business start-ups, my extensive search found no city or region implementing public policies related to this factor/variable.

The factor POP is known to show mixed results/influence on new business formation rates (Goetz & Debertin, 1993; Sutaria & Hicks, 2004). Unique to this study, the factor POP exerted a negative influence on new business formation across all industry types. As with UNEMP, research investigating this factor, in my professional opinion, should be concentrated in the individual communities, instead of the aggregate – for the same reason outlined in the previous paragraph.

Examples of the importance of population in new business formation can be read in Fritsch and Mueller (2007, p. 302): "Most of the start-ups between 1983 and 2002 (about 56%) were located in the densely populated agglomerations, while 32% were in moderately congested regions, and only 11% were in rural areas. This distribution corresponds to the distribution of employees and incumbent businesses; about 54% of the incumbent businesses and 57% of the employees are located in the agglomerations" and in Lee (2010): "Businesses are following the people. Laura McGuire and her husband, George, plan to expand their home healthcare business in Texas next month. The couple has been running Griswold Special Care franchises in San Antonio since 2003, but will open two offices in Houston, one of the fastest-growing cities in America." No reference was found of a community or region implementing public policies to harvest this factor/variable, although many communities seem to informally welcome population growth as part of their economic strategy (Fort Collins, 2006; Greeley, 2007; Loveland, 2005).

In summary, the analyses conducted for this dissertation and the review of literature allows community leaders to formulate local economic development policy geared toward increasing new business formation rates. These recommendations may or may not be extrapolated to other cities or regions, as additional research may be necessary. A few points should be noted regarding new business formation factors included in the policy recommendations. First, although some factors are generally outside the direct control of policy makers, there are many ways communities stimulate or stifle the influence of these factors. Second, it is highly recommended that more accurate, business formation-focused data collection be conducted at regular intervals to provide enhanced monitoring and measuring of factors that augment new business formation rates. Last, communities are obligated to reinvent the way they perceive, establish, and ensure entrepreneurship within their economic influence borders.

It is my judgment that entrepreneurship can no longer be seen as the "wild west" – a place where only the fearless, wealthy, and fittest can and should survive.

Implementing some of the above recommendations should be done… but there is much more that can and should be done.

Future Research

While this research set out to answer questions, it was clear based on the literature review from the beginning of the research process that additional questions would surely surface. Further research deserving exploration include investigating the high level of spatial autocorrelation found in the analysis, refining the industrial sectors into more specific business categories (lowering sector levels), adding more variables to the present models, and comparing these results to other cities with similar attributes.

Summary

This study relates to four sectors of the economy in small-to-medium size communities, such as those in Northern Colorado: Retail, Manufacturing (including Construction), Distributive, and Service sectors. The results are both useful and unique in understanding the process of new business formation. Further research is needed in more focused sectors of the economy. Moreover, more data needs to be collected by small-to-medium size communities, as a requirement to develop a better understanding of the city-wide factors shaping new business formation processes. Last, an expected expansion of this study is to apply similar analyses to other cities, either in Colorado or other states or countries – a long term study comparing the determinants of new business formation by different cities and regions would be one of the best legacies of this research.

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APPENDICES

Appendix A — Executive Summary

NEW BUSINESS FORMATION IN NORTHERN COLORADO –

A TIME-SERIES CROSS-SECTIONAL ANALYSIS

The central missions of this dissertation research are to develop, document, and quantify some of key factors of new business formation in Northern Colorado. More specifically, the intent of this study is to add to the body of knowledge on new business formation and/or variables that influence business location formation. Studies of “neighboring” variations in new business formation are relatively new and few. In the context of this research, “neighboring” implies small to medium-size communities within a few miles of each other, or more specifically the cities studied (i.e., Fort Collins, Greeley, and Loveland, near each other, inside a 20 mile radius). After an extensive literature review, I found mainly peer-reviewed research at the regional, state, or county levels.

There are several other important expectations of this research project. Once city managers and economic advisors understand what variables promote to new businesses, resources to attract these firms can be better utilized. Consequently, the results of this research may lead to economic developers targeting and attracting new businesses as well as follow-up research. If new business formation leads to job creation and other economic stimulus effects, improvement in quality of life and population wealth may follow. It is possible the findings, if appropriate, will lead the communities under study to organize a new business formation and industry sector location stimulus plan. Such an inclusive plan could improve the cities' economic development by using pooled resources while still maintaining their distinctiveness.

Theoretical Perspective and Study Layout

The theoretical background/literature review chapter is divided into five sections, which cover the relevant areas of interest under the title of New Business Formation and Business Location Decision. First, the (highly interconnected) classical theories (business location and new business formation) are presented. Second, several sub-theories within the classification of each base theories are also presented.

Third, a selective comprehensive annotated bibliography, ordered/presented by principal author's last name, is offered. This annotated bibliography summarizes 168 studies of business location and new business formation at the country, county, and Labor Metropolitan Areas (LMA) levels. This list includes a significant number of focal studies of new business formation during the last five decades. Fourth, a list of the aforementioned bibliography entries is provided, sorted by year of publication. And last, a complete list of independent variables (with the total number of times each was studied) is offered.

Research Design and Methodology

The quantitative methodology used consists of a time-series cross-sectional (TSCS) regression analysis of new business formation in the cities of Fort Collins, Greeley and Loveland for the 11-year period of 1998 to 2008. When multiple observations are collected for each independent variable and dependent variable, the collected information is referred to as panel data, correlated data, or repeated measures. Here the data vary through time (years) and across cross-sections (cities and industrial sectors). The time units are referred to as T and cross-sectional units as N. In this study, T equals 11 years and N equals 12 (3 cities x 4 industrial sectors per city).

TSCS methodology is similar to panel data analysis, except panel data usually refers to data that are mostly cross-sectional, that is, $N > T$, often much greater. TSCS data usually refers to time-series, meaning $T > N$ or $T \approx N$. More specifically, the 11 variables, discussed in Chapter 1, are regressed on a measure of total new business formation for each of the cities and then industrial sectors. The total number of citywide data points or observations is 1,386 (11 years, 11 variables, 3 cities, and 5 industrial sectors/city, and lags 0, 1 and 2 years).

The basic regression model for the 15 dependent variables and related independent variables are represented by:

NEW BUSINESS FORMATION $_{\text{Retail, Manufacturing, Distributive, Service, and All Industries; LAGS = 0, 1, and 2}}$ per 1000 population =

	Variables
f (AVERAGE AGE OF POPULATION) $_{cy}$	= AA
PERCENTAGE OF POPULATION WITH AGE 15 - 24 $_{cy}$	= AGE1
PERCENTAGE OF POPULATION WITH AGE 25 - 64 $_{cy}$	= AGE2
AVERAGE HOUSING PRICE INDEX (1998 = 1) $_{cy}$	= AHP
AVERAGE PER CAPITA INCOME INDEX (1998 = 1) $_{cy}$	= APC
PERCENTAGE OF FEMALES IN THE POPULATION $_{cy}$	= FEM
PERCENTAGE OF HOUSEHOLDS WITH INCOME 0 - 100K $_{cy}$	= HH
PERCENTAGE OF HISPANIC POPULATION $_{cy}$	= HISP
RATE OF POPULATION CHANGE $_{cy}$	= POP3R
UNEMPLOYMENT RATE $_{cy}$	= UNEMP3R
PERCENTAGE OF WHITE POPULATION $_{cy}$	= WHI
CITY$_{1..3}$,	= CTY
YEAR($_{1998…2008}$)	= YR

Presentation of Data, Correlation, and Regressions

The new business formation estimation models are presented in Chapter 5. Given the cross-sectional time-series nature of the data, general fixed-effects regression is used. There are four estimation models:

Model 1: Generalized Linear Model (Robust SE Type)

Model 2: Multiple Regression for Serial Correlation

Model 3: Ordinary Least Squares for Multiple Regression

Model 4: Robust Regression

These models are presented in the following order.

Original Models — models are tested using four distinctive estimation techniques referenced above. In each of the models, pooled estimates are developed using the eleven IVs suggested by theory and availability. City and year dummy variables are included to control for unmeasured city and time influences. Dependent variables lags of zero, one, and two years are examined.

Refining the Original Models — to gain more refined models, the most significant and explicatory superior models are re-estimated after excluding all non-significant variables. Only the variables significant at the 0.01 level are used to meaningfully narrow the already significant models from previous section.

Model Elaboration by Addition of Partials — involves using the original models, above, by examining the model based on introducing association partials. That is, blocks of variables (AgeDis, Value, Social, and Supply) are added to the selected model in sequence to gauge impact on the independent variables in the model. The order of entrance of a certain block is determined by the number of significant coefficients revealed on the original model.

Model Elaboration by Inclusion and Exclusion of City and Year Control Variables involves using the original best predictor models to gauge the distinctive contributions of city and year control variables' influences. Four sub-models are presented: sub-model 1 includes all variables including city and year dummies; sub-model 2 is similar to model 1, except for the omission of the cities' controls (dummy variables); sub-model 3 is similar to model 1, except for the omission of the year controls (dummy variables); and sub-model 4 does not include either the city and year controls (dummy variables).

Important Findings and Discussions

This dissertation research explored 11 predictors, judged to exert influence on new business formation in Northern Colorado. The variables that are both obtainable and significant (based on the literature) are used. New business formation is central to economic growth and development. New businesses bring industry diversity and job growth to a region and are a major engine for economic growth. Research has shown a positive relationship between levels of entrepreneurial activity and economic growth across a myriad of countries. Among many significant findings, the following stand out by sector:

In the retail industrial sector, one year lag: the data show a positive and significant relationship of average age of population, percentage of population (ages 15 to 24), average per capita income, percentage of females in the population, and percentage of Whites in the population; a negative and significant impact of percentage of population (25 to 64), average housing price, percentage of households with income less than $100,000 per year, percentage of Hispanics in population, cubic root of total population, and cubic root of unemployment rate.

In the manufacturing industrial sector, one year lag: the data show a positive and significant impact of average age of population, percentage of population (15 to 24), percentage of population (25 to 64), percentage of households with income less than $100,000 per year, percentage of Hispanics in population, percentage of Whites in population, and cubic root of unemployment rate; negative and significant impact of average housing price, average per capita income, percentage of females in the population, and cubic root of total population.

In the distributive industrial sector, two year lag: the data show a positive and significant impact of percentage of population (15 to 24), average per capita income, percentage of households with income less than $100,000 per year, percentage of females in the population, and percentage of Whites in the population; negative and significant impact of average housing price, cubic root of total population, and cubic root of unemployment rate.

In the service industrial sector, two year lag: the data show a positive and significant impact of average age of population, percentage of population (25 to 64), percentage of females in the population, percentage of Hispanics in population, and percentage of Whites in the population; negative and significant impact of percentage of population (15 to 24), average housing price, average per capita income, percentage of households with income less than $100,000 per year, cubic root of total population, and cubic root of unemployment rate.

In all industrial sectors one and two year lags: the data show a positive and significant impact of average age of population, percentage of population (15 to 24), percentage of population (25 to 64), percentage of Hispanics in population, and percentage of Whites in the population (one year lag); negative and significant impact of average housing price, average per capita income, percentage of households with income less than $100,000 per year, percentage of females in the population, cubic root of total population, and cubic root of unemployment rate (one-year lag); a positive and significant impact of average age of population, percentage of population (25 to 64), percentage of females in the population, percentage of Hispanics in population, and percentage of Whites in the population (two-year lag); negative and significant impact of percentage of population (25 to 64), average housing price, average per capita income, percentage of households with income less than $100,000 per year, cubic root of total population, and cubic root of unemployment rate (two-year lag).

Policy Implications

One overriding theme is that the variation of new business formation appears to be determined by factors potentially open to local policy interventions, although any intervention might be implemented with great difficulty. Local governments and related business partners (e.g., Chamber of Commerce and local business incubators) and may not have enough direct control over many of the variables analyzed in this study to justify their intervention, particularly if the ultimate objective is to increase overall or targeted new business formation.

How can local policies influence new business formation, in terms of the factors analyzed in this study? Two policy implication questions follow: 1) Are there ways local government might influence new business formation by indirectly manipulating the factors studied? If yes, the second question is 2) how might it proceed in doing so?

The influences of direct and indirect policy measures as they relate to each of the eleven factors are explored. There may be spatial variations in the support of community leaders. The influence of certain factors in relation to new business formation activity may also vary spatially (Johnson & Parker, 1996). I aim, in each paragraph, to address the two policy implication questions posed. If some of the answers to the “how to” are not referenced it is because they are formed by my own professional and academic experience.

If some of these “how to” ideas are already in place, it may mean that I am not be aware of them. This would suggest that a majority of the local population would not know about these ideas either. As a result, I welcome open yet constructive deliberations about them; these deliberations must focus on improving the economic well being of communities by increasing the rate of new business formation (and thus employment and salary levels). I strongly believe this is not the time for the hands-off approach that many leaders seem to default to concerning entrepreneurs and entrepreneurship.

Extensive search was conducted in databases such as LexisNexis, PAIS International, and Urban Studies Abstracts to determine if any community or region was or has been implementing public policies to harvest the factors/variables studied in this dissertation. In the minority of the cases, no references were found. The findings are reported after the public policy discussion of each of the factors.

A higher average age (AA) of the population seems to be related to new business formation over time, possibly reflecting greater experience of potential entrepreneurs and also labor market discrimination against older employees (Goetz & Rupasingha, 2009). Economic wealth increases with age and older individuals with capital may choose to invest it in business start-ups. Two specific ways policy makers (that is, the government and partners) can leverage this factor is to:

1) Facilitate and promote knowledge transfer of older and more experienced nascent entrepreneurs via community sponsored forums, and

2) Direct their knowledge transfer efforts into the desired mix of business industrial categories (based on the factors influence and direction shown.

The factors percentage of population (ages 15 to 24) (AGE1) and percentage of population (25 to 64) (AGE2) are associated with the factor AA (discussed above) and, as a result, specific policy levers will not be discussed further.

An example of the importance of average age of population in new business formation can be seen in the descriptive study from the Kaufmann Foundation (Fairlie, 2009, p. 3): “The oldest age group (ages fifty-five to sixty-four) experienced the largest increase in entrepreneurial activity from 2007 to 2008 (0.31 percent to 0.36 percent), making it the age group with the highest entrepreneurial activity rate.” No reference was found of a community or region implementing public policies to harvest this factor/variable using the databases mentioned above.

Based on the findings of this study, average housing price (AHP) seems to have a negative influence on new business formation ratios across all industrial sectors. This finding is contrary to the belief that higher housing values are positive and significant to new business formation due to the importance of personal collateral to secure business-related loans (Goetz & Rupasingha, 2009). Despite the need for further study to confirm this discordant finding, policy makers can influence this factor by 1) supporting the construction of lower to medium income housing, and 2) passing zoning laws discouraging the building of outliers (high-priced dwellings) within the community’s economic influence.

An example of the importance and usage of average housing price in new business formation can be seen on the County of Santa Cruz website, California

(Santa Cruz Chamber of Commerce, 2011): “The lack of affordable housing in Santa Cruz County severely constrains the capability of the area's employers to attract and retain employees. It is a deterrent to drawing new businesses to our area.” (para. 2, Background)

The coefficient of the factor average per capita income (APC) was mixed in this research. Per capita income reflects aggregate demand in an economy (Robson, 1998). A negative coefficient for APC may suggest individuals are more likely to seek self-employment opportunities in periods of economic downturn because self-employment is seen as an ‘‘option of last resort,’’ as often argued by Small Business Administration (U.S. Small Business Administration, 2006). This is especially relevant in the economic climate of 2008 to 2011.

An example of the importance of APC in new business formation can be seen in the statewide data compilation done by Sobel and Hall (2008, p. 39): “Examining the measures of entrepreneurial activity, a similar pattern emerges—states with the most economic freedom have higher rates of entrepreneurial activity.” No reference was found of a community or region implementing public policies to harvest this factor/variable using the databases mentioned above.

Any local government not availing itself of opportunities to increase new business formation comes within reach of carelessness and lack of professional judgment. There are many things communities could be doing to benefit from the present economic downturn as it relates to small business formation; Some of them are 1) adopt a buy local position, with strong buy-in and buy-in incentives from the community; 2) work closely with government agencies such as the

Small Business Administration to attain and access loans; 3) allocate those personnel involved in the local government's economic development activities to actively and proactively interact with nascent entrepreneurs in the form of personal coaching, mentoring, and streamlining regulations, to name a few of the options I recommend.

The factor HH is associated with the factor percentage of households with income less than $100,000 per year (APC) (discussed above) and as a result, its specific policy drive will not be discussed further.

The social factors, percentage of females in population (FEM), percentage of Hispanics in population (HISP), and percentage of Whites in the population (WHI) will be concomitantly discussed in this paragraph. The percentage of women in the total labor force is included because women are less likely than men to be self-employed (Minniti et al., 2005; Minniti & Nardone, 2007). The situation is seen by Hispanics and African Americans. The factor WHI seems to exert a positive influence across all industrial sectors as expected. Governments and their partners' policy from the results of these factors are clear, as Northern Colorado communities become more culturally diverse: programs that specifically address the personal, professional, and economic needs of Women and Hispanics need to be addressed. Entrepreneurs, as all individuals, are diverse and require individual attention to bloom and grow. What are some of these needs? For women it may entail specific support such as a child care/elder care co-ops or options to trade child care hours for those women who spend a certain number of hours in their business and need some social/connecting/down time.

For Hispanics it may involve classes or seminars on countering prejudice and the role of ethnic networking, institutional regulations, and societal structures (Wang & Li, 2007).

Examples of the importance of social factors in new business formation are as follows (Note that no references were found of a community or region implementing public policies to use this factor/variable for new business formation, using the databases mentioned above):

1) Percentage of females in population: According to Fairlie (2009, pp. 2, 3), “The entrepreneurial activity rate for men increased slightly from 0.41 percent in 2007 to 0.42 percent in 2008. The Kauffman Index for women increased from 0.20 percent to 0.24 percent, but the increase for women only returned entrepreneurship levels to where they were in the mid-2000s.”

2) Percentage of Hispanics in population: According to Fairlie (2009, pp. 2, 3), “The entrepreneurial activity rate among Latinos increased from 0.40 percent in 2007 to 0.48 percent in 2008, continuing an upward trend that started in 2005. Asian Americans also experienced a large increase in entrepreneurship rates, from 0.29 percent in 2007 to 0.35 in 2008.”

3) Percentage of Whites in population: According to Fairlie (2009, pp. 2-3), “Non-Latino white business-creation rates increased slightly from 2007 to 2008 (0.30 percent to 0.31 percent), whereas African American rates declined slightly (0.23 percent to 0.22 percent).”

Literature for the factors total population (POP) and unemployment rate (UNEMP) is extensive (Acs & Armington, 2005; Fritsch & Mueller, 2007; Hoyt et al., 2007; Reynolds & Maki, 1993; Tervo & Niittykangas, 1994). Results of UNEMP on new business formation rates are to some extent mixed but point toward a positive influence: Goetz and Rupasingha (2009) found, in certain unemployment rate ranges, a U-shaped relationship may develop at which a low point forms, separating the positive and negative influence of UNEMP on new business formation rates. Nonetheless, the across-all-industries negative influence found in this study is somewhat disquieting and invites further research. Research exploring this factor, in my opinion, should be concentrated in individual communities, instead of the aggregate, as the rates of this factor fluctuates wildly between geographically close communities such as the ones studied.

Examples of the importance of unemployment in new business formation can be read in Nicklaus (2010, pp. 1-2): “For Missouri, dueling sets of data highlight the growth of self-employment in the current economy. A recent study by the Kauffman Foundation said that the state's rate of entrepreneurial activity nearly doubled last year. Missourians started 27 new businesses per 100,000 adult residents in 2009, up from 15 per 100,000 the previous year. It was an encouraging finding, because in 2008 the Show-Me State ranked 49th — next to last — in startup activity. We moved up to 32nd place last year.”

Even though many cities list business services on their websites (e.g., applying for a business license) and a majority of counties’ unemployment centers offer beginning seminars in business start-ups, my extensive search found no city or region implementing public policies related to this factor/variable using the databases mentioned above.

The factor POP is known to show mixed results/influence on new business formation rates (Goetz & Debertin, 1993; Sutaria & Hicks, 2004). Unique to this study, the factor POP exerted a negative influence on new business formation across all industry types. As with UNEMP, research investigating this factor, in my professional opinion, should be concentrated in the individual communities, instead of the aggregate – for the same reason outlined in the previous paragraph.

Examples of the importance of population in new business formation can be read in both Fritsch and Mueller (2007, p. 302): “Most of the start-ups between 1983 and 2002 (about 56%) were located in the densely populated agglomerations, while 32% were in moderately congested regions, and only 11% were in rural areas. This distribution corresponds to the distribution of employees and incumbent businesses; about 54% of the incumbent businesses and 57% of the employees are located in the agglomerations.” In Lee (2010): “Businesses are following the people. Laura McGuire and her husband, George, plan to expand their home healthcare business in Texas next month. The couple has been running Griswold Special Care franchises in San Antonio since 2003, but will open two offices in Houston, one of the fastest-growing cities in America.” No reference was found of a community or region implementing public policies to harvest this factor/variable, although many communities seem to informally welcome population growth as part of their economic strategy (Fort Collins, 2006; Greeley, 2007; Loveland, 2005).

In summary, the analyses conducted for this dissertation and the review of literature allow community leaders to formulate local economic development policy geared toward increasing new business formation rates. These recommendations may or may not be extrapolated to other cities or regions, as additional research may be necessary. A few points should be noted regarding new business formation factors included in the policy recommendations. First, although some factors are generally outside the direct control of policy makers, there are many ways communities stimulate or stifle the influence of these factors. Second, it is highly recommended that more accurate, business formation-focused data collection be conducted at regular intervals to provide enhanced monitoring and measuring of factors that augment new business formation rates. Last, communities are obligated to reinvent the way they perceive, establish, and ensure entrepreneurship within their economic influence borders.

It is my judgment that entrepreneurship can no longer be seen as the “wild west” – a place where only the fearless, wealthy, and fittest can and should survive. Implementing some of the above recommendations should be done. But there is much more that can and should be done.

Summary

The results are of practical significance to policy makers, economists, and would-be entrepreneurs. Research studies deserving exploration include investigating the high level of spatial autocorrelation found in the analysis, refining the industrial sectors into more specific business categories (lowering sector levels), adding more variables to the present models, and comparing these results to other cities with similar attributes.

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Table 137. Dependent Variables; Lag = 0

CASEF	CTY	YR	RET	MAN	DIST	SERV	ALL
1	FC	1998	5.03	5.58	2.18	20.04	32.84
1	FC	1999	4.92	5.43	2.15	19.88	32.38
1	FC	2000	4.91	5.36	2.14	19.78	32.19
1	FC	2001	4.90	5.23	2.15	19.91	32.19
1	FC	2002	4.89	5.09	2.13	21.14	33.24
1	FC	2003	4.53	4.64	2.03	20.35	31.55
1	FC	2004	4.39	4.74	2.00	20.67	31.8
1	FC	2005	4.28	4.82	1.98	20.87	31.95
1	FC	2006	4.18	4.76	1.98	21.46	32.38
1	FC	2007	4.16	4.74	1.98	21.61	32.5
1	FC	2008	4.09	4.66	1.95	21.37	32.08
2	GR	1998	4.13	4.25	2.88	15.75	27.01
2	GR	1999	3.97	4.10	2.77	15.20	26.04
2	GR	2000	3.74	3.98	2.57	14.71	25.01
2	GR	2001	3.67	3.81	2.49	14.81	24.79
2	GR	2002	3.60	3.96	2.34	14.92	24.81
2	GR	2003	3.43	3.62	2.07	14.31	23.43
2	GR	2004	3.40	3.45	1.97	13.81	22.62
2	GR	2005	3.36	3.33	1.98	12.01	20.67
2	GR	2006	3.32	3.33	2.00	13.62	22.27
2	GR	2007	3.31	3.31	1.98	13.63	22.23

2	GR	2008	3.23	3.24	1.93	13.35	21.75
3	LV	1998	4.88	6.77	2.34	15.50	29.48
3	LV	1999	4.60	6.62	2.04	14.97	28.22
3	LV	2000	4.54	6.53	1.96	15.08	28.12
3	LV	2001	4.24	6.43	1.82	14.70	27.19
3	LV	2002	4.46	6.43	2.06	15.55	28.5
3	LV	2003	4.32	6.80	2.03	15.70	28.84
3	LV	2004	4.20	6.65	2.05	16.11	29.01
3	LV	2005	4.24	6.70	1.95	16.57	29.46
3	LV	2006	4.60	6.40	2.16	15.57	28.73
3	LV	2007	4.63	6.44	2.18	15.73	28.98
3	LV	2008	4.57	6.35	2.14	15.53	28.6

Table 138. Dependent Variables; Lag = 1

CASEF	CTY	YR	RET_1	MAN_1	DIST_1	SERV_1	ALL_1
1	FC	1998					
1	FC	1999	4.92	5.43	2.15	19.88	32.38
1	FC	2000	4.91	5.36	2.14	19.78	32.19
1	FC	2001	4.90	5.23	2.15	19.91	32.19
1	FC	2002	4.89	5.09	2.13	21.14	33.24
1	FC	2003	4.53	4.64	2.03	20.35	31.55
1	FC	2004	4.39	4.74	2.00	20.67	31.8
1	FC	2005	4.28	4.82	1.98	20.87	31.95
1	FC	2006	4.18	4.76	1.98	21.46	32.38
1	FC	2007	4.16	4.74	1.98	21.61	32.5
1	FC	2008	4.09	4.66	1.95	21.37	32.08
2	GR	1998					
2	GR	1999	3.97	4.10	2.77	15.20	26.04
2	GR	2000	3.74	3.98	2.57	14.71	25.01
2	GR	2001	3.67	3.81	2.49	14.81	24.79
2	GR	2002	3.60	3.96	2.34	14.92	24.81
2	GR	2003	3.43	3.62	2.07	14.31	23.43
2	GR	2004	3.40	3.45	1.97	13.81	22.62
2	GR	2005	3.36	3.33	1.98	12.01	20.67
2	GR	2006	3.32	3.33	2.00	13.62	22.27
2	GR	2007	3.31	3.31	1.98	13.63	22.23
2	GR	2008	3.23	3.24	1.93	13.35	21.75
3	LV	1998					
3	LV	1999	4.60	6.62	2.04	14.97	28.22
3	LV	2000	4.54	6.53	1.96	15.08	28.12
3	LV	2001	4.24	6.43	1.82	14.70	27.19
3	LV	2002	4.46	6.43	2.06	15.55	28.5

3	LV	2003	4.32	6.80	2.03	15.70	28.84
3	LV	2004	4.20	6.65	2.05	16.11	29.01
3	LV	2005	4.24	6.70	1.95	16.57	29.46
3	LV	2006	4.60	6.40	2.16	15.57	28.73
3	LV	2007	4.63	6.44	2.18	15.73	28.98
3	LV	2008	4.57	6.35	2.14	15.53	28.6

Table 139. Dependent Variables; Lag = 2

CASEF	CTY	YR	RET_1	MAN_1	DIST_1	SERV_1	ALL_1
1	FC	1998					
1	FC	1999					
1	FC	2000	4.91	5.36	2.14	19.78	32.19
1	FC	2001	4.90	5.23	2.15	19.91	32.19
1	FC	2002	4.89	5.09	2.13	21.14	33.24
1	FC	2003	4.53	4.64	2.03	20.35	31.55
1	FC	2004	4.39	4.74	2.00	20.67	31.8
1	FC	2005	4.28	4.82	1.98	20.87	31.95
1	FC	2006	4.18	4.76	1.98	21.46	32.38
1	FC	2007	4.16	4.74	1.98	21.61	32.5
1	FC	2008	4.09	4.66	1.95	21.37	32.08
2	GR	1998					
2	GR	1999					
2	GR	2000	3.74	3.98	2.57	14.71	25.01
2	GR	2001	3.67	3.81	2.49	14.81	24.79
2	GR	2002	3.60	3.96	2.34	14.92	24.81
2	GR	2003	3.43	3.62	2.07	14.31	23.43
2	GR	2004	3.40	3.45	1.97	13.81	22.62
2	GR	2005	3.36	3.33	1.98	12.01	20.67
2	GR	2006	3.32	3.33	2.00	13.62	22.27
2	GR	2007	3.31	3.31	1.98	13.63	22.23
2	GR	2008	3.23	3.24	1.93	13.35	21.75
3	LV	1998					
3	LV	1999					
3	LV	2000	4.54	6.53	1.96	15.08	28.12
3	LV	2001	4.24	6.43	1.82	14.70	27.19
3	LV	2002	4.46	6.43	2.06	15.55	28.5

3	LV	2003	4.32	6.80	2.03	15.70	28.84
3	LV	2004	4.20	6.65	2.05	16.11	29.01
3	LV	2005	4.24	6.70	1.95	16.57	29.46
3	LV	2006	4.60	6.40	2.16	15.57	28.73
3	LV	2007	4.63	6.44	2.18	15.73	28.98
3	LV	2008	4.57	6.35	2.14	15.53	28.6

Table 140. Independent variables: AA, AGE1, AND AGE2

CASEF	CTY	YR	AA	AGE1	AGE2
1	FC	1998	30.8	16.2	50
1	FC	1999	29.6	17.2	51
1	FC	2000	31.2	17.3	51
1	FC	2001	31.4	17.2	50
1	FC	2002	31.5	17.3	50
1	FC	2003	32.1	17.3	54
1	FC	2004	32.3	16.4	54
1	FC	2005	32.7	16.7	54
1	FC	2006	32.5	16.3	57
1	FC	2007	32.7	15.9	57
1	FC	2008	33.6	16.1	57
2	GR	1998	31.9	20.7	46
2	GR	1999	29.5	20.8	46
2	GR	2000	31.6	20.9	48
2	GR	2001	31.5	20.8	48
2	GR	2002	31.4	20.8	48
2	GR	2003	26.8	23.6	44
2	GR	2004	27.2	22.4	44
2	GR	2005	27.3	22.0	44
2	GR	2006	27.8	20.3	46
2	GR	2007	28.0	19.4	46
2	GR	2008	26.1	19.9	47
3	LV	1998	36.6	11.6	54
3	LV	1999	33.7	12.0	53
3	LV	2000	37.2	12.1	54
3	LV	2001	37.4	12.1	52
3	LV	2002	37.6	12.1	52

3	LV	2003	37.7	12.9	54
3	LV	2004	37.7	13.0	54
3	LV	2005	38.2	12.9	54
3	LV	2006	38.7	13.3	55
3	LV	2007	39.1	13.0	55
3	LV	2008	40.4	13.2	53

Table 141. Independent Variables: AHP, APC, AND HH

CASEF	CTY	YR	AHP	APC	HH
1	FC	1998	1	1.000	81.90
1	FC	1999	1.096	0.897	89.65
1	FC	2000	1.109	1.111	79.40
1	FC	2001	1.098	1.040	80.41
1	FC	2002	1.020	1.000	80.90
1	FC	2003	1.052	1.038	81.40
1	FC	2004	1.009	1.072	79.70
1	FC	2005	1.065	1.029	77.75
1	FC	2006	1.013	1.031	75.35
1	FC	2007	1.019	1.041	74.95
1	FC	2008	0.991	1.039	75.16
2	GR	1998	1.000	1.000	93.40
2	GR	1999	1.049	0.834	96.20
2	GR	2000	1.125	1.181	92.81
2	GR	2001	1.060	0.950	91.10
2	GR	2002	1.047	0.973	90.25
2	GR	2003	1.019	0.973	89.40
2	GR	2004	1.018	1.002	93.70
2	GR	2005	1.099	1.024	92.90
2	GR	2006	0.964	0.985	92.50
2	GR	2007	0.942	1.034	92.40
2	GR	2008	0.893	1.033	92.45
3	LV	1998	1.000	1.000	85.65
3	LV	1999	1.103	0.942	89.30
3	LV	2000	1.100	1.116	86.05
3	LV	2001	1.089	0.982	84.93
3	LV	2002	1.037	1.003	84.37

3	LV	2003	1.019	1.003	83.80
3	LV	2004	1.109	1.088	81.65
3	LV	2005	1.039	1.002	80.05
3	LV	2006	0.965	1.044	76.85
3	LV	2007	1.056	1.037	76.70
3	LV	2008	0.988	1.036	76.78

Table 142. Independent Variables: FEM, HISP, AND WHI

CASEF	CTY	YR	FEM	HISP	WHI
1	FC	1998	50.03	6.8	90.5
1	FC	1999	50.33	7.1	91.3
1	FC	2000	50.15	7.7	91.0
1	FC	2001	49.20	8.4	90.9
1	FC	2002	48.79	7.8	90.0
1	FC	2003	49.85	7.3	89.1
1	FC	2004	49.9	8.0	87.8
1	FC	2005	49.8	8.2	87.7
1	FC	2006	49.95	8.6	87.5
1	FC	2007	49.95	8.7	87.4
1	FC	2008	49.91	8.7	87.4
2	GR	1998	51.33	9.9	89.0
2	GR	1999	51.18	10.0	88.5
2	GR	2000	51.28	11.7	86.4
2	GR	2001	50.60	10.6	85.5
2	GR	2002	50.23	10.5	84.6
2	GR	2003	51.30	17.4	79.7
2	GR	2004	51.20	18.3	77.9
2	GR	2005	51.30	18.3	77.8
2	GR	2006	50.90	19.9	78.3
2	GR	2007	50.90	20.3	77.8
2	GR	2008	50.68	20.1	78.1
3	LV	1998	51.03	6.4	93.2
3	LV	1999	51.10	6.3	92.9
3	LV	2000	50.96	6.6	92.8
3	LV	2001	50.60	6.7	91.6
3	LV	2002	50.39	6.8	91.9

3	LV	2003	50.65	6.9	91.6
3	LV	2004	50.70	7.4	91.2
3	LV	2005	50.55	7.7	91.0
3	LV	2006	50.55	8.2	90.7
3	LV	2007	50.50	8.3	90.7
3	LV	2008	50.24	8.3	90.7

Table 143. Independent Variables: POP3R AND UNEMP3R

CASEF	CTY	YR	POP3R	UNEMP3R
1	FC	1998	1.41780	1.58740
1	FC	1999	1.59922	1.61343
1	FC	2000	1.33887	1.56049
1	FC	2001	1.45653	1.47361
1	FC	2002	1.14471	1.60052
1	FC	2003	1.87198	1.83709
1	FC	2004	1.38208	1.91293
1	FC	2005	1.16961	1.88520
1	FC	2006	0.71791	1.87578
1	FC	2007	0.87066	1.77581
1	FC	2008	1.22316	1.70998
2	GR	1998	0.62996	1.79670
2	GR	1999	1.66190	1.50369
2	GR	2000	1.65341	1.45810
2	GR	2001	1.62108	1.28058
2	GR	2002	1.26827	1.40946
2	GR	2003	1.96868	1.60052
2	GR	2004	1.85082	1.63864
2	GR	2005	1.46899	1.58740
2	GR	2006	0.98305	1.57406
2	GR	2007	0.9546	1.50369
2	GR	2008	1.37330	1.44225
3	LV	1998	1.10793	1.56049
3	LV	1999	1.75765	1.50369
3	LV	2000	1.56186	1.42604
3	LV	2001	1.62865	1.54668
3	LV	2002	1.27445	1.75441

3	LV	2003	1.17687	1.80697
3	LV	2004	1.12662	1.75441
3	LV	2005	1.46434	1.72130
3	LV	2006	1.11064	1.66310
3	LV	2007	0.49324	1.57406
3	LV	2008	1.22981	1.37507

Appendix C — Annotated Bibliography Reference List

This section and the following pages contain the annotated bibliography reference list; the next section contains the individual annotations.

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Appendix D — Annotated Bibliography Full Review

This section and the following pages contain the individual annotations. The previous section contains the annotated bibliography reference list.

REFERENCE 1		
Acs, Z. J. (2006). Entrepreneurship, geography, and American economic growth. Cambridge: Cambridge University Press.	OBJECTIVE/S	The authors use a knowledge spillover theory of entrepreneurship to explain new firm formation rates in regional economies during the 1990s period and beyond.
	METHODOLOGY	Literature Review/Essays The authors build on two previous empirical studies, Innovation and Small Firms (Acs and Audretsch, 1990) and Innovation and the Growth of Cities (Acs, 2002) – to answer the following two questions: 1. Why is innovation important to national welfare? 2. Why is entrepreneurship important to regional growth? The present work attempts to bridge the gap between it and the previous work and answer the question: What is the role of entrepreneurial activity and agglomeration effects in economic growth?
	DV/S	N/A
	IV/S	N/A
	RESULTS	

REFERENCE 2		
Acs, Z. J. (2006). New firm formation and the region: Empirical results from the United States. In E. Santarelli (Ed.), Entrepreneurship, growth, and innovation. The dynamics of firms and industries. New York: Springer.	OBJECTIVE/S	Investigating regional differences in gross new firm formation rates (not the net changes) for each of the 394 Labor Market Areas (LMAs). Firm formation data annually from 1991 to 1998.
	METHODOLOGY	A pooled estimation regression model – with all exogenous and endogenous variables having a mean of zero and a standard deviation of one, within each of the nine sub-sectors (industry sectors).
	DV/S	Average annual firm birth rate in year t divided by the labor force in year t (in thousands).
	IV/S	1) Establishment size: employment in year t divided by the number of establishments in year t (proxy for the structure of industry in the region) 2) Sector specialization: number of establishments in the industry and region in year t divided by the region's population in year t (proxy for capturing both population density and the number of establishments in a region; in another words, the greater the number of establishments relative to the population, the more spillovers should be facilitated) 3) Population growth: average annual rate increase in the region in a previous period (calculating the two-year change from the ratio of the population in year t divided by population in t-2, and taking the square root

		of that two-year change ratio to calculate the annual change ratio) 4) Income growth: average annual rate of increase of personal income in the region (similarly calculated as variable 3, above) 5) Unemployment rate: first year start-up measurement period minus the average number of unemployed in year t divided by the labor force in year t. 6) Share of proprietors: number of proprietors in year divided by the labor force in year t. 7) High school degree: number of adults without a high school degree in 1990 divided by the number of adults, 25 years or older. 8) College Graduates: number of adults with college degrees in 1990 divided by the total number of adults. 9) Business specialization: no description given.
	RESULTS	Note: sporadic and confusing results were given, thus the quantity and quality of results vary below. IV 1: coefficient for large firm presence, measured as establishment size, is negative for all industries, and for all sectors by business services and extractive industries. Negative impact on new firm formation and negative impact on sub-sector formation. IV 2: positive impact on new firm formation and positive impact on sub-sector formation. IV 3: positive impact on new firm formation and positive impact on sub-sector formation.

		IV 4: positive impact on new firm formation and positive impact on sub-sector formation. IV 5: no impact on new firm formation and no impact on sub-sector formation. But… positive and significant for 1990-1992 (during small recession), barely significant during 1993-1995, and insignificant during 1996-1998 (during economy recovery). IV 6: no impact on new firm formation and n/a impact on sub-sector formation. But… share of proprietors strongly negatively correlated with establishment size, -0.63. If establishment size is dropped, the coefficient of self-employment is positive and significant. IV 7: negative impact on new firm formation and negative impact on sub-sector formation (coefficient is the negative of that on high-school dropout share). IV 8: positive impact on new firm formation and positive impact on sub-sector formation. IV 9: positive impact on new firm formation and no impact on sub-sector formation.

REFERENCE 3		
Acs, Z. J., & Armington, C. (2004). Employment growth and entrepreneurial activity in cities. Regional Studies, 38(8), 911-927.	OBJECTIVE/S	Entrepreneurial activity, on employment growth in Labor Market Areas (LMA) is examined, during 1989 and 1999.
	METHODOLOGY	Regression model – the DV is the compounded average annual employment growth rates over three 3-year periods of the 1990s. Measured as the third root of the ratio of 1993 employment to 1990 employment minus one in each LMA and sector, repeated for three 3-year periods.
	DV/S	(repeating from above) The compounded average annual employment growth rates over three 3-year periods of the 1990s. Measured as the third root of the ratio of 1993 employment to 1990 employment minus one in each LMA and sector, repeated for three 3-year periods. Also the following industry classifications (Standard Industrial Classification): Distributive 4000-5199 Manufacturing 2000-3999 Business Services 7300-7399 Extractive 0700-1499 Retail Trade 5200-5999 Local Market 1500-1799 and 6000-8999 (excluding business services (construction, consumer and financial services)

		And all the LMAs (too many to list here).
	IV/S	IV1 Entrepreneurial activity: average annual t+1 to t+3 formation rate IV2 Share of proprietors/Labor force IV3 Business specialization: establishment/ population IV4 Business density: ln(establishment/square miles) IV5 Basic human capital 1990: high-school degree/adults (25 years and older) IV6 Higher human capital: college degree/adults (25 years and older IV7 Establishment size: employment/establishment.
	RESULTS	All results significant at p = 0.05 (by author's) Analysis of factors associated with differences in employment growth rates in LMAs by 3 year period: 1990: IVs 1, 2, 3, 4, 5, and 7 1993: IVs 1, 3, 4, 5, and 7 1996: IVs 1, 3, 5, and 7 Analysis of local factors associated with differences in lagged employment growth rates in LMAs: 1990-1993: IVs 1, 2, 3, 4, 5, and 7 1993-1996: IVs 1, 3, 4, 5, and 7 1996-1999: IVs 1, 3, 5, 6, and 7 Analysis of factors associated with differences

		in employment growth rates in LMAs by industry sectors: All Industries: IVs 1, 2, 3, 4, 5, and 7 Business Services: IVs 1, 3, and 7 Distributive: IVs 1, 3, 4, and 5 Extractive: IVs 1, 3, 4, and 7 Local market: IVs 1, 3, 4, and 7 Manufacturing: IVs 2, 4, and 6 Retail: IVs 1, 3, and 4.

REFERENCE 4		
Acs, Z. J., & Audretsch, D. B. (1987). Innovation, market structure and firm size. Review of Economics and Statistics, 69(4), 567-575.	OBJECTIVE/S	To test the hypothesis that large firms have the innovative advantage in markets characterized by imperfect competition, but that small firms have the innovative advantage in markets more closely approximating the competitive model – 1972-1977 time period.
	METHODOLOGY	Data from 172 innovative and 42 highly innovative industries are used in a mode estimating the difference between large- and small- firm innovation rates.
	DV/S	DIE: the difference between the large-firm innovation rate (LIE) and the small-firm innovation rate (SIE), and innovation rate defined as the number of innovations per employee (thousands) in a four-digit SIC industry DIS: where innovation rates are defined as the number of Innovations per sales (ten thousand dollars) in a four-digit SIC industry) (In summary, industry difference between large- and small- firm innovation rates (DIE and DIS)).
	IV/S	IV1 CAPVS = 1977 capital output ratio IV2 PROD = 1977 advertising-to-sales ratio IV3 PRODC = substitute measure of product differentiation IV4 CON = 1977 four-firm concentration ratio

		IV5 CB = % of employees in the industry covered by collective bargaining between 1973 and 1975 IV6 GROWTH = % growth rate between 1972 and 1977 IV7 LFI = % of an industry which is accounted by firms with at least 500 employees in 1977 IV8 HK = a measure of human capital IV9 TIE = total innovation rate.
	RESULTS	(number in parentheses represent the significance level): High innovative industries- DIE Equation 1 with PRODC excluded: IVs = 1(0.05), 2(0.10), 4(0.10), 5(0.10), 7(0.05), and 9(0.05) High innovative industries- DIE Equation 2 with PROD excluded: IVs = 1(0.10), 4(0.10), 5(0.10), 7(0.05), and 9(0.05) High innovative industries- DIS Equation 3 with PRODC excluded: IVs = 2(0.05), 4(0.10), 5(0.10), 7(0.05), and 9(0.05) High innovative industries- DIS Equation 4 with PROD excluded: IVs = 2(0.05), 4(0.10), 5(0.10), 7(0.05), and 9(0.05) Innovative industries- DIE Equation 5 with PRODC excluded: IVs = 7(0.10), 8(0.10), and 9(0.05) Innovative industries-

		DIE Equation 5 with PROD excluded: IVs = 3(0.10), 7(0.10), 8(0.10), and 9(0.05).

REFERENCE 5		
Acs, Z. J., & Malecki, E. J. (2003). Entrepreneurship in Rural America: The big picture. In M. Drabenstott (Ed.), Main streets of tomorrow: Growing and financing rural entrepreneurs (pp. 21-29). Kansas City, KS: Center for the Study of Rural America, Federal Reserve Bank of Kansas City.	OBJECTIVE/S	To examine where rural America stands in the landscape of entrepreneurial activity
	METHODOLOGY	The available data is not so up-to-date – finding new firms is difficult, and alternative data sources provide widely varying results: utilizes Labor Market Areas for monitoring employment and unemployment. It also uses the Longitudinal Establishment and Enterprise Microdata of data for each U.S. private sector (nonfarm) business with employees
	DV/S	Firm births from 1994-1996 at the scale of Labor Market Areas
	IV/S	N/A
	RESULTS	Some results -- Highest 20 and lowest 20 LMAs in form births 1994-1996, by employment size class: Less than 50,000 LMA employment = Highest 20 LMAs (5); lowest 20 LMAs (4) 50,000 – 99,999 LMA employment = Highest 20 LMAs (9); lowest 20 LMAs (8) 100,000 – 200,000 LMA employment = Highest 20 LMAs (3); lowest 20 LMAs (3) 200,000 – 500,000 LMA employment = Highest 20 LMAs (2); lowest 20 LMAs (5) More than 500,000 LMA employment =

		Highest 20 LMAs (1); lowest 20 LMAs (0) Average firm birth rate 1994-1996, mean for LMAs by LMA size category: Less than 50,000 LMA employment = Number of LMAs (113); Mean average firm birth rate, 1994-1996 (3.75); Mean percent of High Growth Firms (4.73) 50,000 – 99,999 LMA employment = Number of LMAs (108); Mean average firm birth rate, 1994-1996 (3.76); Mean percent of High Growth Firms (4.50) 100,000 – 200,000 LMA employment = Number of LMAs (78); Mean average firm birth rate, 1994-1996 (3.68); Mean percent of High Growth Firms (4.38) 200,000 – 500,000 LMA employment = Number of LMAs (58); Mean average firm birth rate, 1994-1996 (3.63); Mean percent of High Growth Firms (4.21) More than 500,000 LMA employment = Number of LMAs (37); Mean average firm birth rate, 1994-1996 (3.96); Mean percent of High Growth Firms (3.97) It also has a comprehensive table displaying the percentage of very high and high birth rates by sector, relative to median LMA (business services, distributive, extractive, local market, manufacturer, and retail)

REFERENCE 6		
Acs, Z. J., & Mueller, P. (2006). Employment effects of business dynamics: Mice, gazelles and elephants (No. 2306). Jena, GR: Max Planck Institute of Economics, Group Entrepreneurship, Growth and Public Policy.	OBJECTIVE/S	To examine the relationship between business dynamics and employment effects in 320 U.S. Metropolitan Statistical Areas (MSA). It specifically looks at the impact of firm heterogeneity on employment persistence – from 1990 to 2001.
	METHODOLOGY	Econometric analysis that accounts for time lags that might be involved for the employment to evolve. Authors control for differences in the size of regions and account for the economic potential of each region – startup rates estimated according to labor market approach (per 1,000 employees). Regressions of start-up rates in year (t) and each of the preceding six years.
	DV/S	- Employment change 3 years, all firms - Employment change 3 years, Establishments, firms < 20 employees - Employment change 3 years, Establishments, firms 20-499 employees - Employment change 3 years, Establishments, firms >= 500 employees
	IV/S	Start-up rate (t) Start-up rate (t-1) Start-up rate (t-2) Start-up rate (t-3) Start-up rate (t-4) Start-up rate (t-5) Start-up rate (t-6)

		Population density
	RESULTS	- Employment change 3 years, all firms Significant at 0.01: Start-up rate (t) Start-up rate (t-1) Start-up rate (t-3) Start-up rate (t-4) Population density Significant at 0.05: Start-up rate (t-5) (an additional regression model using Almon polynomial lags depicted that following significant results at 0.01 level: Start-up rates (t), (t-1), (t-2), and (t-3). - Employment change 3 years, Establishments, firms < 20 employees: Significant at 0.01: Start-up rate (t) Start-up rate (t-1) Start-up rate (t-2) Population density Significant at 0.05: Start-up rate (t-3) Start-up rate (t-4) (an additional regression model using Almon polynomial lags depicted that following significant results at 0.01 level: Start-up rates (t) and (t-1). - Employment change 3 years, Establishments, firms 20-499 employees: Significant at 0.01: Start-up rate (t) Start-up rate (t-3) Start-up rate (t-4) Start-up rate (t-5)

		Start-up rate (t-6) Population density (an additional regression model using Almon polynomial lags depicted that following significant results at 0.01 level: Start-up rates (t), (t-2), and (t-3); significant at 0.05 level: Start-up rate (t-1). - Employment change 3 years, Establishments, firms >= 500 employees: Significant at 0.01: Start-up rate (t) Start-up rate (t-1) Start-up rate (t-2) Start-up rate (t-3) Start-up rate (t-4) Start-up rate (t-5) Population density (an additional regression model using Almon polynomial lags depicted that following significant results at 0.01 level: Start-up rates (t), (t-1).

REFERENCE 7		
Acs, Z. J., & Storey, D. J. (2004). Introduction: Entrepreneurship and economic development. Regional Studies, 38(8), 871-877.	OBJECTIVE/S	A summary paper: a review of why the topic of regional dimension of entrepreneurship and new firm formation, from 1981 to 2004
	METHODOLOGY	Summary literature review of articles between 1981 and 2004
	DV/S	N/A
	IV/S	N/A
	RESULTS	Examples given: USA (Acs and Armington): 1991-99 DV: Employment Change Sectors: All private sectors IVs: New firms + Specialization - Population density -/n.s. Education +/n.s. Firm size +/- Wage rates Research and development Capital stock UK (Van Stel and Storey): 1980-98 DV: Employment Change Sectors: All private sectors paying Value Added Tax IVs: New firms +/-/n.s. Specialization Population density -/n.s. Education Firm size

		Wage rates +/n.s. Research and development Capital stock Germany (Audretsch and Keilbach): 1989-92 DV: Employment Change Sectors: All private sectors IVs: New firms + Specialization Population density Education Firm size Wage rates Research and development + Capital stock + Sweden (Braunerhjelm and Borgman): 1975-99 DV: Employment Change Sectors: Production industries IVs: New firms + Specialization + Population density Education n.s. Firm size n.s. Wage rates Research and development Capital stock n.s. = not significant.

REFERENCE 8	OBJECTIVE/S	With the rising interest in the past two decades concerning nonmetropolitan development, investigation about the important variables involved in producing Kansas nonmetropolitan growth seems appropriate. The present analysis has three implications: 1) From a policy standpoint, the federal government, regional organizations, and states are engaged in economic development planning. They need to know what causes growth and how to predict it. Knowledge of what location factors are attracting plants into a rural town, can facilitate sound decisions on growth centers and might assist them to make appropriate decisions about industrial development programs determining the economic destinies of their boundaries. In other words, this information provides assistance especially to local development planners in evaluating the prospects for their areas to acquire additional employment in specific manufacturing industries; 2) From a residents1 point of view; this study can contribute private sector representatives seeking opportunities for industrial growth in their own Kansas small communities to make rational decision; and finally 3) From a theoretical view; this work will focus on hypothesis deduced from location theory in order to test these empirically. Also, this analysis will concentrate on several
Afiat, M. (1985). Factors affecting manufacturing plant location in Kansas nonmetropolitan areas from 1973 to 1981. Unpublished Ph.D., Kansas State University, Manhattan, KS.		

empirical observations - each of which suggests a point of difference among factors which have affected the location decisions of Manufacturers

Only a few studies exist which treat the attitudes of manufacturers in Kansas toward the factors affecting the establishment of a new plant. Those empirical studies can be divided into two different periods:

1) 1940-1955 period: In none of the earlier papers are there signs of concentration on the location of new manufacturing industries in Kansas nonmetropolitan areas.

2) 1970-1983 Period: Relatively recent works done and a sample survey conducted by The Institute for Economic and Business Research, University of Kansas (1983).

Except for the first study, all others are general and concentrated on both metropolitan and nonmetropolitan areas. The Brinkman paper did not include all small towns in Kansas, it is limited to the Southeastern part of the state. Taking those into consideration, a broader study is needed for Kansas small cities and towns.

In general, there are two reasons for conducting research on this subject:

1) To learn more about the location of manufacturing in nonmetropolitan areas. Through learning more about the forces behind manufacturing growth:

a) Community leaders might provide a firmer foundation for public policy;

b) Persons considering starting a new business can make a better decision in

		choosing a plant location; 2) To more broadly examine factors which have influenced new plants to locate in Kansas nonmetropolitan areas
	METHODOLOGY	Using definition of nonmetropolitan area have SMS as with a population of 50,000 or more – These counties were excluded from this study because their growth may be influenced more by the growth or other characteristics of the metropolitan areas as a whole than by their own features. The present study provides information concerning small community growth in Kansas by including new manufacturing plants established during the years 1973-1981. This work is based on data listed in the Kansas Department of Economic Development files on industrial location, data obtained from the Census of Population and Housing, the Bureau of the Census, and other government sources. The study utilizes the county as the basic unit of analysis and it will use cross-sectional multiple regression techniques in an attempt to discover important factors which have influenced some communities to attract relatively more manufacturing plants than other comparable communities. The method of computation is Least Squares which maximizes the portion of the total variance in the dependent variable that is explained by the independent variables. From secondary sources, a set of 18 independent variables was chosen in a way that such factors should be capable of reflecting variables that theoretically new manufacturing plants would use to judge site location. Explanatory variables then were regressed against four separate dependent

		variables to identify those significant factors which were associated with industrial location and /or new job creation in Kansas nonmetropolitan areas
	DV/S	Employment is the most common and traditional measure of attracting manufacturing plants in to a community. It is argued that the sole number of plants locating in a community are not indicator of locational attractiveness in that community. In this study, the location decisions of plants were identified in two ways: 1) Change in number of plants in a county between 1973 and 1981; and 2- Change in the number of new jobs during the study period.
	IV/S	Variable and proxy 1) Agglomeration economies = population size of population density 2) Growth of local market = net change in population 3) College enrollment = college enrollment 4) Size of local market = percent of employment in farming; market value of agricultural products; per capita personal income; per capita farm income 5) Local market supply = male and female labor force participation rates 6) Distance to the closest SMSAs = distance to the closest SMSAs 7) Rail line numbers = rail line numbers

		8) Distance to the nearest highway = distance to the nearest highway 9) Cost of labor = manufacturing wage rate 10) Tax costs = tax costs 11) East-west dummy = 0: counties located in the west of highway 81, and 1: All other counties
	RESULTS	Variable, Proxy, Expected Sign, and sign found in regression (* significance level of 0.05) 1) Agglomeration economies = population size of population density*; + + 2) Growth of local market = net change in population; + - 3) College enrollment = college enrollment; - - 4) Size of local market = percent of employment in farming; market value of agricultural products; per capita personal income; per capita farm income*; - -; + +; + -; + + 5) Local market supply = male and female labor force participation rates*; + + 6) Distance to the closest SMSAs = distance to the closest SMSAs; - + 7) Rail line numbers = rail line numbers; - + 8) Distance to the nearest highway = distance to the nearest highway; - + 9) Cost of labor = manufacturing wage rate; - +

		10) Tax costs = tax costs; - + 11) East-west dummy = 0: counties located in the west of highway 81, and 1: All other counties; + + An examination of the multiple regression coefficients by locational variable reveals that Kansas rural-small towns are attracting more new plants as their populations are growing. In other words, according to the regression results, agglomeration economies measured by county population or population density were considered as the most important determinants of plant location in Kansas nonmetropolitan areas from 1973 to 1981. This is consistent with other studies, where results showed that counties with population growth are receiving a bulk of the new industry moving into the areas under study. Also, with respect to type of manufacturing industry. Results showed that agglomeration factor contributed more for durable goods manufacturers than nondurable goods. The supply of local market factor measured by labor force participation rate exerted significant locational effects in nondurable goods manufacturing using either employment or the number of new plants as the dependent variable. This supports the idea that Kansas counties with high levels of labor force participation have a chance of attracting more nondurable manufacturing plants. Size of local market variable measured by either per capita farm income or percent of employment in farming was found to be significant at 0.05 and 0.10 levels of significance, respectively.

Finally, college enrollment was the last significant factor to be mentioned. Other variables used in this analysis were shown to be unimportant because of either being absent in the equations, insignificant or significant but with unexpected sign indicating that the small size of most new Kansas manufacturing plants have an effect on the sign of the regression coefficients. All these suggest that the Kansas industrial economy is market-oriented and plants locate according to sales potential.

In conclusion, it seems appropriate to emphasis that agglomeration economies are the most important reason for an increasingly more market-oriented industrial economy in Kansas nonmetropolitan counties. This is consistent with the traditional and other studies of industrial location which stress the importance of scale economies in entrepreneurial decision-making.

To summarize, the present study concludes that non-community controllable factors such as agglomeration economies and labor work force may be highly important in influencing the location of the new plants and/or creation of new jobs in the Kansas small communities and public authorities do not play a major role in changing those locational variables. This study represents one contribution for private sector representatives seeking opportunities for industrial growth in their own small Kansas communities. Also the present work might help state agencies, as well as county and local levels of government to propose industrial development programs suitable for small cities in Kansas

REFERENCE 9		
Aharonson, B. S., Baum, J. A. C., & Feldman, M. P. (2004, June 14-16). Borrowing from neighbors: The location choice of entrepreneurs. Paper presented at the DRUID Summer Conference, Elsinore, DK.	OBJECTIVE/S	To analyze the location decision of entrepreneurs and understand the factors which affect their decision to locate within the same biotechnology industry in Canada between 1992 and 2000.
	METHODOLOGY	Used empirically based computer algorithm to aggregate firms into clusters based on relative distances between individual biotechnology firms across Canada. Distance matrices were then constructed to compare the location of each firm to every other firm in the population within a given year: These matrices were used as input for a cluster analysis that grouped firms by minimizing within-group average distance.
	DV/S	The average distance a new entrant locates from other firms operating in the same specialization within the cluster.
	IV/S	1) Firm is a university spin-off 2) Firm is in the human specialization 3) Prior average distance in the cluster 4) Ratio of firms vs. cluster population 5) Number of firms 6) number of universities research labs 7) Distance to number of patents applied last 5 years

		8) Distance to university spin-offs 9) Distance to revenues 10) Distance to financing 11) Distance to R&D expenditures 12) Distance to R&D employees 13) Distance to R&D alliances 14) Large urban areas.
	RESULTS	Model 1 (a baseline model – only IVs 1 and 2) IV 2 $p < 0.05$ Model 2 (adds characteristics of incumbent firms in the cluster with the same specialization) IVs 8, 10 and 13 $p < 0.1$ IVs 5 and 6 $p < 0.5$ IVs 4, 11 and 12 $p < 0.01$ Model 3 (Model 2 + the addition of characteristics of incumbents with other specialization in the firm's cluster) IVs 7, 11 and 14 $p < 0.1$ IVs 5, 6, 9 and 12 $p < 0.5$ IVs 4, 5, 9 and 11 $p < 0.01$

REFERENCE 10		
Allison, T. (1993). Socioeconomic assessment guidance report: Determining the effects of amenity characteristics on business location decisions (No. ANL/EAIS/TM-85). Argone, IL: Argonne National Laboratory, Environmental Assessment and Information Sciences Division, Economics and Law Section.	OBJECTIVE/S	Evaluates the importance of environmental amenities (broadly defined to include natural, cultural, and recreational features; environmental quality; and other indexes of quality of life) with respect to decisions on locating both manufacturing and business services activities
	METHODOLOGY	Literature review (see results below)
	DV/S	N/A
	IV/S	Broadly defined as: natural, cultural, and recreational features; environmental quality; and other indexes of quality of life and Twelve independent variables in the model fall into four groups – 1) characteristics of the local labor force (wage rates, unionization rate, unemployment rate, and percent Black); (2) metropolitan amenities (climate, housing prices, and educational options); (3) access features (freeway density and access to a major airport); (4) agglomerative features (presence of major

		business headquarters, range of business services, and R&D funding)
	RESULTS	Smaller firms that market, specialized business services also often choose to locate in larger urban areas close to their customers, where similar amenities might be an additional consideration. The importance of environmental factors in business location decisions was first noted by Ulmann (1954). He suggests that there is a direct relationship between the shift of population to the South and Southwest and this area's superior climate and recreational opportunities (when compared with those of the traditional population centers in the Northeast and Midwest). The rise in per capita incomes, the growth of tourism, and the location choices of retirees, as well as the decline in the importance of traditional influences on business location decisions, have made possible the substantial shifts that began to occur during the 1950s and 1960s.

REFERENCE 11		
Alvarez, S. A., & Barney, J. B. (2005). How do entrepreneurs organize firms under conditions of uncertainty? Journal of Management, 31(5), 776-793.	OBJECTIVE/S	To describe how entrepreneurs organize a firm to solve their resource organization and profit appropriation problems. Three different ways of organizing firms are examined
	METHODOLOGY	A review of the literature
	DV/S	N/A
	IV/S	N/A
	RESULTS	Three different ways of organizing firms are discussed: 1. Clan-based entrepreneurial firms 2. Expert-based entrepreneurial firms 3. Charisma-based entrepreneurial firms

REFERENCE 12		
Armington, C., & Acs, Z. J. (2002). The determinants of regional variation in new firm formation. Regional Studies, 36(1), 33-45.	OBJECTIVE/S	Purpose of this paper is to re-examine the issue of regional variation in firm birth rates in the US – to examine the role of human capital, training and education, and entrepreneurial environment on new firm formation
	METHODOLOGY	Linear Regression, Correlation, and Descriptive Statistics. Geographic unit of analysis is Labor Market Areas (LMAs), also called travel-to-work. Six industry sectors are defined
	DV/S	Firm formation rates in LMAs: Business services Distribution Extractive industries Local market Manufacturing Retail
	IV/S	1994-96 firm births/labour force; all industry Establishment size: industry employment/industry establishment Industry intensity: 1994 industry establishment/population Income growth: sqrt (1994 personal income/1992 personal income) Population growth: sqrt (1994 population/1992 population) Share of proprietors: 1994 proprietors/labour force

		Unemployment rate: 1994 unemployment/ 1994 labour force No high school degree: 1990 adults < high school/adults (25+) College graduates: 1990 adult graduates/adults
	RESULTS	Note: Shown coefficients are significant at 0.05 level All industries: Establishment size: industry employment/industry establishment Industry intensity: 1994 industry establishment/population Income growth: sqrt (1994 personal income/1992 personal income) Population growth: sqrt (1994 population/1992 population) No high school degree: 1990 adults < high school/adults (25+) College graduates: 1990 adult graduates/adults Business services: Industry intensity: 1994 industry establishment/population Income growth: sqrt (1994 personal income/1992 personal income) Population growth: sqrt (1994 population/1992 population) Unemployment rate: 1994 unemployment/ 1994 labour force

		Distribution: Establishment size: industry employment/industry establishment Industry intensity: 1994 industry establishment/population Population growth: sqrt (1994 population/1992 population) Unemployment rate: 1994 unemployment/ 1994 labour force No high school degree: 1990 adults < high school/adults (25+) College graduates: 1990 adult graduates/adults
		Extractive industries: Industry intensity: 1994 industry establishment/population Population growth: sqrt (1994 population/1992 population) No high school degree: 1990 adults < high school/adults (25+) College graduates: 1990 adult graduates/adults
		Local market: Establishment size: industry employment/industry establishment Industry intensity: 1994 industry establishment/population Income growth: sqrt (1994 personal income/1992 personal income) Population growth: sqrt (1994 population/1992

		population) Share of proprietors: 1994 proprietors/labour force Unemployment rate: 1994 unemployment/ 1994 labour force No high school degree: 1990 adults < high school/adults (25+) College graduates: 1990 adult graduates/adults Manufacturing: Establishment size: industry employment/industry establishment Industry intensity: 1994 industry establishment/population Population growth: sqrt (1994 population/1992 population) Share of proprietors: 1994 proprietors/labour force Unemployment rate: 1994 unemployment/ 1994 labour force No high school degree: 1990 adults < high school/adults (25+) Retail Establishment size: industry employment/industry establishment Industry intensity: 1994 industry establishment/population Population growth: sqrt (1994 population/1992 population)

		Share of proprietors: 1994 proprietors/labour force Unemployment rate: 1994 unemployment/ 1994 labour force No high school degree: 1990 adults < high school/adults (25+) College graduates: 1990 adult graduates/adults

REFERENCE 13		
Ashcroft, B., Plotnikova, M., & Ritchie, D. (2007). New firm formation in British counties: Comparing the 1990s with the 1980s (No. 6-Working Paper). Glasgow, UK: Fraser of Allander Institute and Centre for Public Policy for the Regions, University of Strathclyde.	OBJECTIVE/S	Apply and develop an original model developed by Ashcroft, Love and Malloy (1991) with new variables to reflect developments in theory and the evolution of new firm formation. Thus, comparing new firm formation in the British counties in the 1990s with earlier work on the 1980s
	METHODOLOGY	Shift-share analysis model first developed in the 80s and re-testing for variables rejected by the basic model
	DV/S	New firm formation adjusted for industry structure
	IV/S	1) Expected profit in manufacturing 2) Expected earnings 3) Unemployment rate 4) Population density 5) Percentage employment in public, health and education 6) Homeownership rate 7) Percentage of 16-year olds staying in school 8) Percentage managerial and professional class 9) Percentage foreign born population 10) Percentage of small enterprises

	RESULTS	New starts driven more by knowledge spillovers and technological considerations and less for labor market reasons such as high unemployment (IV 3) Differences between the 1980s and 1990s revealed that education attainment (IV 7) and agglomeration (IV 10) had an impact in the 80s but not in the 90s All other variables (IVs 1, 2, 4-6, 8 and 9) were significant, showing that entrepreneurial attributes and circumstances does not appear to have changed in the U.K. between the 80s and 90s. IV 7: negative impact on new firm formation and negative impact on sub-sector formation (coefficient is the negative of that on high-school dropout share). IV 8: positive impact on new firm formation and positive impact on sub-sector formation. IV 9: positive impact on new firm formation and no impact on sub-sector formation

REFERENCE 14	OBJECTIVE/S	This paper explores the prospects for increasing the rate and quality of new businesses within a region. It examines and assesses the case for supporting new venture creation and early stage development, as well as the principles and practices that constitute effective forms and means of intervention. The paper also examines several examples of European regional start-up policy and specific initiatives in order to extract the success factors and principles that lead to successful regional development through stimulation of new ventures. Overall, the paper seeks to summarize what could be done to develop effective mechanisms and structures for encouraging more and better quality new ventures to start, survive and grow within a region
Atherton, A., & Price, L. (2006). Encouraging more entrepreneurs, stimulating more entrepreneurship (No. 10/2006). Brayford Pool; Lincoln, UK: Lincoln Business School, University of Lincoln.		
	METHODOLOGY	Literature review
	DV/S	N/A
	IV/S	N/A
	RESULTS	The following general topics are discussed in the article: Independent new starts New ventures within existing businesses Intrapreneurship

		Portfolio entrepreneurship Entrepreneurship outside of the private sector Towards a broader notion of new venture creation

REFERENCE 15		
Audretsch, D. B., & Fritsch, M. (1994). The geography of firm births in Germany. Regional Studies, 28(4), 359-365.	OBJECTIVE/S	To explore the geography of firm births as measured in terms of birth of new firms on 75 regions in west Germany. Distinction is made between all sectors, manufacturing sector and services sector
	METHODOLOGY	Firm birth rates calculated for each of 75 distinct economic regions by two methods: 1) Relative to the number of firms in existence (ecological approach) 2) Relative to the size of the workforce (labor market approach) Regression results for the 1986-89 birth rates were measured using both the ecological and labor market approaches
	DV/S	Firm birth rates calculated by two methods: 1) Relative to the number of firms in existence (ecological approach) 2) Relative to the size of the workforce (labor market approach)
	IV/S	1) Unemployment rate 2) Change in unemployment rate 3) Population density 4) Population growth 5) Share of unskilled workers 6) Per capita value added 7) Mean establishment size.

	RESULTS	Using the ecological approach: IVs 1 and 6 exerts no significant effect on birth rates in the service sector, while it is positive for the manufacturing sector and all sectors; IVs 2, 3, 4 and 7 are positive and significant across all sectors; IV 5 have a negative coefficient, suggesting that new firms have a higher propensity for locating in regions where workers tend to be highly skilled Using the labor market approach: two major differences from the ecological approach – first is that the coefficients of the unemployment rate (IV 1) are all negative, with the all sectors not significant; second is that the coefficients of the mean establishment size (IV 7) are all negative and significant across all sectors

REFERENCE 16		
Audretsch, D. B., & Vivarelli, M. (1996). Determinants of new-firm startups in Italy. Empirica, 23, 91-105.	OBJECTIVE/S	To explain variations in new-firm formation across Italian provinces over the period 1985-1988
	METHODOLOGY	Panel data of startup activity in 78 Italian provinces and using two different databases. Applying the income choice theory, that potential entrepreneurs choose between wages from employment in incumbent enterprises and profits to be accrued from new firms, the researchers derive econometric results
	DV/S	NRE = New firms/resident population NRM = New manufacturing/resident population NRMM = New manufacturing firms/ manufacturing employment NREC = New firms/resident population NRMC = New manufacturing firms/resident population NRMMC = New manufacturing firms/ manufacturing employment
	IV/S	Profits = Income choice Wages = income choice and Labor market Job Losses = Labor market Innovations = Schumpeter Small Firms = Environmental factors

		Capital Cities = agglomeration effects
	RESULTS	1) Relatively high presence of small firms leads to higher startup activity, imply that industrial districts serve as incubators for new-firm startups 2) Start-up activity is higher in provinces where profits are greater and wages lower

REFERENCE 17		
Azzoni, C. R. (1984). The rationality of locational decisions of industrial entrepreneurs in Brazil (No. WUDD 19). Washington, DC: Water Supply and Urban Development Department, The World Bank.	OBJECTIVE/S	This paper deals with location decisions made by entrepreneurs and companies managers who established new industrial plants in the state of San Paulo, Brazil between 1977 and 1979. The aim of this paper is to use the survey results to investigate the way decisions were arrived at: that is to say, the quantity of information gathered, the time span of the decisions process, and the geographical extent of the analysis, as well as the methods utilized to analyze and interpret the information
	METHODOLOGY	Factor Analysis: Applied survey across the State in which 581 newly established plants were visited and their directors interviewed. The questionnaire covered questions about the decision process, important location factors, the experience in the period of transition and in the first years (months) of normal operation. The survey dealt only with firms established in the state of San Paulo, which accounts for about half of Brazilian industrial production
	DV/S	Decision process of the firms
	IV/S	Characteristics of the firms: Variables and Classes of Values (number of firms within parenthesis) (1) Size (number of employees) 0-39 (140) 40-79 (142) 80-139 (134) 150 or more (165)

		(2) Autonomy of the firm Independent (421) Other (160) (3) Location (distance from San Paulo city) 0-50 km (area A) (341) 51-150 km (area B) (144) 151 km and more '(interior, or area C) (96) (4) Building ownership Belongs to the firm (389) Rented (192) (5) Building condition Especially constructed for the firm (377) Existing building (200) (6) Built area Under 2000 m2 2000 m2 and more (306) (7) Technology (as compared to other firms in the same sector) More modern (199) The same, or older (382) (8) Past evolution of sales (sales of the sector as compared with manufacturing in general) Above average (241) Equal to, or below average (325) (9) Type of establishment New firm (120) Relocation (359) New branch (87)
	RESULTS	The locational variables with the larger variance according to the characteristics of the firms. These are: time span of the decision process; geographical extent of the analysis and information utilized. Also, it has been possible to identify the firm characteristics that result in larger variations in behavior.

		These are: building characteristics, size and type of establishment. Moreover, it has been possible to show that there is a spectrum of different searching procedures, with larger firms developing better analysis, as it was expected. Therefore, the results show that the discrepancy location models varies according to the characteristics of the plant, with the bigger ones coming closer to what could be considered "rational" behavior

REFERENCE 18	OBJECTIVE/S	Report examines the economic trends in the four service districts of the Oklahoma Cooperative Extension Service; Only data for the non-metropolitan counties in each of the four districts are reported
Barta, S., O'Connell, L., Williams, J., Doekson, G., Lansford, N., Whitacre, B., et al. (2007). Economic conditions and trends in rural Oklahoma (No. 11th Edition). Stillwater, OK: Oklahoma Cooperative Extension Service, Oklahoma State University.	METHODOLOGY	Data description – no significant statistical analysis
	DV/S	N/A
	IV/S	N/A
	RESULTS	Main areas of this report include: State, Metropolitan, and Non-metropolitan Economic Conditions and Trends: (A) Population Trends (B) Labor Force and Employment Trends (C) Total Personal Income and Per Capita Income (D) Trends in Retail Sales Economic Conditions and Trends of the Four Oklahoma Cooperative Extension Service (OCES) Districts: (A) Population Trends (B) Labor Force and Employment Trends (C) Total Personal Income and Per Capita Income

		(D) Trends in Retail Sales Summary: (A) Metropolitan and Non-metropolitan Oklahoma (B) The Four OCES Service Districts

REFERENCE 19		
Bartik, T. J. (1989). Small business start-ups in the United States: Estimates of the effects of characteristics of States. Southern Economic Journal, 55(4), 1004-1018.	OBJECTIVE/S	This paper estimates how the characteristics of American states affect small business start-ups
	METHODOLOGY	Use of panel data -- Panel data models can correct for biases caused by "fixed effects" of states. A state may have higher new business activity because of unobserved state characteristics. Cross section models of new business activity will be biased if these unobserved state characteristics are correlated with the independent variables. With panel data (cross-section data at several points in time), one can examine the relationship between changes over time in small business starts and changes in the independent variables. Unobserved "fixed effects" will not bias these estimates because fixed effects cannot change the small business start rate
	DV/S	The data used here are the number of small business starts, by 2-digit SIC code, for 19 manufacturing industries (SIC 20, and 22 through 39), and three time periods: 1976-78, 1978-80, and 1980-82
	IV/S	Market Demand vs. Supply Variables: Pop. Density = ln(state population/land area) Industry Density = ln(2-digit industry employ./ land area) Per Capita Income = ln(per capita income in 1976 dollars)

Factor Price Variables:
Labor Costs = ln(gross wage), including unemployment compensation and workers' compensation

Energy Prices = ln(energy cost per BTU in manufacturing)

Tax Variables:
Property Tax = Business property tax rate in decimals. Calculated as average property tax rate on FHA insured single family houses times assessment/ sales price ratio for commercial/ industrial properties divided by assessment/sales price ratio for single family properties.

1 - Personal Tax = ln(l -i* - / f (l - f P)) where ('/• f f) are marginal federal and state personal income tax rates at $40,000/year in real income.

1 - Corporate Tax = ln(l - t'f - t ' s (\ - tf)) where tf, t's are federal and state corporate income tax rates

Small Business Tax Relief = (two equations) denote average corporate rates at $25.000 and $500,000 in profits, respectively

Sales Tax = In (1+general state sales tax rate)

Sales Tax Differential for Equipment = In (1 + state sales tax rate on machinery and equipment) — In (1 +general state sales tax rate)

Public Service Variables:
Public School Spending,
Police Spending,

		Fire Protection Spending, Higher Ed. Spending, Welfare Spending, All Other Spending = ln(spending in that category per capita) except public schools, which is per pupil Highway Density = In (highway miles/land area) Financial Market Variables: Statewide Banking, Limited Branch Banking = Dummy variables for state allowing statewide branch banking or limited branch banking (excluded variable is unit bank states) Multibank Holding Companies = Proportion of bank deposits held by multibank holding companies if unit banking or limited branching; zero otherwise Bank Concentration = Population weighted average for state of proportion of deposits held by top three banks in metro and non-metro areas in state Venture Capital = ln(venture capital per capita) Demographic Variables: High School Grads = Proportion of population 25 and over completing high school College Grads = Proportion of population 25 and over completing college Out of State Migrants = Proportion of population 5 and over who lived in different state 5 years ago Foreign Immigrant = Proportion of population 5 and over who lived abroad 5 years ago

		Age 35-44 = Proportion of population between 35 and 44 years old Scientists & Engineers = Proportion of population scientists and engineers Other Variables: Unionization = Proportion of work force unionized Environmental Regs. = Number assigned to strictness of state environmental controls, as of 1983, by the Conservation Foundation Land Area = In(non-federal land area) Regional Dummies = Dummy variables for 9 U.S. Regions. Same as official census regions, except Maryland, Delaware, and West Virginia classified in Mid- Atlantic rather than South Atlantic
	RESULTS	Notes: Estimates of the Effects of State Characteristics on Small Business Starts Using Pooled Cross-Section and Panel Data; Numbers of observations: 2610 for pooled cross-section, 847 for panel estimates. Standard errors are in parentheses next to coefficient. All coefficients are significant at 5% level. 2-tailed test. First coefficient from Pooled Cross-Section Estimates and Second number from Panel Estimates; P/N = Positive and Negative coefficients. Pop. Density = P, P Industry Density = N, N Per Cap. Income = N, P Unionization = P Property Tax = N, N 1 - Corporate Tax = N, P Small Business Tax Relief = , N Sales Tax Differential for Equipment = , N

		Public School Spending = P Fire Protection Spending = P, P Welfare Spending = , N All Other Spending = , N Statewide Banking = , P Limited Branch Banking = N Multibank Holding Companies = P, P (No Panel Estimates): Bank Concentration = P Venture Capital = N High School Grads. = P Foreign Immigrants = P Age 35-44 = N Scientists & Engineers = N Environmental Regs. = N Land Area = N

REFERENCE 20		
Beaulieu, E., McKenzie, K. J., & Wen, J.-F. (2006). Factor taxes and business location (No. Unknown Report Number). Calgary, CA: University of Calgary, Department of Economics.	OBJECTIVE/S	The purpose of the paper is to re-examine the theoretical characterization of the tax variable, and investigate its empirical importance, in the business location decision of firms
	METHODOLOGY	Employed a three-dimensional panel data set where the dependent variable is the number of business establishments in each of Canada's six largest provinces (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec), in eighteen manufacturing sectors, over a twenty-eight year period (1970-1997). A business establishment is defined as either a firm or a stand-alone plant, mill, etc., owned by an existing firm
	DV/S	The number of business establishments in each of Canada's six largest provinces (British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec), in eighteen manufacturing sectors, over a twenty-eight year period (1970-1997). A business establishment is defined as either a firm or a stand-alone plant, mill, etc., owned by an existing firm
	IV/S	1 + ETRMC = The tax variable that emerges from the model as a determinant of firm location is the effective tax rate on marginal cost (ETRMC). The ETRMC aggregates the METRs (marginal effective tax rate) on all of the inputs employed in the production process, not just capital, into a single summary measure. 1 - Statutory tax rate = unclear definition in text

		Wage = unclear definition in text Gov't spending on transportation = unclear definition in text Population = unclear definition in text U.S. GDP per capita = unclear definition in text Real interest rate = unclear definition in text 1 + Prov average ETRMC = unclear definition in text 1 - Prov average statutory tax rate = unclear definition in text
	RESULTS	Estimation Results: There are four columns -- The first column of the table presents baseline results from regressing the number of firms (in logarithm) on the tax variables, provincial transportation expenditures, and population. Columns 2 and 3 replace the year dummy variables with US GDP per capita and the real interest rate and. in addition, column 3 includes the minimum wage variable in the regression. Column 4 includes the provincial average ETRMC but excludes the statutory tax rate. * significant at 10%; ** significant at 5%; *** significant at 1%; P/N = Positive and Negative coefficients. Sequence is model 1 through 4 with significance value and if coefficient is P or N. 1 + ETRMC = N**, N***, N***, N** 1 - Statutory tax rate = , N**, N**, Gov't spending on transportation = , P***, P***, US GDP per capita = , P***, P***, Real interest rate = , P***, ,

		Robustness: Presented in the report, but due to its complexity, not presented here. Disaggregation and Alternative Tax Measures: There are seven columns -- In column 1, dummy variables are used to capture time effects, while in column 2, U.S. GDP per capita and the real interest rate, which vary only by time, are used instead. Columns 3 and 4 repeat the exercise but omit the METR on labor. Columns 5, 6 and 7 use the Devereux-Griffith concept of an average effective tax rate (AETR) as the tax variable. These results give further confidence in the validity of the ETRMC as a key tax variable in the location decisions of firms. * significant at 10%; ** significant at 5%; *** significant at 1%; P/N = Positive and Negative coefficients. Sequence is model 1 through 4 with significance value and if coefficient is P or N. 1 + METR Structures = N*, N***, N*, N***, , , 1 + METR Labour = N***, , N***, , , N***, AETR = , , , , , , N*, 1 + ETRMC = , , , , , , , N** 1 –u = , N**, , N**, , , , Govt Spending on Transportation = , P**, , P**, , , , US GDP per capita = , P***, P***, , , ,

REFERENCE 21		
Bell, M., Brunori, D., Green, R., Wolman, H., Cordes, J., & Qadir, T. (2006). State and local fiscal policy and economic growth and development (No. 06/2006). Washington, DC: George Washington Institute of Public Policy.	OBJECTIVE/S	This report addresses important issues involving state and local government policy and its effect on economic growth and development. Specifically, it addresses: 1. What factors determine and drive local economic growth and development? 2. How do state and local tax and expenditure policies influence economic growth and development? 3. Is there a balanced system of taxation that supports economic growth and development while not unduly burdening any particular industry or segment of the economy?
	METHODOLOGY	Literature Review – mostly related to taxes
	DV/S	N/A
	IV/S	N/A
	RESULTS	As the service and knowledge-based sectors of the economy have grown, factors such as weather and quality of life have been added to the list of factors. Although local officials often see taxes as playing a major role in business location decisions, empirical evidence on this score is mixed. As noted in several reviews of econometric research on the link between state and local policies and economic activity, these studies suffer from common problems. The most critical problems concern the measurement of state and local fiscal

		variables, or more accurately, the inability to measure these variables well due to data limitations. The existence of reciprocal causation between economic activity and revenues collected and expenditures made - e.g. taxes and expenditures both affect and are affected by economic activity - pose additional methodological issues. While the econometric research may be sufficiently flawed that it cannot provide a firm basis for public policy, the conclusions of the survey research studies do provide some useful, and somewhat intuitive, findings. Specifically, taxes do not influence the initial stages of the location process. For example, the initial screening stage involves defining the area of search and depends on macro issues like wage differentials and transportation availability. Next, there is the selection of a metropolitan area, which typically focuses on variables affecting the cost of doing business. Then there is a final selection of a community within the metro area where taxes can influence location decisions at the margin. But survey research is very clear that taxes are a much less important factor in location decisions than such variables as the availability of good transportation networks and a skilled, and educated, workforce. In other words, state and local spending in a number of sectors that influence directly the cost of doing business and the quality of the labor force rank ahead of taxes as a major determinant in business location decisions. Taken together, the econometric literature, even with its shortcomings, and the results of surveys call into question the simplistic view that lower taxes are necessarily beneficial for economic development and higher taxes are

		necessarily harmful. Because of the important role of economic fundamentals, such as adequate transportation, quality of workforce, and quality of life, businesses will not be attracted to locations with "low" tax burdens if there are significant deficits in the one or more of the economic fundamentals, and conversely strong economic fundamentals may attract and retain businesses in jurisdictions which have "high" tax burdens. The message is that what may matter more than the level of the state and local tax burden is how the revenues are spent, and the efficiency with which state and local governments are able to transform a $1 of tax revenue into a $1 of spending that has a positive affect on the fundamental factors that affect business location decisions. The results also suggest that having a tax system that is capable of providing a more or less stable stream of revenue is desirable to the extent that it allows state and local governments to better plan for investing in the economic fundamentals that make communities attractive as locations for economic activity

REFERENCE 22		
Bergsman, S. (1993). Incentives, location, quality of life: All figure into the site selection equation. National Real Estate Investor, 35(11), 158178.	OBJECTIVE/S	Trying to figure out that corporations want out of a new facility – what are some of the factors companies consider when choosing a new site
	METHODOLOGY	Essay – Short business cases
	DV/S	N/A
	IV/S	N/A
	RESULTS	Incentives narrow final choices, but economic incentives ranks on the bottom of initial location decisions Infrastructure improvements, property tax abatement, tax credits, subsidized training, and other incentives play a relatively minor role for corporate real estate executives who are in the initial stages of determining where expand or relocate Workforce considerations are probably the key factor in any location decision; other important issues are real estate costs, transportation, real estate availability, and market access Quality of life issues mostly spring up when considering headquarters or similar white-collar relocations. It is a very minor issue when expanding manufacturing or distribution sectors. It's not that a company discriminates against its bluecollar employees, but headquarters changes involve relocations and a good location makes it easier to keep or attract the educated employee.

		On the other hand, manufacturing and distribution expansion usually means hiring from the local talent pool — the people who already live in the area. While quality of life considerations received a lot of mention at the end of the 1980s, in the recession-weary 1990s, quality of life has been put on the back burner as companies are more focused on cutting costs

REFERENCE 23		
Beugelsdijk, S., & Noorderhaven, N. (2004). Entrepreneurial attitude and economic growth: A cross-section of 54 regions. The Annals of Regional Science, 38, 199-218.	OBJECTIVE/S	To empirically test if certain societal characteristics are related to regional economic growth – if regions with a culture that can be characterized as entrepreneurial grow faster than regions that score lower on entrepreneurial characteristics
	METHODOLOGY	Large-scale, cross-national survey research program on basic human values, initiated by the European Value Systems Study Group (EVSSG) in the late 1970s
	DV/S	Model 1 -- DV1: Self-employment as indicated by the respondent him- or herself versus general population Model 2 -- DV2: Self-employment as indicated by the respondent him- or herself versus wage- and salary earners
	IV/S	N/A
	RESULTS	Based on Models 1 and 2 (above) and significant at 0.01 or 0.05 level. Hard work: Model 1(0.05) There should be greater incentives for individual effort: Model 1(0.01 and Model 2(0.05) Government ownership of business should be increased: Model 2(0.05) The state should take more responsibility: Model 1(0.05) and Model 2(0.05)

		Unemployed should have the right to refuse a job: Model 1(0.05) Success is a matter of luck and connections: Model 1(0.01) and Model 2(0.01) Control variables: GDP per capita 1990: Model 1(0.01) and Model 2(0.01) Age: Model 1(0.01) Age squared: Model 1(0.01) Sex: Model 1(0.01) and Model 2(0.01) Socio-economic status: Model 1(0.01) And… Regression results – entrepreneurial attitude (EA) and regional economic performance (REP). 1950-1998; significance at 0.01 and 0.05 levels: Dependent variable: regional economic growth Method: OLS Initial level of welfare: EA(0.01) and REP(0.01) Investment: EA(0.05) Schooling: REP(0.01) Agglomeration: EA(0.05) and REP(0.05) Spatial spillover: EA(0.01) Entrepreneurial attitude: REP(0.01)

REFERENCE 24		
Birch, D. L. (1979). The job generation process. Cambridge, MA: Massachusetts Institute of Technology.	OBJECTIVE/S	The author set out to demonstrate that, during the Seventies, 80% of all jobs in the United States were created by firms with no more than 20 employees.
	METHODOLOGY	The author developed a theoretically simple approach to the analysis of the job creation process, based on the employment histories of nearly 6 million individual employers. Each firm in the MIT data base is characterized on the basis of location, size of employment, parent company affiliation, industry, and age. By comparing changes in these characteristics over time, Birch was able to trace in some detail the path of economic transformation of individual firms. By aggregating the changes in these characteristics for all establishments in a given sector or area, Birch was able to describe the overall labor market changes in that sector or area and, most importantly, how these changes occurred.
	DV/S	Dun and Bradstreet Corporation data of individual firms. For those firms that exist in any two years we can define the following processes: Same area in both years – 1. No change (same employment in both years) 2. Expansion (an increase in the number of employees)

		3. Contraction (a decrease in the number of employees) For firms which existed in only one year of a pair, there were three cases: 1. Death (The disappearance from the file of a firm with a particular DUNS number) 2. Birth (The appearance in the year 2 file of a firm with a new DUNS number, for which the year started was between the two years) 3. New Listing (The appearance in the year 2 file of a firm with a new DUNS number, for which the year started was earlier than year 1) Also…the following DV: State growth rate by measuring the annual rate of employment change for states (Measured as 1) fast, 2) Moderate, 3) Slow, and 4) Decline.
	IV/S	Establishment size distribution (number of employees) between county business, 1969-1976: 0-20, 20-49, 50-99, 100-499, and 500+.
	RESULTS	For those firms that exist in any two years we can define the following processes: Same area in both years – 1. No change (same employment in both years) 2. Expansion (an increase in the number of employees) 3. Contraction (a decrease in the number of employees) For firms which existed in only one year of a pair, there were three cases: 1. Death (The disappearance from the file of a

		firm with a particular DUNS number) 2. Birth (The appearance in the year 2 file of a firm with a new DUNS number, for which the year started was between the two years) 3. New Listing (The appearance in the year 2 file of a firm with a new DUNS number, for which the year started was earlier than year 1) Also…the following DV: State growth rate by measuring the annual rate of employment change for states (Measured as 1) fast, 2) Moderate, 3) Slow, and 4) Decline

REFERENCE 25		
Blair, J. P., & Premus, R. (1987). Major factors in industrial location: A review. Economic Development Quarterly, 1(1), 72-85.	OBJECTIVE/S	This article reviews findings of industrial location literature. Prior to the 1970s, the conventional view was that access to markets, labor, raw materials, and transportation were the dominant locational factors. More recent studies indicate that the traditional factors are still most important, but their dominance has been reduced as productivity, education, taxes, community attitudes toward business, and other factors have been recognized as influential. The most recently recognized locational determinants give additional scope to policies to enhance a community's economic competitiveness
	METHODOLOGY	Literature review
	DV/S	N/A
	IV/S	N/A
	RESULTS	A review of the recent studies reveals that industrial location choices are governed to a lesser extent than in the past by access to markets, labor, transportation, and raw materials. While these traditional location factors still exert an important influence, the list of important locational determinants has been expanded to include state and local taxes, education, business climate, labor skills, and state and local physical infrastructure. In fact, at the high technology end of the

industrial spectrum, these nontraditional location factors tend to dominate the location choices. Thus, it would appear that as the nation's economy continues to shift to advanced technologies to remain competitive, the overall importance of the nontraditional locational factors will increase as the traditional locational factors decline in significance. Of course, in general, the traditional location factors will undoubtedly continue to be quantitatively more significant in terms of their overall influence.

The tendency of industrial firms to become more footloose has important implications for industrial development policy. On the one hand, it would seem to indicate that selective industrial incentive programs—subsidies, tax concessions, and low-interest loans—would have a higher regional payoff than in the past. However, the inability of industrial researchers to find empirical support for this proposition suggests that this is not the case.

There is little evidence that a region or community can attract industry from other regions by offering locational subsidies since comparable bundles of industrial incentives are now available in most states and regions. On the other hand, many of the nontraditional location factors that have become important are directly influenced by state and local government expenditure, tax, and regulatory policies.

Rather than designing selective industrial development policies of benefit to only a few industries, a potentially more productive and equitable policy would be for government to focus its efforts on improving the overall locational attractiveness of regions.

This inward-looking strategy would place primary emphasis on developing and

		improving local markets in skilled labor, research, risk capital, education, recreation, and cultural amenities. It would also emphasize long-run tax policy, management-labor relations, and quality-of-life factors. Industrial development would largely be a by-product of an improved overall business climate and a better community in which to live. The selective industrial policies of the past would probably continue but the development strategy of the regions would be expanded to address overall competitiveness issues

REFERENCE 26	OBJECTIVE/S	Discussion of theories of growth and development, both “old and new.”
Blakely, E. J., & Bradshaw, T. K. (2002). Concepts and theories of local economic development Planning local economic development: Theory and practice (3rd ed.). London: Sage Publications.	METHODOLOGY	Literature review
	DV/S	N/A
	IV/S	N/A
	RESULTS	Theories discussed, in order of appearance- Theories of growth and development: Neoclassical economic theory Economic base theories Product cycle theories New markets theory Location theories: Central place theory Attraction theory New synthesis theories: Locality Business and the economic base Employment resources Community resources

REFERENCE 27		
Bosma, N. S., van Stel, A. J., & Suddle, K. (2006). The geography of new firm formation: Evidence from independent start-ups and new subsidiaries in the Netherlands (No. H200615). Zoetermeer, NL: EIM Business and Policy Research.	OBJECTIVE/S	To investigate the determinants of the rate of independent start-ups and the rate of new subsidiaries are different for 40 regions in Netherlands over the period 1988-2002.
	METHODOLOGY	Using regional panel dataset on annual numbers of independent start-ups and new subsidiaries in 40 regions for the years 1988-2002. Both the labor market approach and ecological approach measures to calculate business entry are used. Two empirical equations are formulated, one for independent start-ups and another for new subsidiaries.
	DV/S	The rate of independent start-ups (IS) and the rate of new subsidiaries (NS) in 40 regions in Netherlands over the period 1988-2002: separated by the whole economy (WE), manufacturing (MA) and services (SE) sectors.
	IV/S	1) Workforce – number of employees in each region plus the number of people receiving an unemployment allowance 2) Stock of firms – number of existing firms at the beginning of the year 3) Growth in value added – % growth between t-3 and t-1 in the region 4) Growth in wage rate – same as above 5) Population growth – same as above 6) Unemployment – number of people who newly applied for unemployment benefit in the

		region, relative to regional population 7) University presence – dummy variable 8) Localization economies – number of existing firms in the region relative to regional population 9) Urbanization economies – % of people in the region living in highly urbanized areas.
	RESULTS	The results are presented in the following manner: first the IV; the significance results (Y for Yes and N for No) of WE separated by IS and NS; the results of MA separated by IS and NS; the results of SE separated by IS and NS All figures significant at least $p < 0.05$ IV1: Y, NA, Y, NA, Y, NA IV2: NA, Y, NA, Y, NA, Y IV3: Y, N, N, N, Y, N IV4: N, N, Y, N, N, N IV5: N, Y, Y, N, N, Y IV6: Y, N, Y, N, Y, N IV7: N, N, N, N, N, N IV8: N, N, Y, N, Y, N IV9: N, Y, Y, Y, Y, Y.

REFERENCE 28		
Brixy, U., & Niese, M. (2003, August 15-20). The determinants of regional differences in new firm formation in West-Germany. Paper presented at the 43rd Congress of the European Regional Studies Association (ERSA), University of Jyvaskyla, FI.	OBJECTIVE/S	To examine the regional shares of the number of newly founded firms in 74 West-German planning regions between 1987 and 1997
	METHODOLOGY	Panel-models with fixed effects
	DV/S	Number of newly founded firms in 74 West-German planning regions between 1987 and 1997
	IV/S	(1) Indicators of regional demand: Change of employment = Change of employment in the previous year of employees liable to social insurance (2) Indicators for the reservoir of entrepreneurs: Proportion of highly qualified employees = Proportion of employees liable to social insurance with university-degree Unemployment rate = average unemployment rate Change of the unemployment rate = Change of the unemployment rate in the previous year (3) Structural Indicators: Proportion of employees in small businesses = Proportion of employees liable to social

		insurance in firms with less than 50 employees Population density = Average employees liable to social insurance in 1995 per square kilometre (log) Employees in R&D = Proportion of engineers, mathematicians and scientists on all employees liable to social insurance Technological regime = Proportion of engineers, mathematicians and scientists in firms with less than 50 employees divided by the share of employees with these qualifications in all employees Survival rate = Proportion of firms that survive at least three years (4) Controlling for spatial autocorrelation: Spill-over-effect = Mean of the founding rates (new firms divided by the number of employees) of the bordering regions Residuals = Mean of the residuals of the bordering regions
	RESULTS	** Significant on 1% level * Significant on 5% level P and N = Positive and negative coefficients v = variable Model 1 = contains v1**N, v3**N, v4**P, v5*P, and v10**P Model 2 = contains v2**P, v3**N, v4**P, v5*P and v10**P Model 2a = contains v2**P, v3**N, v4*P, v5*P and v11*P

		Model 3 = contains v2, v3**N, v5*P, and v10**P Model 4 = contains v1, v3**N, v4**P, v6**N, and v10**P Model 5 = contains v1**N, v3**N, v4**P, v7**N, and v10**P Model 6 = contains v1**N, v3**N, v4**P, v8**P, and v10**P Model 7 = contains v1**N, v3**N, v4**P, v9**P, and v10**P

REFERENCE 29		
Brown, D. M. (1979). The location decision of the firm: An overview of theory and evidence. Papers in Regional Science, 43(1), 23-39.	OBJECTIVE/S	Review some of the recent contributions made to the approach/models that allows location to occur in a multiform, multiproduct, multi-location setting, using the tools of mathematical programming and/or simulation In addition, some testable hypotheses from the literature, as well as review some recent economics literature on empirical tests of firm location decisions, especially at the intra-metropolitan level are pointed out
	METHODOLOGY	Literature review
	DV/S	N/A
	IV/S	N/A
	RESULTS	The article discuss the following main topics: 1. Some recent developments in the Hotelling literature 2. Intra-metropolitan firm location: suburbanization, public facility location, and local taxes and location 3. Firm location evidence: general location, the effect of taxes on location, and intra-metropolitan location decisions 4. Restructuring location theory for empirical testing and policy analysis Last sentence under conclusions state: “I

		strongly recommend that we set our sights on some empirical testing”

REFERENCE 30		
Browning, J. E. (1980). How to select a business site: The executive's location guide. New York: McGraw-Hill Company.	OBJECTIVE/S	To guide the readers through the process of selecting a site for their business, including relocation. Selected contents includes: 1) Assembling a relocation team, 2) How States advise and assist, 3) Sizing up the locales, 4) Key industrial location factors (more of that on the columns to the right), 5) Hand-picking your community, 6) Weighing the intangibles, 7) Finding the financing, 8) Handling individual transfers, 9) Coordinating group moves, and 10) Special problems of foreign firms.
	METHODOLOGY	According to the author, the book offers advice based on actual experience of managers of successful moves
	DV/S	From Chapter 6) Key industrial factors: 1) Labor & Labor Force: education, productivity, size, and rate.

		2) Markets & Transportation. 3) Utilities (Electric and Gas): rate, reliability, and “energy park.” 4) Environmental Factors: surface water, “soft water,” pollution control programs, and clusters. 5) Climate Considerations: related to 3) above.
	IV/S	N/A.
	RESULTS	N/A.

REFERENCE 31		
Burdina, M. (2004). Impact of transportation on business location decisions in rural Upper Great Plains. Unpublished M.S., North Dakota State University of Agriculture and Applied Science, Fargo, ND.	OBJECTIVE/S	To identify the importance of transportation as one of the determinants of economic development in the Northern Great Plains of the United States: Colorado, Iowa, Kansas, Minnesota, Nebraska, North Dakota, South Dakota and Wyoming
	METHODOLOGY	Cross-section data on county characteristics in 2000 gathered and estimated. Then a dichotomous logit model used to estimate the impact of transportation and multiple regression models used to evaluate the influence of transportation on new business creation and employment growth
	DV/S	DV1: Total new manufacturing businesses at each of the counties for the year 2000 (manufacturing businesses separated between those with less than 50 employees and those with 50 or more employees) DV2: Total and manufacturing employment at each of the counties for the year 2000.
	IV/S	A mix of transportation, economic and social factors: Railroad availability (RAIL) Airport availability (AIR) Distance to market (DIS) Interstate (LMI) Other principal arterial (LMO)

		Total lane miles (LM) Unemployment insurance (INSUR) Per capita personal income (PCPI) Percentage of people using car, van or truck transportation to the work place (CAR) Average time to work (AVTIME) Median rent (RENT) College enrollment (COLL) Total area of county in square miles (AREA) Population density (POPDEN).
	RESULTS	Estimated effects of location factors on new businesses with < 50 employees: DIS ($p = 0.10$), LMI ($p = 0.01$), LMO ($p = 0.05$), INSUR ($p = 0.10$), AVTIME ($p = 0.05$), COLL ($p = 0.05$) and POPDEN ($p = 0.01$) … with >= 50 employees: INSUR ($p = 0.05$) and POPDEN ($p = 0.05$) Estimated effects of location factors on total employment: AIR ($p = 0.05$), LMI ($p = 0.05$), LMO ($p = 0.05$), LM ($p = 0.05$), INSUR ($p = 0.05$), PCPI ($p = 0.10$), RENT ($p = 0.05$), COLL ($p = 0.10$) and

		AREA ($p = 0.05$) … on manufacturing employment: AIR ($p = 0.05$), DIS ($p = 0.05$), LM ($p = 0.05$), INSUR ($p = 0.05$), PCPI ($p = 0.05$), AVTIME ($p = 0.05$), AREA ($p = 0.05$), POPDEN ($p = 0.05$)

REFERENCE 32		
Buss, T. F. (2001). The effect of state tax incentives on economic growth and firm location decisions: An overview of the literature. Economic Development Quarterly, 15(1), 90-105.	OBJECTIVE/S	Review essay… article reviews the tax study literature to assess the state of knowledge about the relationship among taxes, related factors, and economic growth. And also how tax incentives influence business locations
	METHODOLOGY	N/A
	DV/S	N/A
	IV/S	N/A
	RESULTS	It shows inconsistencies in the literature: researchers cannot say how, when, and where taxes and taxes incentives affect economic development with much certainty

REFERENCE 33		
Campi, M. T. C., Blasco, A. S., & Marsal, E. V. (2004). The location of new firms and the life cycle of industries. Small Business Economics, 22, 265-281.	OBJECTIVE/S	This paper approaches the following questions in Spanish manufacturing sectors between the years 1980 and 1994: (1) Why does the location of new firms differ according to the characteristics of the industry? (2) Is there a relation between a technologically dense base of firms and the urban environment in which they appear? (3) Does the autonomy of new firms when deciding their location differ according to the characteristics of the industrial sector and the size of the firm?
	METHODOLOGY	Probit (econometric) regression estimation model of the new firms for each of the five groups of manufacturing sectors, according to the OECD classification. The econometric estimation underlines the heterogeneity of location patterns pointed to in the descriptive presentation of new industrial firms in Spanish cities
	DV/S	Mechanisms that influence the location of new firms
	IV/S	Specialisation (ESP) = Not fully defined Diversity (DIV) = Not fully defined Density (Sup/Pop) (DEN) = Population/surface of the city Population (> 500) Population (100-500)

		Population (50-100) Population (20-50) Population (< 20) Mill ratio = Not fully defined
	RESULTS	Results of estimation of the model of firm creation: Note: Rejection of the null hypothesis ** 0.01; * 0.05; P/N = Positive or Negative coefficient Sequence: (1) Natural resource intensive sectors, Period 1985-90 (2) Natural resource intensive sectors, Period 1991-94 (3) Labour intensive sectors, Period 1985-90 (4) Labour intensive sectors, Period 1991-94 (5) Scale economies intensive sectors, Period 1985-90 (6) Scale economies intensive sectors, Period 1991-94 (7) Setors with R&D intensive differentiated products, Period 1985-90 (8) Sectors with R&D intensive differentiated products, Period 1991-94 (9) R&D intensive sectors, Period 1985-90 (10) R&D intensive sectors, Period 1991-94 Specialisation (ESP) = (2)*P; (3) **P; (4)**P; (5)**P, (6)**P, (7)**P, (8)**P Diversity (DIV) = (1)**P, (5)**P, (7)*P; (8)**P; (9)**P; (10)**P Density (Sup/Pop) (DEN) = (1)**N, (2)**N;

		(8)**P; (9)**P Population (> 500) = (1)**P, (2)**P, (3)**P, (4)**P, (5)**P, (6)**P, (7)**P, (8)**P, (9)**P, (10)**P Population (100-500) = (1)**P, (2)**P, (3)**P, (4)**P, (5)**P, (6)**P, (7)**P, (8)**P, (9)**P, (10)**P Population (50-100) = (1)**P, (2)**P, (4)**P, (7)**P, (9)**P, (10)**P Population (20-50) = (2)**P, (4)**P, (7)**P, (8)**P, (9)**P, (10)**P Population (< 20) = (2)**P, (3)**N, (8)**P, (9)**P, (10)**P Mill ratio = (1)*P, (3)**P, (6)*P, (7)*P, (9)**P, (10)**P

REFERENCE 34	OBJECTIVE/S	… of this review is to gain understanding of the factors that have influenced business location decision in the recent past and of the spatial implications of such decisions. More specifically: - Key trends in the Western world (Auckland, Wellington, Hobart, Melbourne, Sydney, Brisbane, Singapore, San Francisco, Portland, Vancouver, and San Diego - Emerging spatial organizations - Location factors for specific functions or industry sectors and clusters - City-specific trends - General trends in the Auckland region - Likely future business location trends in the Auckland region - Relationship between business land use, transport, and economic development.
Canler, C. (2003). Business location trends review and summary (No. September 2003). Auckland, NZ: Auckland Regional Transport Authority (ARTA).		
	METHODOLOGY	N/A
	DV/S	N/A
	IV/S	N/A
	RESULTS	A list of items supporting each of the objectives (outlined above)

REFERENCE 35		
Carias, C., Oliveira, M. D., & Lima, F. (2007). New firm formation in the health sector over space and time Lisbon, Portugal: IHEA 2007 6th World Congress: Explorations in Health Economics Paper.	OBJECTIVE/S	The paper explores the determinants of firm entry in the health sector, in the context of a NHS based country, while controlling for space and time and analyzing heterogeneity of firms within the health sector
	METHODOLOGY	Poisson regression specification and Zero-inflated Poisson regression specification: three regression models run
	DV/S	Gross number of new entrants in a given region, year, and sector and sub-sector
	IV/S	(1) Local demand of services of health related firms is proxied by the natural logarithm of the population density (PD) and by aggregate spending propensity of public hospitals (SpendP) (as measured by total spending in services and consumption of goods from hospitals in the district as a share of total revenues) (2) Concentration effects are measured using the number of establishments (NE) operating in the private health sector per hundred inhabitants and the number of other firms (NF) per hundred inhabitants as well (3) Local private demand for health related firms is proxied by an indicator of aggregate sales propensity (SalesP), as measured by the share of private revenue in public hospitals as a share of total revenue (4) Local public supply of services, proxied by the level of current public funding for public

		hospitals in the district, as defined per capita (PS). This is an indicator of the level of provision of public services in an area (5) Unemployment in the area, proxied by the percentage of unemployment (U) in the district (6) Other covariates controlling for year (Year) and administrative health region (Region) have been used to capture the temporal dynamic and for other geographic affects (which might capture cultural differences in populations and health care geographic systems with different characteristics)
	RESULTS	Model 1 – Specification Poisson; *** significant at 0.01 level, ** significant at 0.05 level, *significant at 0.1 level; P for positive and N for negative coefficient - Ln (Population Density), by year, by district ***P - Public Supply, per capita, by year, by district – 2^{nd} Quartile **P - Unemployed Population as a share of total population (%), by year, by district ***P - Year: 1998**P, 1999***P, 2000***P, 2001***P, 2002***P - Region: Lisboa e Vale do Tejo *P, Centro ***P Model 2 – Specification Zero-inflated Poisson; Sub-sector All; *** significant at 0.01 level, ** significant at 0.05 level, *significant at 0.1 level; P for positive and N for negative coefficient - Ln (Population Density), by year, by district ***P

		- Public Supply, per capita, by year, by district – 2nd Quartile **P - Establishments related to the private health sector, per hundred inhabitants, by year, by district and sub-sector ***P - Unemployed Population as a share of total population (%), by year, by district ***P - Sub-sector – Sale ***P, Health Care ***P, Social Aid ***P - Year: 1998**P, 1999***P, 2000***P, 2001***P, 2002***P - Region: Lisboa e Vale do Tejo **P, Centro ***P Model 3 – Specification Zero-inflated Poisson; Sub-sector Production; *** significant at 0.01 level, ** significant at 0.05 level, *significant at 0.1 level; P for positive and N for negative coefficient - Year: 1998***N, 1999***N, 2001***N, 2002***N Model 3 – Specification Poisson; Sub-sector Salesl; *** significant at 0.01 level, ** significant at 0.05 level, *significant at 0.1 level; P for positive and N for negative coefficient - Ln (Population Density), by year, by district ***P - Spend Propensity, as a share of total revenues (%),by year, by district ***N - Public Supply, per capita, by year, by district – 2nd Quartile ***P

		- Public Supply, per capita, by year, by district – 4th Quartile *P - Establishments related to the private health sector, per hundred inhabitants, by year, by district and sub-sector ***P - Unemployed Population as a share of total population (%), by year, by district **P - Year: 1999*P, 2000***P, 2001***P, 2002***P - Region: Centro *P Model 3 – Specification Zero-inflated Poisson; Sub-sector Health Care; *** significant at 0.01 level, ** significant at 0.05 level, *significant at 0.1 level; P for positive and N for negative coefficient - Ln (Population Density), by year, by district ***P - Establishments related to the private health sector, per hundred inhabitants, by year, by district and sub-sector **P - Unemployed Population as a share of total population (%), by year, by district ***P - Year: 1998*P, 1999**P, 2000**P, 2001***P, 2002**P Model 3 – Specification Poisson; Sub-sector Social Aid; *** significant at 0.01 level, ** significant at 0.05 level, *significant at 0.1 level; P for positive and N for negative coefficient - Ln (Population Density), by year, by district ***P

		- Unemployed Population as a share of total population (%), by year, by district **P - Year: 2000**P, 2001*P, 2002***P - Region: Lisboa e Vale do Tejo **P, Centro ***P

REFERENCE 36		
Carlton, D. W. (1979). Why new firms locate where they do: An econometric model. In W. C. Wheaton (Ed.), Interregional movements and regional growth. Washington, DC: The Urban Institute.	OBJECTIVE/S	To use the Dun and Bradstreet data to model the location of new manufacturing firms. The unit of observation is the SMSAs in the United States. Data is available from 1967 to 1975.
	METHODOLOGY	Two probabilistic models aimed to explain new locational activity for 1) single establishment births, and 2) births of branch plants. For 1) births of new firms, the Poisson probabilistic process is used (infrequent events); the location of 2) branch plants is described using conditional logit model (discrete choice problem).
	DV/S	1) single establishment births, and 2) births of branch plants. For two time periods, 1967-71 and 1972-75, data obtained on the birth of new firms by SMSA. Data on new branch plants is available only for the period 1967-71. Three SIC codes were chosen for the study: SIC-3079: Fabricated Plastic Products SIC-3662: Communication Transmitting Equipment SIC-3679: Electronic Components.

	IV/S	IV1: Wage rates. Calculated by dividing production workers' earnings by production man-hours [sic]. IV2: Corporate taxes. Defined as percentage of profits. Varies for each state. IV3: Property tax. Effective city property tax rate was used as a proxy. IV4: Personal income tax. Rate used was the one applied to families of four earning $15,000 (same tax rate would apply for incomes above $15,000). IV5: Electricity cost. Obtained for the 300 kwh-120,000 kwh industrial classification. IV6: Natural gas. City-wide price of natural gas (per 1,000 cubic feet). IV7: Agglomeration effects and birth potential. Estimated number of production man-hours in a particular SIC code industry in a SMSA (used to measure any agglomeration economies for SIC codes 3079, 3662, and 3679). IV8: Engineers. Number of engineers in an area as a measure of the technical expertise of the area. IV9: Business Climate. An index of fifteen state policies (see page 48-49 of article) IV10: Unemployment rates. Ratio of the unemployment rate to its normal (average).
	RESULTS	Significance levels are not given, thus below is a summary of the results presented Econometric Results – Single Establishment Births: For each SIC code, two specifications

		are reported. Specification A is the base specification. Specification B shows what happens to the base if tax variables are omitted. Specification A: IV1 significant and negative across all industries; IV5 significant and negative for SIC 3079 and 3679; IV7 significant and positive across all industries; IV8 significant and positive across all industries; IV10 significant and negative for SIC 3662 and 3679; Estimated coefficients do not strongly support the view that taxes are a major deterrent of new business location. Specification B: very little difference from A, including that no support for the view that a favorable IV9 alone substantially stimulate new business location. Econometric Results – Births of Branch Plants Specification A: Energy costs significant and negative across all industries; IV7 significant and positive across all industries; IV8 significant and positive for SIC 3662; IV10 significant and negative for SIC 3662 and 3679 (positive for 3079) Specification B: results illustrated that omitting taxes has little effect on the other coefficients

REFERENCE 37	OBJECTIVE/S	To determine if unemployment workers seek self-employment as an escape of unemployment – in explaining regional variation in the change in the number of new firms in retail and consumer service industries (these industries have local markets) – for the states during the 1993-1997 period.
Carree, M. A. (2002). Does unemployment affect the number of establishments? A regional analysis for us States. Regional Studies, 36(4), 389-398.	METHODOLOGY	A complex series of two- step procedures (stepwise least squares) and least square procedures and models. The model applied consists of two parts: in the first part, the number of establishments in a state is predicted using data on population, income, urbanization, and age distribution. The residual of this regression is considered as an indicator of the opportunities present for new enterprises to enter. In the second part, the change in the number of establishments is explained from changes in population and income, from the residual of the first regression equation and from the level of employment.
	DV/S	Total number of establishments per capita (retail and consumer service industries)
	IV/S	LnPop = Logarithm population LnRInc = Logarithm real income per capita Poverty = % people in poverty

		Urban = % people in urban areas LnDens = Logarithm population density Over65 = % people over 65 years old Unemp = % workers unemployed
	RESULTS	Fully results too complex to enter here (due to the number of industries studied, IVs, and the states); the general conclusion is that authors failed to find an effect of unemployment after correcting for market opportunities. However, dependent on the estimation procedure used, the used merchandise industry and automotive repair shops could show a positive effect of unemployment on net start-up activity. Also, the study seems to suggest that very low barrier industries may be an option for the unemployed.

REFERENCE 38		
Chalmers, K., & Wassmer, R. W. (2007). What really determines whether a manufacturing firms locates and remains in California (No. 11-25). Sacramento, CA: Department of Economics, California State University.	OBJECTIVE/S	Seeking answers to the following questions via literature review of studies that purport to rank the attractiveness of a state's business climate: 1) Is it California (CA) best economic interest to create new and/or retain existing manufacturing jobs? 2) Does the current business climate, especially CA's taxation policy on manufactures, encourage or discourage companies from investing in CA? 3) Are there policies CA can adopt to promote greater investment from manufacturing and technology companies? 4) What kind of impact would such policies, including tax policies, have on the future vitality of CA's economy and society?
	METHODOLOGY	Literature review
	DV/S	CA vs. National Manufacturing Sector Employment: -Manufacturing -Food and beverage and tobacco products -Textile product mills -Apparel mfg. -Wood product mfg. -Paper mfg. -Printing and related support activities -Petroleum and coal products mfg. -Chemical mfg -Plastics and rubber products mfg. -Nonmetallic mineral product mfg. -Primary metal mfg. -Fabricated metal product mfg.

		-Machinery mfg. -Computer and electronic product mfg. -Electrical equipment and appliance mfg. -Transportation equipment mfg. -Furniture and related product mfg. -Miscellaneous mfg. -Durable goods -Nondurable goods
	IV/S	Labor costs (generally negative) Unionization (leaning to negative) Unemployment rates (leaning to negative) Transportation (almost uniformly positive) Regional markets (positive) Sub-national taxes (negative, but small influence)
	RESULTS	Policies that address tax credits, transportation infrastructure, and worker training/education would help to address such concerns

REFERENCE 39		
Chandler, G. N., & Lyon, D. W. (2001). Issues of research design and construct measurement in entrepreneurship research: The past decade. Entrepreneurship Theory and Practice(Summer), 101-113.	OBJECTIVE/S	To discuss and evaluates the research methodologies used in entrepreneurship research in the past decade with an objective of encouraging methodologies that are appropriate for the development of entrepreneurship research. There are two primary objectives in this research. First, the author trace the evolution of research methodology in entrepreneurship and describe the current state of the methodology. Second, to discuss and make recommendations regarding entrepreneurship methodology in the context of both normative and descriptive theory building
	METHODOLOGY	Literature Review -- This project was designed to analyze the methodological issues in mainstream entrepreneurship literature, two raters reviewed articles using a rating form developed specifically for this project to record and evaluate methodologies pursued. Questions about rating and differences in opinion were discussed and resolved. Unless otherwise indicated, our measures were coded as dummy (0,1) variables; we either found evidence supporting the categorization or we did not
	DV/S	N/A
	IV/S	N/A

	RESULTS	Some results: Qualitative procedures were categorized in three ways: 1. Content analysis of documents 2. Retrospective case analysis including event history analysis 3. real-time case studies Statistical procedures were categorized as follows: 1. Descriptive statistics 2. Comparison of means using T-tests 3. Factor analysis 4. Correlation analysis 5. Regression analysis 6. Discriminant analysis 7. Cluster analysis 8. Structural equation models 9. Anova/Ancova 10. Manova/Mancova 11. Logistical Regression 12. Non-parametric statistics 13. Other Cross-tabulation of data sources for all empirical articles: DS1. Only secondary source DS2. Paper survey DS3. Phone survey DS4. Interview DS5. Observation DS6. Experimental Only primary data: DS2, DS3, DS4, DS5, DS6 PIMS: DS1 Compustat: DS2 IPO: DS1 Media: DS1, DS2, DS4

		Company Archives: DS1, DS3, DS5 Other: DS1, DS2, DS4 Analytical techniques used and count: Regression analysis: 87 Correlation analysis: 58 Factor analysis: 51 Mean comparison using T-tests: 38 Non-parametric statistics: 29 Analysis of variance: 28 Logical regression: 20 Discriminant analysis: 18 Cluster analysis: 17 Other: 8 Structural equations: 3

REFERENCE 40	OBJECTIVE/S	To better understand business decisions about location in today's changing economy, this paper looks at the following questions: What are the major trends propelling business relocation? What aspects of business are most closely tied to the location decision? How are location decisions made? These queries were presented to corporate site selection managers, planning and location consultants, economic development specialists, and academics that study corporate location. Trade literature, "white papers," and major consulting firms' industry reports were also part of the research. The answers to these questions helped shape the second part of the paper, which looks at policy implications, including the most critical barriers preventing decision-makers from choosing urban locations and actions that policy makers can take to remove these barriers and attract more companies to the cities
Cohen, N. (2000). Business location decision-making and the cities: Bringing companies back (No. April 2000-Working Paper). Washington, DC: The Brookings Institution, Center on Urban and Metropolitan Policy.	METHODOLOGY	Literature review
	DV/S	N/A
	IV/S	N/A
	RESULTS	Some of the findings are: 1) Changes in three areas – technology,

business organization, and government policies – influence business location and relocation decisions

2) Changes in government policies that affect the cot of business inputs are another important factor motivating location moves: regulatory changes and funding

3) There are five fundamental components of business that help determine where a company or firm may locate: 1) business sector, 2) business function, 3) product maturity, 4) competitive advantage, and 5) business culture

4) Making location decision -- Basic location factors include:

a) skill level and suitability of the labor market
b) availability and cost of housing
c) adequacy of transportation systems
d) access to suppliers and contractors
e) proximity to natural resources
f) presence of competitors
g) positioning within the market for the company's product
h) general taxation levels and tax policies of the state
i) workers' compensation

Once a location is found that fits the company's strategy and cost structure, a site within the location is sought. A site is a specified parcel of land and/or building/s. Sites too, have specific characteristics:

a) road/train/truck access
b) the presence or absence of tax liens
c) title complexities on the property
d) cost and availability of water, sewer,

solid waster disposal

e) telecommunications capacity
f) possible environmental remediation

5) Top Reasons for choosing a city:

a) Education
b) Speeding-up the permitting process and simplifying bureaucracy
c) The (un)importance of tax incentives

6) Local strategies for attracting businesses – options to consider:

a) Incorporating education and training into economic development: i) investing in workers; ii) creating new programs in higher education; iii) training inner city workers

b) Improving the permitting process: i) assigning special teams to expedite requests; ii) linking fast track processes to local priorities

c) Rethinking brownfields and environmental policies

d) Marketing the city: i) auditing the community; ii) mapping assets; iii) benchmarking

e) Replicating "suburban" assets in the city

f) Engaging private sector leadership

Final conclusions:
The most successful cities have a clear vision of the overall resources they haw to offer (human and physical) and knowledge of where

		they are positioned on the cost spectrum. These cities are typically targeting businesses and business functions that need those resources. Some communities are reluctant to choose a particular direction because they fear that they might be perceived as excluding other types of development; However, location consultants consistently argue that the "scattershot" approach to economic development is counter-productive. Ultimately, convincing a company to relocate or stay in a community is only part of the battle; global market forces play a large role as well. Slowdown in the computer industry and trouble with international markets led Motorola to temporarily suspend development of one of its Virginia plants. BMW recently w;nt through a management upheaval at the top, potentially leading to changes in its manufacturing operations. On the other hand, creating a permanent educational base, such as what Virginia Commonwealth University accomplished, lays the foundation for creating clusters of business activity. With a strong foundation for many businesses to draw upon, employees feel more secure that they will find other jobs if one company experiences a slow-down. Employers feel that there is a larger labor pool from which to draw. In the end, strategically investing resources in basic and targeted business needs will sustain a city's long-term economic viability for years to come

REFERENCE 41	OBJECTIVE/S	It was sought to explore the impact of a set of variables on the formation of firms in the industrial sector whilst utilizing a model of spatial econometrics. The time period of the study was from 1982 to 1992.
Correia, I. M. (2003). Regional asymmetries and SME's: The Portuguese manufacturing case (No. Unknown Report Number). Braga, PT: University of Minho, Escola de Economia e Gestao.	METHODOLOGY	The database of the Ministry is Employment was used to gather the data: entries and exits of new businesses in each of the regions (except the regions of Acores and Madeira). Models of spatial econometrics used as well as the evaluation of spatial grouping of the variables is analyzed through a matrix of spatial distances among municipalities.
	DV/S	Firms formation rate – defined as the quotient between the number of entries and the resident population in each municipality, as per the census of 1981.
	IV/S	1. Social-demographic structure: % of the population with a higher education degree, unemployment rate, and rate of unemployment reduction within industry 2. Market conditions: population density, growth of population, consumption and selling indices, rate of in-migration, and growth of the population 3. Industrial structure: employment weight on the small firms, specialization coefficient, and employment distribution by economic activities 4. Capital availability: income indices and number of resident families per owner-

		occupied housing 5. Socio-political environment: % of votes in the left wing parties. TENT = Entry Rate QLSF = Employment share in firms operating with less than 50 employees SPEC = Specialization Coefficient (Equation) = emp. sector i/emp. Total) POPDENS = Population density in 1981 POPGR =Growth rate of he resident population between 1981 and 1991 UNEMP = Employment rate in 1981 QAUTOL = % of employed resident population URB = Dummy: 1 for municipalities QMANF =Weight of employment on the industrial sector GRADE = % resident population with higher education QPROF = % resident population with professional training PROF = % resident population with type 2 jobs INCOME = Income index in 1991 ICONSUMPTION = Consumption index in 1991 OWNHOM = Number of owner-occupied housing per 100 families

		FORK = Dummy: 1 when firms have foreign capital SIBR = Dummy: 1 if the municipality is eligible for the SIBR MUNINC = Dummy: 1 if there is a local policy to support investment LEFT = % of votes in the parties APU, LST, OCMLP, MRPP, POUS, and UDP TXACT = Activity rate
	RESULTS	- Considerable tendency for creating new firms in regions where there seems to prevail firms employing less than 50 workers and the productive structure is specialized - Growth of resident population, weight of employment on more professional and technical activities, activity rate, and importance of employment on the industrial sector appear as important factors for stimulating the formation of new firms - Existence of residents with academic education does not seem to stimulate the formation of new business - Working experience might appear to be the determining factor of the formation of new firms - Existing support policies does not seem to contribute to the formation of new firms - Unfavorable environment for the formation of new firms where left wing parties are more voted

		- Unemployment rate has a positive coefficient but not significant

REFERENCE 42		
Cross, M. (1981). New firm formation and regional development. Aldershot, UK: Gower Publishing Company Limited.	OBJECTIVE/S	An investigation of the process of new firm formation in Scotland from 1968-1977. Emphasis on new manufacturing plants and related employment.
	METHODOLOGY	Survey gathered during 1978 from 191 new manufacturing plants operating in Scotland during 1977 and which had been established between January 1, 1968 and December 31, 1977. Multiple and partial correlation analysis and bivariate and multivariate regression analysis. Survey was not included in the book.
	DV/S	The number of new independent manufacturing enterprises in an area established during the 1968-77 period and that are still operating in 1977 and Similar to the above, but includes all of those new enterprises having opened and closed during the study period.
	IV/S	Six major IVs: 1) Mass (size) of manufacturing activity in the area prior to the study period 2) Diversity of the industrial base 3) Relative and absolute magnitude of the change in the diversity of the industry and major employment sectors

		4) Type (level) of employment in manufacturing industry 5) Characteristics of the manufacturing plants existing throughput the study period 6) Degree of employment turbulence (levels of employment change due to plant closure and contraction) For each of these major IVs there are a series of variables each representing a measurement of one aspect of the major variable under consideration.
	RESULTS	Factors influencing and found in association with the emergence of new firms at the local level: Positive/Enhancing: 1) Manufacturing employment growth 2) Industrial specialization (but not dominated by any one industry) 3) Service employment growth 4) Youth or industrial stock 5) Number of subsidiary plants 6) Increased industrial activity 7) Medium level of employment stability 8) Number of small plants 9) Level of administrative employment Negative/Impending: 1) Degree of plant dominance

		2) Absolute size of manufacturing employment in 1971 3) Absolute size of employment in main industry 4) Level of operative employment

REFERENCE 43		
Czohara, L., Melkers, J., & Dagawa, K. (2004). Firm location decisions and information needs (No. FRC Report No. 93). Atlanta, GA: Georgia State University, Andrew Young School of Policy Studies.	OBJECTIVE/S	This report documents the information needs of businesses seeking to relocate and perceptions of the usefulness of information provided in that process. Specifically, the research addressed the following questions: What information is most useful to business prospects in the process of location decisions? What types of information are most useful in location decisions? Which information is most critical? In what format and what mode of transmittal is information most useful? What are the strengths and weaknesses of information that site location consultants have received in their location site research? Where do site location consultants and business prospects typically go for location information and in what order? Using the findings, can we categorize the information needs by level or tier? (e.g. what is the most important information for businesses that they go after first? What follows that?)
	METHODOLOGY	Three surveys were conducted for this research. First, directors of chambers of commerce and economic development authorities throughout the state of Georgia were surveyed. Second, professional site location consultants around the country were

		surveyed to explore firm and site location information needs. Finally, a series of questions regarding site location issues were included in a related survey to state economic development division directors.
	DV/S	N/A
	IV/S	N/A
	RESULTS	Among many results, the following is included in this annotated bibliography: 1) Respondent identification of factors important to Prospective businesses when considering a community for expansion or location: mean responses. (1 =not very important... 3=very important); Sequence is Site Location Consultants, Georgia Local Economic Developers, and State ED Practitioners. Community Issues: Availability of skilled labor = 2.84, 2.85, 2.95 Easy access to transportation = 2.74, 2.80, 2.95 Telecommunications capacity = 2.72, 2.51, 2.67 Availability of trainable labor = 2.70, 2.83, 2.86 Proximity to customers = 2.41, 2.60, 2.52 Quality of the elementary and high-school system = 2.35, 2.68, 2.33 Proximity to suppliers = 2.24, 2.53, 2.57 Proximity to technical school = 2.07, 2.47, 2.19 Assistance from local community = NA, 2.65, 2.52

		Government Assistance: Assistance from GDITT or other state agency = 2.51, 2.51, 2.62 Local government assistance in establishing operation = 2.40, 2.57, 2.48 State funded training for new employees = 2.34, 2.63, 2.62 Assistance from US Department of Commerce = 1.68, 1.78, 1.52 Finance and Incentives: Availability and attractiveness of local and state tax incentives = 2.61, 2.79, 2.62 Availability and attractiveness of loan packages = 1.89, 2.52, 2.38 Frequency of information requested by prospective firms Or site consultants when considering a community for relocation. Mean Responses. Sequence: Consultants (1=never/infrequently need...3=always need) and GEDA (1 =never/ infrequently requested… 3=always requested): Transportation information = 2.70, 2.44 Business tax information = 2.65, 2.41 Utility costs = 2.54, 2.41 Opportunities for tax incentives = 2.52, 2.78 Transportation costs and alternatives = 2.41, 2.02 State income tax = 2.29, 1.92

		Quality of life information = 2.16, 2.40 University facilities and information = 2.11, 1.90 Housing cost information = 2.04, 2.00 Technical school information = 1.96, 2.24 School district information = 1.96, 2.17 Residential property tax information = 1.70, 1.99 Recreational opportunities = 1.69, 1.87 Arts and cultural attractions = 1.63, 1.76 Loan opportunities and local bank services = 1.49, 2.08 "From your perspective as a site location consultant, how important is it for state and local economic development agencies or communities to provide the following information on their web Sites?" Sequence is Mean responses of Site Location Consultants (1 =not very important…3=very important) and Percent of GEDA respondents indicating that this information is included on their community web site (n=99): Local labor market information = 2.88, 51.5 Utilities information = 2.87, 47.5 Tax information = 2.86, 43.4 Tax incentive information = 2.84, 26.3 Community demographic information (e.g. Census or other data) = 2.80, 70.7

		Transportation information = 2.75, 48.5 Community map = 2.68, 41.4 Cost-of-living information = 2.57, 27.3 Training programs and facilities (such as technical schools, etc) = 2.55, 53.5 Local education statistics = 2.52, 47.5 Links to other economic development resources in their state = 2.52, 37.4 Detailed information on available sites = 2.48, 29.3 Photos of available sites (buildings and lots) = 2.32, 44.4 Profiles of local businesses and suppliers = 2.15, 20.2 Listings of local businesses and suppliers = 2.12, 49.5 Recreation opportunities = 1.84, 66.7

REFERENCE 44		
Davidsson, P., & Wiklund, J. (1997). Values, beliefs and regional variations in new firm formation rates. Journal of Economic Psychology, 18, 179-199.	OBJECTIVE/S	To determine whether cultural differences can explain the deviations from the predictions based on economic-structural variables – Labor Market Areas (LMAs) in Sweden (by three matched pairs: 1) Kri. vs Kar., 2) Kat. vs Nyk., and 3) Kop vs Karl.
	METHODOLOGY	Large samples of 5-40 years old inhabitants in each region were surveyed for cultural values and beliefs data. Three hundred surveys sent with response rate ranging from 72 to 77%.
	DV/S	New firm formation rates.
	IV/S	Values: IV 1. Change-orientation IV 2. Need for achievement IV 3. Need for autonomy IV 4. Jante-mentality IV 5. Acceptance of capitalism IV 6. Competitiveness IV 7. Valuation of money Beliefs: IV 1. Societal contribution IV 2. Financial pay-off IV 3. Perceived risk IV 4. Social status IV 5. Workload IV 6. Know-how IV 7 For-me.
	RESULTS	The results concerning Values are (first pair): Significant at 0.05 level for all respondents: IV3 and IV5

		Significant at 0.05 level for respondents with no entrepreneurship experience: IV1, IV3, and IV5 The results concerning values are (second pair): Significant at 0.05 level for respondents with no entrepreneurial experience: IV1 The results concerning Beliefs are (first pair): Significant at 0.05 level for all respondents: IV1, IV6, and IV7 Significant at 0.05 level for respondents with no entrepreneurship experience: IV1

REFERENCE 45		
Duckworth, R. P., Simmons, J. M., & McNulty, R. H. (1986). The entrepreneurial American city. Washington, DC: Partners for Livable Places.	OBJECTIVE/S	To offer a sample of American urban entrepreneurship – highlights of some American entrepreneurial cities.
	METHODOLOGY	Simplified case studies and interviews
	DV/S	N/A
	IV/S	N/A
	RESULTS	The entrepreneurial city: 1) Depends on a new brand of public leadership 2) Utilizes a private sector type of management style and tools to deliver public services effectively and efficiently 3) Views amenities as economic assets 4) Capitalizes on nontraditional resources

REFERENCE 46		
Erickson, R. A., & Wasylenko, M. J. (1980). Firm relocation and site selection in suburban municipalities. Journal of Urban Economics, 8(1), 69-85.	OBJECTIVE/S	This research examines firm relocation in both manufacturing and nonmanufacturing industrial sectors. Seven industry sectors, which generally correspond to single-digit Standard Industrial Classification (SIC) codes,2 are modeled: construction; manufacturing; transportation, communication and public utilities; wholesale trade; retail trade; finance, insurance and real estate; and services
	METHODOLOGY	a model of intra-metropolitan firm relocation is developed. The model is based on the supply of location sites and the demand for these sites. The demand for sites is derived frpm one of two submodels — a cost minimization or a profit maximization approach — depending upon the characteristics of the industrial sector. The theoretical model specified in this paper results in an empirical model somewhat similar to the specifications of other authors; however, several additional and other more appropriate variables are used in the model presented here. The empirical model is tested using a logistic specification for the equations
	DV/S	The theoretical models are specified as each firm's demand for land in one of 56 municipalities in the Milwaukee SMSA.
	IV/S	CONC(C) = Concentration of the construction industry is measured as the ratio of employees in construction in each municipality to all non-central city employees in construction. The variable is similarly defined for manufacturing (M); transportation, communication and public

		utilities (T); wholesale trade (W); retail trade (R); finance, insurance and real estate (F); and services (S). DEN = Population density of each municipality in 1970. D1ST (1/DIST) = Distance in miles of the suburban municipality from the Milwaukee City central business district. The independent variable is specified as the reciprocal of distance E(C) = Availability of a labor force to the construction industry which is measured by the number of residential employees in construction within a seven mile radius of the suburban municipality. The variable is similarly defined for manufacturing (M), transportation (T), wholesale trade (W), retail trade (R), finance (F) and services (5). The variable is measured in thousands of employees. PCOM = Percentage of land area in the municipality in commercial use in 1967. PIND = Percentage of land area in the municipality in industrial use in 1967. PVAC = Percentage of land area in the municipality which is vacant in 1967. PCY = Per capita income of each municipality in 1969. SAFE = Police and fire expenditures per capita in each municipality in 1969. SANST = Streets and sanitation expenditures per capita in each municipality in 1969. TAXRATE = Net effective property tax rate in each municipality in 1969.

	RESULTS	Results for the Logistic Model of Firm Relocation; Horizontal sequence: Construction, Manufacturing, Transportation, Wholesale Trade, Retail Trade, Finance, and Services. Unclear significant values, but at least 0.05 and better. P/N = Positive or Negative coefficient. 1/DIST = N, N, N, N, N, N, N DHIGH = P, P, P, N, P, P, P CONC(C) = P - - - - - - E(C) = P - - - - - - CONC(M) = - P - - - - - E(M) = - P - - - - - CONC(T) = - - P - - - - E(T) = - - P - - - - CONC(W) = - - - P - - - E(W) = - - - P - - - CONC(R) = - - - - P - - E(R) = - - - - P - - CONC(F) = - - - - - P - E(F) = - - - - - P - CONC(S) = - - - - - - P E(S) = - - - - - - P SANST = P, N, P, N, P, N, N SAFE = P, P, P, N, N, P, N

		TAX RATE = P, P, P, N, P, P, P PCY = - - - - P, P, N DEN = - - - - P, P, N PIND = N, N, N, N, - - - PCOM = - - - - N, N, N PVAC = P, P, P, N, N, P, P

REFERENCE 47		
Escott, F. (1954). Why 122 manufacturers located plants in Texas (Vol. 3). Austin, TX: Bureau of Business Research, College of Business Administration, The University of Texas.	OBJECTIVE/S	A survey conducted to determine why the management of some industries established in Texas during the last five years (prior to 1954) chose the state as a location
	METHODOLOGY	Survey (not included in the article) sent to 280 Texas companies of varying size and located in all sections of the state. Replies were received from 44 percent (122 total).
	DV/S	N/A
	IV/S	N/A
	RESULTS	Reasons for Texas location (top 10): 1) Expanding southwestern market 2) Potential industrial development 3) Population growth 4) Central location for economical expansion 5) Founders native Texans 6) Available resources and raw materials 7) Adequate labor supply 8) Good labor relations; Texas labor laws 9) Transportation system 10)Texas climate and topography

REFERENCE 48	OBJECTIVE/S	(Note: It appears that due to language translation, some important research findings and definitions were left out, so only some summary of the research is presented here)
Falck, O. (2006). Emergence and survival of new businesses: Econometric analysis. Technischen Universitat Bergakademie Freiberg, Freiberg, DE.		The following chapters are presented and each contain results that are presented below: Chapter 2: Mayflies or Long-Distance Runners: The Impact of New Business Formation on Industry Growth in the Evolution of Markets Chapter 3: New Business Formation by Industry over Space and Time: A Multidimensional Analysis Chapter 4: The Effect of Industry, Region, and Time on New Business Survival - A Multi-Dimensional Analysis Chapter 5: Survival Chances of New Businesses: Do Regional Conditions Matter? The German Social Insurance Statistics can be reformulated as an establishment file, allowing analysis of business dynamics in the economy. The empirical data thus derived include two categories of new entities: new firm headquarters and new subsidiaries. For the purposes of this thesis, the term "new business" will be used to describe both types

	METHODOLOGY	The data is structured as a time-series cross-section, or panel, which must be analyzed using advanced econometric methods that are capable of accounting for the heterogeneity between cross-sections and the dynamics over time. Econometric methods used range from simple panel correction of the standard errors in standard estimation methods like ordinary least squares to survival time analysis to panel distributed lag models and sophisticated panel error correction models
	DV/S	New business formation on (regional) growth and employment development Determinants of the emergence and (long-term) survival of new businesses
	IV/S	From Chapter 2: This chapter analyzes the impact of new business formation on industry growth in the evolution of markets. Dynamic panel techniques are used to test two hypotheses. First, does hit-and-run competition secure efficiency in an industry? Second, do innovative startups lead to amplified innovations by diminishing the knowledge filter? The results illustrate how new businesses can be viewed as either mayflies or long-distance runners. The short-run start-up rate is the number of new businesses surviving for only one year per 1,000 businesses. This rate is used as a proxy for the relative importance of hit-and-run competition in the respective industry. The long-run start-up rate is the number of new businesses surviving for at least five years per 1,000 existing businesses. The number of existing businesses is used as a proxy for the stock of knowledge in the industry, from which new businesses may benefit via spillovers. From Chapter 3:

		Multidimensional approach applied to simultaneously analyze the effects of three groups of determinants on new business formation: industry, space, and changes over time. The data are for West Germany and covers the period from 1983 to 1997. Working population = Number of employees and unemployed persons (thousands) in a region and year as an indicator for the pool of potential entrepreneurs Share of industry employment = Share of the employees in the same industry in the respective region by year Short-term unemployment rate = Share of persons in a region which are unemployed for less than one year on the regional workforce Small business presence = Share of employees in establishments with less than 50 employees in a given region, industry, and year Minimum efficient size = The 75th percentile of establishment size when establishments are ordered by size (number of employees) Technological regime = The proportion of R&D employees in establishments with less than 50 employees over the share of R&D employment in total employment in the respective region, industry, and year Dummies for regional innovativeness = Three variables based on the number of patents that have been registered by inventors located in a region in the 1992 to 1994 period per 1,000 persons in the workforce. Dummies are assigned the value zero if the number of patents is in the lower quartile of all regions, and they assume the value one if the number

		of patents is in the second (patent 25-50), third (patent 50-75), or in the upper quartile (patent 75-100), respectively. Capital intensity = Gross capital assets expressed in terms of 10,000 German marks over the number of employees Labor unit cost = Gross income from dependent work per employee over gross value added per employee by industry over time. Capital user cost = Nominal interest rate of ten-year government bonds minus the rate of inflation plus the average yearly depreciation rate of gross capital assets within an industry over time Change of demand = Percent change of gross domestic product of the industry in the preceding year From Chapter 4: To analyze the effect of industry, region, and time on new business survival rates by means of a multi-dimensional approach. The data relate to West German districts in the 1983-2000 period. The survival chances of start-ups tend to be relatively low in industries characterized by a high minimum efficient size and high numbers of entries; Overview of hypotheses about the effect of different factors on new-firm survival chances: Age - liability of newness - liability of aging (of obsolescence, of senescence) Minimum efficient size in industry Capital intensity

		Labor unit cost Capital user cost Demand growth - national, in specific industry or region Innovativeness of industry and region Entrepreneurial character of technological regime in specific industry and region Early stage of industry life cycle Market density Agglomeration Market concentration Unemployment From Chapter 5: This chapter analyzes the effects of industry-, regional-, and firm-level characteristics on the post-entry performance of new businesses by means of an econometric survival time model. First preference is given to an accelerated failure time model assuming a log-logistic distribution. The data involve a representative sample of establishments in the private sector of West Germany during 1993-2002 period
	RESULTS	From Chapter 2: Results of the long-run and short-run error correction models; ***: statistically significant at the 1 percent level. **: statistically significant at the 5 percent level. *: statistically significant at the 10 percent level. P/N: Positive or Negative coefficient. Long-run model (dependent variable: GDP

		(log)) with industry-specific intercepts – Number of businesses (log): P*** Short-run Model I (dependent variable: A GDP (log)) with industry-specific time trends – A Number of businesses (log) = P*** Long-run start-up rate = P*** Error correction term = N*** Short-run Model II (dependent variable: A GDP (log)) with industry-specific time trends – A Number of businesses (log) = P*** Short-run start-up rate = Error correction term = N*** Short-run Model III (dependent variable: A GDP (log)) with industry-specific time trends – A Number of businesses (log) = P*** Long-run start-up rate = P*** Short-run start-up rate = N** Error correction term = N*** Results of the short-run error correction models; ***: statistically significant at the 1 percent level. **: statistically significant at the 5 percent level. *: statistically significant at the 10 percent level. P/N: Positive or Negative coefficient. Note: Stage III. Stage IV, and Stage V are dummies with value of 1 if the industry is classified in the respective stage of the lifecycle. Long-run model (dependent variable: GDP (log)) with industry-specific intercepts – Number of businesses (log) = P*** Short-run Model I (dependent variable: A gross domestic product (log)) with industry-specific time trends – A Number of businesses (log) = P*** Long-run start-up rate = P*** Long -run start-up rate * Stage III = Long -run start-up rate * Stage IV =

Long -run start-up rate * Stage V =
Error correction term = N***

Short-run Model II (dependent variable: A GDP (log)) with industry-specific time trends –
A Number of businesses (log) = P***
Short-run start-up rate =
Short-run start-up rate * Stage III =
Short-run start-up rate * Stage IV =
Short-run start-up rate * Stage V =
Error correction term = N***

Short-run Model III (dependent variable: A GDP (log)) with industry-specific time trends –
A Number of businesses (log) = P***
Long-run start-up rate = P***
Long -run start-up rate * Stage III =
Long -run start-up rate * Stage IV =
Long -run start-up rate * Stage V =
Short-run start-up rate = N**
Short-run start-up rate * Stage III =
Short-run start-up rate * Stage IV =
Short -run start-up rate * Stage V =
Error correction term = N***

From Chapter 3, Part 1 of 2 – Results of multi-level analyses of new business formation for all private sectors and for manufacturing plus services; Zero inflated negbin model with standard errors adjusted for clustering; i: industry, r: region, t: time. Absolute z-statistics in parentheses; **: statistically significant at the 1 percent level, *: statistically significant at the 5 percent level. P/N = positive or negative coefficient. Sequence: All Private Sectors (Models I, II and III) and Manufacturing Services (Models I, II, and III). “-“ = not significant.

Working Population (rt) =
-, P**, P**
P**, P**, P**

		Share of industry employment (irt) = P**, P**, P** P**, P**, P** Short-term unemployment rate (rt) = P**, P**, P** P**, P**, P** Industry GDP growth rate (it) = P**, P**, - P**, P**, P** Capital intensity (it) = -, N**, N* -, -, - Capital user cost (it) = N**, N**, N** N**, N**, N** Labor unit cost (it) = N**, N**, N** N**, N**, N** Share of small business employment (irt) = P**, Not used, Not used P**, Not used, Not used Minimum efficient size (it) = Not used, N**, Not used Not used, N**, Not used Entrepreneurial technological regime (irt) = Not used, Not used, - Not used, Not used, P* Dummies for number of patents per 1,000 employees – Patent 25-50 = P**, P*, P* and P**, P**, P* Patent 50-75 = -, -, -, and P**, -, P* Patent 75- 100 = -, -, - and -, -, - Dummies for planning regions:

		Yes**, Yes* Yes and Yes**, Yes*, Yes Dummies for Federal States: Yes**, Yes**, Yes* and Yes**, Yes**, Yes From Chapter 3, Part 2 of 2 – Results of multi-level analyses of new business formation for manufacturing industries and services; Zero inflated negbin model with standard errors adjusted for clustering; i: industry, r: region, t: time. Absolute z-statistics in parentheses; **: statistically significant at the 1 percent level, *: statistically significant at the 5 percent level. P/N = positive or negative coefficient. Sequence: Manufacturing (Models I, II and III) and Services (Models I, II, and III). “-“ = not significant. Working Population (rt) = -, P**, P** P**, P**, P** Share of industry employment (irt) = P**, P**, P** P**, P**, P** Short-term unemployment rate (rt) = -, -, P** P**, P*, P** Industry GDP growth rate (it) = -, P**, P** P**, P**, - Capital intensity (it) = N**, N**, N** N**, N**, N** Capital user cost (it) = N**, N**, N** -, N**, N** Labor unit cost (it) = -, -, N**

		N*, N**, N** Share of small business employment (irt) = P**, Not used, Not used P**, Not used, Not used Minimum efficient size (it) = Not used, N**, Not used Not used, N**, Not used Entrepreneurial technological regime (irt) = Not used, Not used, P** Not used, Not used, P** Dummies for number of patents per 1,000 employees – Patent 25-50 = P**, P**, P** and -, P*, P** Patent 50-75 = P**, P**, -, and P**, P**, P** Patent 75- 100 = P**, P**, - and -, -, P** Dummies for planning regions: Yes**, Yes** Yes** and Yes**, Yes**, Yes Dummies for Federal States: Yes**, Yes**, Yes* and Yes**, Yes**, Yes* From Chapter 4 -- i: values per industry, r: values per region, t: per year. **: statistically significant at the 1 percent level. *: statistically significant at the 5 percent level; P/N = Positive or negative coefficient. Sequence: All Private Industries (Two-year survival rate, Five-year survival rate, and Ten-year survival rate), Services (Two-year survival rate, Five-year survival rate, and Ten-year survival rate), and Manufacturing (Two-year survival rate, Five-year survival rate, and Ten-year survival rate). “-“ = not significant Minimum efficient size (it) = P*, N**, N** N**, N**, N**

		-, -, - Share of R&D employees (irt) = P**, -, - -, N**, N** P**, P*, - Sum (In) of start-ups in region and adjacent regions (irt) = N**, N**, N** N**, P**, N** N**, N*, N** Population density (r, average over several years) = N**, N**, N** N**, N**, N** N**, N**, N** Yearly growth rate of gross value added (average over the period under inspection) = P**, P**, P** P**, P**, P** P**, P**, P** Regional employment change (r, average over the period under inspection) = -, P**, P** P**, -, P** P**, P**, P** Industry employment change (i, average over the period under inspection) = P**, -, P** P**, P**, P** P**, P**, P** From Chapter 5: Log-rank and Wilcoxon test for the examination of the equality of the survival functions – * statistically significant at the 10% level; ** statistically significant at the 5% level;

		*** statistically significant at the 1% level. Sequence: Log-rank and Wilcoxon results; “-“ no significant: Business size = *** and *** National subsidies = *** and *** R&D department = - and - Part of multi-unit firm = - and - Legal form = * and * Spinoff = ** and *** Results of the accelerated failure time model with log-logistic distribution; time-varying covariates; * statistically significant at the 10% level; ** statistically significant at the 5% level; *** statistically significant at the 1% level; “-“ no significant; P/N = positive or negative coefficient: Number of employees subject to social security in business (log) = P*** Growth rate of employment subject to social security in business = P*** Growth rate of employment subject to social security in industry = P* Growth rate of employment subject to social security in federal state = P** Type of region = N*** Growth rate of the price-deflated national gross domestic product = P*** Number of newly founded businesses in industry and federal state = N*** Minimum efficient size in industry (log) = N***

REFERENCE 49		
Falck, O., & Heblich, S. (2007, August 29th - September 2nd). Modern location factors in dynamic regions. Paper presented at the Joint Congress of the European Regional Science Association (47th Congress) and ASRDLF (Association de Science Régionale de Langue Française, 44th Congress), Paris, France.	OBJECTIVE/S	This paper engages in a quest to discover what these new "locational" factors might be and how and why they are necessary in creating dynamics and regional growth. In doing so, it tries to link agglomeration advantages of the new economic geography with competitive advantages of Porter's cluster theory
	METHODOLOGY	Three-step mixed strategy: the first step is an explorative data quest within macroeconomic data in order to find dynamic regions. Second, the authors mark dynamic regions with regard to the simultaneous existence of modern location factors. The location factors the authors are looking for include those mentioned by Marshall and Porter, namely, labor market, infrastructure, services, inventions, and dominant industries. The uniquely rich data set enable checking for these factors. In addition, creativity was included as a modern location factor. As the third and final step, the authors propose to animate dynamic regions with the help of regional case studies in an effort to test and categorize the discovered regional factors. The third step will be demonstrated by way of an illustrative case study. To account for business cycles and for structural differences between West and East Germany, Periods I and II were developed: Period I is characterized by a growing economy and in Period II the economy declines

	DV/S	Creation of dynamics and regional growth, in terms of: Employment Growth % and Net Entry % of: Entrepreneurial: Innovative entries phase Routinized: When cumulative stock of innovations operates as an entry barrier and hinders entry Revolving-door: When outsourcing of activities phase leads to non-innovation Downsizing: When incumbents not able to imitate permanent process innovations and forced to exit the market
	IV/S	Labor Market (%): Share of highly qualified employees Share of engineers Share of small business employment Creative Class (%): Share of Bohemians Share of patents of natural persons Infrastructure: Type of region Share of patents of universities (%) Services (%): Share of employment in business services Share of highly qualified employment n business services Inventions patent density (%) Dominant industries (three largest manufacturing industries) (%): Share of employment Share of employment in large businesses Share of engineers in large businesses

		Share of small business employment Net entry
	RESULTS	Findings are reported along the lifecycle: start with entrepreneurial growth regimes, then move to routinized growth regimes, followed by revolving-door growth regimes, and end with downsizing growth regimes. The share of highly qualified employees, as well as the number of engineers, is below average in entrepreneurial growth regimen. However, the share of small business employment and the share of bohemians are above average. Creativity and entrepreneurial spirit seem to play a crucial role in entrepreneurial regimes. The number of inventions (patent density) is above average. Knowledge creation takes place in close cooperation between small businesses, independent inventors (patents applied for by natural persons), and business services (share of employment in business services). University' knowledge production appears to be of less importance (patents applied for by universities). Dominant manufacturing industries in entrepreneurial growth regimes include motor vehicles, electronics, and food. Industry concentration (employment share of the three largest manufacturing industries) is more or less average, but the share of small business employment in the dominant manufacturing industries is comparatively high. These dominant industries are also characterized by a high net entry rate and are thus dynamic. Routinized growth regimes differ from entrepreneurial regimes in at least three respects. The share of bohemians is below average, which might stem from the fact that

		routinized growth regimes are more rural (type of region). The number of inventions (patent density) is well above average; however, universities (share of patents applied for by universities) play a more important role in the knowledge production process. Business services (share of employment in business services) have only a subordinated role. Dominant manufacturing industries include motor vehicles, electronics, and a very strong emphasis on food. However, net entry rates in these industries are well below average, which makes them less dynamic than the entrepreneurial growth regimes. Revolving-door growth regimes have a high share of highly qualified employees and engineers, but low levels of small business employment. As revolving-door growth regimes occur in more congested areas (type of region), the number of bohemians and the availability of business services (share of employment in business services) are well above average. However, knowledge production (patent density) is less efficient and most patents are applied for by (large) businesses. Dominant manufacturing industries are mainly focused on electronics, but also include machinery, motor vehicles, and food. These industries are dominated by large businesses and the share of engineers in these large businesses is the highest compared to all other types of growth regime. As these engineers are potential founders of spin-offs, there are high net entry rates in these industries and they are thus dynamic. For downsizing growth regimes, knowledge production is again inefficient and surprisingly, universities are the most prominent applicants for the few patents that there are. Neither

		highly qualified employees and engineers nor differentiated business services are available. Dominant manufacturing industries include electronics, machinery, and food. The net entry rate in the dominant manufacturing industries is well below average, making these industries the least dynamic of those investigated. The above findings lead to the conclusion that the outstanding characteristics of dynamic regions in the sense of employment growth and net entry arc the simultaneous existence of entrepreneurial spirit, creativity, and dominant manufacturing industries that are small businesses and dynamic, m such regions, the business services available probably concentrate on providing those services most necessary for young and/or small businesses, for example, financial services. What must be emphasized is that it is not the independent existence of these factors that makes a dynamic region, but that they all occur simultaneously. This finding is strongly supported by the fact that in all the other types of regimes studied, one of the above location factors is missing. Rontinized growth regimes lack the ability to commercialize their existing creativity, resulting in below-average net entry, and the employment growth in these regions is predominantly found in incumbent firms that have a still expanding market. Revolving-door growth regimes, which are dominated by large business structures, have not much growth in employment, but above-average net entry, possibly due to new business entrants substituting business activities of the incumbents as a result of disaggregation. In downsizing growth regimes, there is neither growth nor creativity; in these shrinking markets, incumbents

		appear to spend all their energy just holding on to their existent market shares, with none left over for the innovation that might lead to growth

REFERENCE 50	OBJECTIVE/S	This study updates and expands on the earlier literature by analyzing both the time-varying and cross-sectional determinants of small-firm entry rates in US manufacturing over the 1989-2004 period, focusing on the role of foreign competition as measured by changes in sector-specific real exchange rates. The interest is not in survival but rather in the decision to enter, it examines gross entry (births) in three size categories: (1) under 20 employees; (2) 20-99 employees; and (3) 100-499 employees
Feinberg, R. M. (2009). Foreign competition and small-firm entry in U.S. manufacturing (Working Paper Series No. 2009-04). Washington, DC: American University, Department of Economics.	METHODOLOGY	Feasible Generalized Least Squares Regression – Annual data from 1989-1998 for 140 3-digit SIC manufacturing industries and from 1998-2004 for 86 4-digit NAICS industries are available from the US Small Business Administration (SBA) on establishment - plant-level - births and deaths by firms in several employment size categories. The basic model is: Entryt, (separately by employment size category) = (Jagged growth in real GDP (interacted with industry dummies), lagged growth in large firms within industry, capital intensity, R&D intensity, lagged aggregate employment cost changes (interacted with industry dummies), lagged exchange rate impact (both by itself and interacted with import share),

		consumer/durable goods dummies)
	DV/S	Variable Definitions: Gross Entry by size = establishment births in size category as percentage of previous year establishments by category Gross Entry (< 20 employees) Gross Entry (20 to 99 employees) Gross Entry (100 to 499 employees)
	IV/S	Broad Sector Import Share = value of imports as percentage of "apparent domestic consumption" (domestic shipments + imports - exports), for 1992 at 2-digit SIC level M-Wt Real XR Change = annual percentage change in import-weighted real exchange rate index (varying by 2-digit SIC, 1st quarter to 1st quarter changes) R&D Intensity = total company funds for R&D as percentage of value of shipments, for 1992, at broader 2-digit SIC level Capital Intensity = total capital expenditures per dollar of labor costs at the 3 digit SIC level, for 1992 Consumer Good, Durable Good
	RESULTS	Feasible Generalized Least Squares Results Explaining Small Firm Entry Rates by Firm Size, correcting for heteroscedasticity across industries and autocorrelation; * Significant at 5% and ** Significant at 1%; P/N = Positive and Negative coefficients – SIC-based study, 1990-1998 (139 industries x 8 years) (standard errors in parentheses below estimated coefficients) RXR chg = 1-19 employees = **N

		20-99 employees = **N 100-499 employees = **N Large Firm Expansion = 1-19 employees = **P 20-99 employees = **P 100-499 employees = **P R&D intensity = 20-99 employees = **N 100-499 employees = **N Capital intensity = 1-19 employees = **N Consumer good = 1-19 employees = *P Durable good = 1-19 employees = *P 20-99 employees = *P Feasible Generalized Least Squares Results Explaining Small Firm Entry Rates by Firm Size, correcting for heteroscedasticity across industries and autocorrelation; Significant at 5% and ** Significant at 1%; P/N = Positive and Negative coefficients – NAICS-based study, 2000-2004 (86 industries x 5 years) (standard errors in parentheses below estimated coefficients) Mshr*RXR chg 1-19 employees = **N 20-99 employees = **N RXR chg = 1-19 employees = **P 20-99 employees = **P 100-499 employees = **P Large Firm Expansion =

		1-19 employees = **N 20-99 employees = **N 100-499 employees = *P R&D intensity = 1-19 employees = *N 100-499 employees = **P Capital intensity = 1-19 employees = **P 20-99 employees = **P 100-499 employees = **N Consumer good = 1-19 employees = **N 20-99 employees = **N 100-499 employees = **P Durable good = 1-19 employees = **P

REFERENCE 51		
Figueiredo, O., Guimaraes, P., & Woodward, D. P. (2002). Home-field advantage: Location decisions of Portuguese entrepreneurs. Journal of Urban Economics, 52(2), 341-361.	OBJECTIVE/S	To explores the distinction between home-base and non-home location decisions in Portugal – the probability of a new plant being opened at a particular site depends on the relative level of profits that can be derived at this site and hence on the site's attributes compared with those of all other alternatives
	METHODOLOGY	Regression: conditional logit formulation – the basic approach consists in treating the location decision problem as one of random profit maximization. Given a set of mutually exclusive regions, investor i weighs in all the regional characteristics of the available spatial choice set and selects the one that will potentially give him the highest profit
	DV/S	Potential profit for new plants locating in Portuguese Concelhos
	IV/S	Localization economies = Share of manufacturing employment in the same 3 digit SIC as the investor Urbanization economies = Log of Total Manufacturing Employment per square km Labor costs = Log of average manufacturing wage Land costs = Log of population density Major urban accessibility = Log of distance by road in time to Porto and Lisbon

		Minor urban accessibility = Log of distance by road in time to the “distrito” administrative center Investor's home base = Dummy: 1 if that Concelho coincides with the investor's "prior locality of economic activity" and 0 otherwise
	RESULTS	Regression results: factors affecting potential profit for new plants locating in Portuguese Concelhos; b and c denotes statistical significance at 1% and 5%, respectively; P/N = Positive or Negative coefficients; Sequence: Equation 1.1 = all variables minus urban and home characteristics, Equation 1.2 = all variables minus home characteristics, Equation 2 = all variables, Equation 3.1 = consider home versus non-home differences, and Equation 3.2 = considers all variables Localization economies = bP, bP, bP, bP, bP Urbanization economies = bP, bP, bP, bP, - Labor costs = bN, bN, bN, -, bN Land costs = bN, bN, bN, -, cN Major urban accessibility = -, bN, cN, bN, - Minor urban accessibility = -, bN, -, -, - Investor's home base = -, -, bP, -, bP

REFERENCE 52	OBJECTIVE/S	An empirical assessment of the relationship between entrepreneurship and other forms of creativity and diversity at the regional level – in the forty-nine regions with more than one million people in the United States. Note: The author and his team have developed new indicators of the social and economic factors associated with innovation, entrepreneurship, and regional economic growth.
Florida, R. (2003). Entrepreneurship, creativity, and regional economic growth. In D. M. Hart (Ed.), The emergency of entrepreneurship policy: Governance, start-ups, and growth in the U.S. knowledge economy (Vol. pp. 39-60). Cambridge, UK: Cambridge University Press.	METHODOLOGY	A series of correlation analyses and time series graphs (no analyses) between the IVs and between IVs and DV.
	DV/S	High-Tech entrepreneurship index -- ranks an area on two factors: 1) Its high-tech industrial output as a percentage of total U.S. high0tech industrial output; and 2) The percentage of the region's total economic output that comes from high-tech industries compared with the nationwide percentage.
	IV/S	They are: 1) Creative class index – draws on the Bureau of Labor Statistics OLS occupation (work primarily at creative problem-solving) categories for the year 1999 as percent of the work force.

		2) Creativity index – composite measure based on four indices: High-tech entrepreneurship index, Innovation index, Gay index, and the Creative Class index. 3) Innovation index – a measure of patents per capita, 1990-1999. 4) Diversity index – combines the Gay, Bohemian, and Melting Pot indices (see below). Gay index: based on the Decennial U.S. Census. Gay households per capita, based on the percentage of all U.S. gays who live in the region divided by the percentage of the total U.S. population who live there. Bohemian index: based on the 1990 Decennial U.S. Census. Calculated as the gay index, but for artist and performer related occupations. Melting Pot index: measures the relative percentage of foreign-born people in a region, based on the 1990 Decennial U.S. Census. Index mentioned but does not seem to be used: Talent Index: a measure of human capital, based on a region's share of people holding a bachelor's degree and above. Based on the 1990 Decennial U.S. Census.
	RESULTS	Bohemian index related to High-tech entrepreneurship index (0.64 and significant). Bohemian index regions are among the top twenty most innovative regions (0.60 and significant). Bohemian index is a strong predictor of both regional employment and population growth. Four out of the top ten regions on the

		Melting Pot index are also among the nation's top ten high-tech areas (0.26 and significant); and seven of the top ten are in the top twenty-five high-tech regions. The Gay index is a very strong predictor of a region's high-tech industry concentration. Six of the top ten 1990 (0.57 and significant at the 0.001 level) and five of the top ten 2000 (0.48 and significant at the 0.001 level) Gay index regions also rank among the nation's top ten high-tech regions. Also, four of the regions that rank in the top ten for high-tech growth also rank in the top ten on the Gay index (0.17 and significant at 0.001 level). Gay index also correlates (0.69) with the Innovation index. Five of the top ten regions on the diversity index are among the top ten high-tech regions (0.48). Diversity index also predicts high-tech growth. Creativity index is an indicator of a region's entrepreneurial capacity – three of the top five regions and four of the top ten regions on the Creativity index are among the leaders on the High-tech index.

REFERENCE 53	OBJECTIVE/S	Examines the degree to which investments in high-capacity highways are likely to influence business location decisions in the United States.
Forkenbrock, D. J., & Foster, N. S. J. (1996). Highways and business location decisions. Economic Development Quarterly, 10(3), 239-248.	METHODOLOGY	Survey of 234 (a 49% response rate) business facility managers in Missouri and Iowa; also an examination of the literature on location factors and highway investments / facility location.
	DV/S	New business location.
	IV/S	Survey questions not provided.
	RESULTS	Two sets of results – results 1 (from survey): - Highway investments should be made when they lower transportation costs sufficiently to at least equal their capital and operating costs - Most state departments of transportation are becoming more inclined to deploy their resources for so-called 3R projects (restoration, resurfacing, and rehabilitation) rather than to add new capacity - Variations in highway access among alternative locations are not as important to consider as labor or distance to markets and materials. Results 2 (from literature review): Ranking of factors in business facility location – Iowa:

		1. Labor quality 2. Labor costs 3. Proximity to markets 4. Proximity to input materials 5. Transportation services 6. Utilities 7. Tax rates Missouri: 1. Labor quality 2. Labor costs 3. Transportation services 4. Proximity to markets 5. Proximity to input materials 6. Tax rates 7. Utilities.

REFERENCE 54		
Fox, W. F., & Murray, M. N. (1991). The effects of local government public policies on the location of business activity. In H. W. Herzog, Jr. (Ed.), Industry location and public policy. Knoxville, TN: The University of Tennessee Press.	OBJECTIVE/S	To present the results of an analysis to determine the importance of local public policy structure on the location of existing or start-up business. It focuses on the effects of differing public policies within one state – Tennessee (95 Tennessee counties for the years 1980 through 1986 was the basis of analysis).
	METHODOLOGY	A pooled time series-cross-section data base on establishment entries into the 95 Tennessee counties for the years 1980 through 1986. Specifically, a Tobit regression technique was used to estimate the business location response to the independent variables.
	DV/S	County entry rates, separated by the following categories: 1) all firm sizes, 2) firms with fewer than 5 employees, 3) between 5 to 11 employees, 4) between 12 to 19 employees, and 5) firms with 20 or more employees.
	IV/S	Fiscal Factors: 1) Property-Tax Rate (PropTax) 2) Local-option sales Tax (SalesTax) 3) Hotel/motel tax rate (HotelTax) 4) Index of business gross-recepits tax rates (BusTax) 5) Per-capita value of transfers from the state to county (PCState)

		6) Ratio of county area aggregate expenditures on highways and streets to total operating expenditures (Hwy) 7) Ratio of county area aggregate expenditures on schooling and streets to total operating expenditures (School) Infrastructure: 8) Dummy variable to indicate the presence of north-south interstate highway (NSInt) 9) Same as above, for east-west (EWInt) 10) Same as above, for major rail line (RRLines) 11) Distance from county's center to major airport (Airport) Demand Factors: 12) Per-capita income (PCIncome) 13) Percentage of county's population which is urban (Urban) Input Factors: 14) Median years of education (YrsEduc) 15) Water Rates (Water) 16) Average prevailing wage of active firms (AvgWage) Other: 17) Per-capita hospital beds (HospBeds) 18) Dummy variable for border counties (Border)
	RESULTS	Estimation results for the empirical mode All firm sizes – the following variables are significant at 0.05 level: 3, 4, 8, 9, 12, 13, and

		14; variable significant at 0.10 level: 18. Firms with fewer than 5 employees – the following variables are significant at 0.05 level: 3, 4, 10, 12, 13, and 14; variables significant at 0.10 level: 1, 8, and 15. Firms between 5 to 11 employees – the following variables are significant at 0.05 level: 8, 9, 13, 14, and 16; variable significant at 0.10 level: 7, Firms between 12 to 19 employees -- the following variables are significant at 0.05 level: 5,and 9; variables significant at 0.10 level: 2, 10, and 14, Firms with 20 or more employees -- the following variables are significant at 0.05 level: 3 and 9; variables significant at 0.10 level: 2, 8, and 16.

REFERENCE 55	OBJECTIVE/S	To analyze the factors motivating the location choice of foreign manufacturing plants in the United States. The period examined, 1977-88, updates prior research and comprises the recent growth of foreign direct investment – FDI – in early 90s.
Friedman, J., Gerlowaki, D. A., & Silberman, J. (1992). What attracts foreign multinational corporations? Evidence from branch plant location in the United States. Journal of Regional Science, 32(4), 403-418.	METHODOLOGY	The location decision is modeled using McFadden's (1974) conditional logit model. The 1977-88 data is arranged into three sub-periods: 1977-80, 1981-85, and 1986-88. Each sub-period contains about one-third of the FDI in new manufacturing branch plants. Plant locations from each sub-period are paired with values for IVs (state characteristics) from the respective sub-periods.
	DV/S	State and regional percentages of 1977-88 U.S. foreign direct investments in new manufacturing branch plants. Focus on "all countries," and the European and Japanese Foreign Multinational Corporations (FMNCs).
	IV/S	Access to Markets 1) Port: No description found 2) Demand: No description found Labor Market Conditions 3) Mfg Wage: Average hourly earnings of manufacturing production workers. 4) % Unemployment: State unemployment rates.

		5) % Union: Percentage of manufacturing workforce that is unionized. 6) Productivity: No description found Other Factors 7) Local Taxes: No description found 8) Promotional $: From the total amount budged by each state for international activities, the percentage of that budget spent on “Foreign Investment Attraction.” 9) Anti-Pollution $: No description found 10) Unitary Tax: No description found 11) No Corp Tax: No description found 12) Land Area: No description found.
	RESULTS	All Countries – 1) Port and 2) Demand positive and statistically significant at 0.01 level; 3) Mfg Wage negative and statistically significant; 6) Productivity and 4) unemployment positive impact on location choice; 5) Union positive and statistically significant; 7) Local Taxes relative large and negative coefficient; 8) Promotion positive and statistically significant. Japanese – The independent variables are those used in the All Countries model with one addition: a dummy variable was added. It is equal to one if a state is in the Pacific Coast. European -- Patterns are somewhat different from that observed for All Countries and Japanese models: 3), 4), 5) and 6) not statistically

		significant; influence of Port greater than that of All Countries and Japanese models

REFERENCE 56	OBJECTIVE/S	To analyze simultaneously the effects of three groups of determinants on new business formation: industry, space, and changes over time. The data are for West Germany and covers the period from 1983 to 1997
Fritsch, M., & Falck, O. (2007). New business formation by industry over space and time: A multidimensional analysis. Regional Studies, 41(2), 157-172.	METHODOLOGY	Multidimensional analysis, industry, space, and time, of the number of start-ups in a certain industry and region during a certain year
	DV/S	Average yearly number of start-ups in different industries, 1983-97: All private sectors Manufacturing Services Other industries
	IV/S	IV1 – Working population: Number of employees and unemployed persons ('OOOs) in a region and year as an indicator for the pool of potential entrepreneurs. Sources: Social Insurance Statistics and Federal Employment Services IV2 – Share of industry employment: Share of the employees in the same industry in the respective region by year. Source: Social Insurance Statistics IV3 – Short-term unemployment rate: Share of persons in a region who are unemployed for less than 1 year on the regional workforce. Source: Federal Employment

		Services IV4 – Small business presence: Share of employees in establishments with fewer than 50 employees in a given region, industry and year. Source: Social Insurance Statistics IV5 – Minimum efficient size: 75th percentile of establishment size when establishments are ordered by size (number of employees). Source: Social Insurance Statistics IV6 – Technological regime: Proportion of research and development employees in establishments (R&D) with fewer than 50 employees over the share of R&D employment in total employment in the respective region, industry, and year. Source: Social Insurance Statistics IV7 – Dummies for regional innovativeness: Three variables based on the number of patents that have been registered by inventors located in a region between 1992 and 1994. Source: German Federal Patent Office (taken from GR.EIF 1998) per 1000 people in the workforce. Source: Social Insurance Statistics IV8 – Capital intensity: Gross capital assets expressed in terms of DM10 000. Source: STATISTISCHES BUNDESAMT (various volumes) over the number of employees. Source: Social Insurance Statistics by industry and year IV9 – Labor unit cost: Gross income from dependent work per employee over gross value added per employee. Source: STATISTISCHES BUNDESAMT (various volumes) by industry over time IV10 – Capital user cost: Nominal interest rate of 10-year government bonds minus the

		rate of inflation. Source: DEUTSCHE BUNDESBANK (various volumes) plus the average yearly depreciation rate of gross capita] assets (based on STATISTISCHES BUNDESAMT, various volumes) within an industry over time IV11 – Change of demand: Per cent change of gross domestic product of the industry in the preceding year. Source: STATISTISCHES BUNDESAMT (various volumes)
	RESULTS	All private sectors; by 0.01 and 0.05 significant level in parentheses (Model 1 out of 3 models): IV1: 0.01 IV2: 0.01 IV3: 0.05 IV4: 0.01 IV7: 0.01 (25-50) IV9: 0.01 IV10: 0.01 IV11: 0.01 Manufacturing and service sectors; by 0.01 and 0.05 significant level in parentheses (Model 1 out of 3 models): IV1: 0.01 IV2: 0.01 IV3: 0.05 IV4: 0.01 IV7: 0.01 (25-50 and 50-75) IV9: 0.01 IV10: 0.01 IV11: 0.01 Results of multilevel analyses of new business formation for manufacturing industries; by 0.01 and 0.05 significant level in parentheses (Model 1 out of 3 models):

		IV1: 0.01 IV2: 0.01 IV4: 0.01 IV7: 0.01 (25-50, 50-75, 75-100) IV8: 0.01 IV10: 0.01 Results of multilevel analyses of new business formation for service industries; by 0.01 and 0.05 significant level in parentheses (Model 1 out of 3 models): IV1: 0.01 IV2: 0.01 IV3: 0.05 IV4: 0.01 IV7: 0.01 (50-75) IV8: 0.01 IV9: 0.05 IV11: 0.01

REFERENCE 57		
Fritsch, M., & Mueller, P. (2004). Effects of new business formation on regional development over time. Regional Studies, 38(8), 961-975.	OBJECTIVE/S	To investigate the time lag of the effect of new business formation on regional growth (employment growth) for West Germany. It compares the data analyzed by Audretsch and Fritsch (2002) – this study has a longer time series of data available and analysis for smaller spatial units (districts instead of planning regions) is performed.
	METHODOLOGY	A complex set of techniques were used to prepare the data for analysis: e.g., shift-share procedures, sector adjusted procedures, panel estimation techniques, and polynomial lags employed. A model was developed to show the lag structure of the effect of new business formation: it included the start-up rate at the beginning of the inspected period of employment change (current year) and all start-up rates of the preceding 10 years. Because of a relatively high level of correlation between the start-up rates of subsequent years, the impact of each lagged start-up was also analyzed separately.
	DV/S	Impact of new business formation on regional employment change.
	IV/S	1) Start-up rate, current year t 2) Start-up rate, year t-1 3) Start-up rate, year t-2

		4) Start-up rate, year t-3 5) Start-up rate, year t-4 6) Start-up rate, year t-5 7) Start-up rate, year t-6 8) Start-up rate, year t-7 9) Start-up rate, year t-8 10) Start-up rate, year t-9 11) Start-up rate, year t-10
	RESULTS	Impact of new business formation on regional employment change of the current year: Statistically significant at 1% level: IVs 1, 2, 4, 5, 7, and 8 Statistically significant at 5% level: IVs 6 and 9 Impact of new business formation on regional employment change of the current year; polynomials of second (2nd), third (3rd), fourth (4th), and fifth (5th) orders: * The pattern suggests that new business formation of the current year as a positive impact on employment change. For the entries in years t-1 and t-5, the effect is negative with a minimum in t-3. For the entries in years t-6 to t-9, a positive relationship is found with a maximum between t-7 and t-8. * … but none of these values are deemed significant.

REFERENCE 58		
Fritsch, M., & Mueller, P. (2005). How persistent are regional start-up rates? An empirical analysis. In G. Vinig & R. van der Voort (Eds.), The emergence of entrepreneurial economics (pp. 71-82). Amsterdam, NL: Elsevier Science.	OBJECTIVE/S	To analyze the persistence of regional new business formation activity over a period of 20 years in order to assess the magnitude and the pace of changes that have occurred. To identify the factors that determine the development of new business formation activity and draw conclusions with regard to strategy and measures of a policy for stimulating new business formation and entrepreneurship
	METHODOLOGY	Regression: Pooled HWS (Huber- White robust estimator) and Fixed Effects
	DV/S	Start-up rate according to the labor market approach, which means that the number of start-ups per period is divided by the number of persons in the regional workforce at the beginning of the respective period, including those persons that are recorded as unemployed. The entry rate according to the labor market approach may be interpreted as the propensity of a member of the regional workforce to start his or her own business; and Change start-up rate (%)
	IV/S	Innovation activity (t-1) Change of innovation activity (t-1) Entrepreneurial climate (t-1) Change of entrepreneurial climate (t-1)

		Population density (t-1) Regional economic growth (t-1) Start-up rate (t-1) Change of start-up rate, percentage (t-1)
	RESULTS	Model 1 (M1) = Start-up rate, Pooled HWS Model 2 (M2) = Start-up rate, Fixed Effects Model 3 (M3) = Change Start-up Rate (%), Pooled HWS Model 4 (M4) = Change Start-up Rate (%), Fixed Effects 'Significant at 5%-level and **Significant at 1% level; P/N = Positive or Negative coefficient Determinants of the Level and Changes of New Business Formation Activity: Innovation activity (t-1) = M2**P Change of innovation activity (t-1) = M3*P, M4**P Entrepreneurial climate (t-1) = M1**P, M2*P, M3**P, M4**P Change of entrepreneurial climate (t-1) = M3**P, M4**P Population density (t-1) = M4**P Regional economic growth (t-1) = M1*P, M2**P, M3**N Start-up rate (t-1) = M1**P, M2**P, M3**N, M4**N

		Change of start-up rate, percentage (t-1) = M3**N, M4**N Spatial error = M1**P, M2**P, M3**P, M4**P

REFERENCE 59	OBJECTIVE/S	1) Analyze the persistence of regional business formation activity over a period of 20 years; 2) Identify the factors that determine the level and the development of new business formation activity. Both objectives are for West Germany.
Fritsch, M., & Mueller, P. (2007). The persistence of regional new business formation-activity over time - assessing the potential of policy promotion programs. Journal of Evolutionary Economics, 17(3), 299-315.	METHODOLOGY	Pooled regressions with the start-up rate as a dependent variable and start-up rates of previous years as independent variables.
	DV/S	Regional start-up rate.
	IV/S	1) Start-up rate: t-1, t-2, t-3, t-4, t-5, t-10 and t-15; where t = time or years 2) a) Share R&D personnel b) Share employees in small , young business (t-1) c) Log population density (t-1) d) Change of gross value added over 5 year period (t-5) e) Gross value added per workforce (t-1) f) Unemployment rate (t-1) g) Start-up rate (t-5) h) Spatial lag* Note: When the influence of explanatory variables "spills over" into adjacent or proximate spatial units, one way to model this would be to include a spatially lagged explanatory variable.

	RESULTS	1) p < 0.01: t-1 through t-15 2) a. Pooled Regression Model I* IVs 2.g & h Sig at 0.01 level Model II* IVs 2.a, b, c, g & h sig at 0.01 level IV 2.d sig at 0.05 level Model III* IVs 2.a and e. sig at 0.05 level IVs b, c, g and h sig at 0.01 Model IV* IVs 2.b, f, g, & h sig at 0.01 b. Fixed-effects regression Model V* IV h sig at 0.01 level Model VI* IVs a, b, d & h sig at 0.01 level Model VII* IVs a, b & h sig at 0.01 level IV e sig at 0.05 level Model VIII* IVs a, b, f & h sig at 0.01 level *Models I, II, III, IV, V, VI, VII and VIII not defined.

REFERENCE 60	OBJECTIVE/S	To investigate the effects of local policy on the location decisions of 3,763 establishments that began operations in a Maine municipality between 1993 and 1995.
Gabe, T. M., & Bell, K. P. (2004). Tradeoffs between local taxes and government spending as determinants of business location. Journal of Regional Science, 44(1), 21-41.	METHODOLOGY	The empirical analysis uses a Poisson regression model, which is equivalent to the conditional logit model used in some previous location studies: (Carlton, 1983; Coughlin, Terza, & Arromdee, 1991; Head, Ries, & Swenson, 1995).
	DV/S	1) Business Investments: number of businesses that located (invested) in municipality-industry between 1993 and 1995. 2) Investments per Municipality: number of businesses that located (invested) in municipality between 1993 and 1995.
	IV/S	1) Education Subsidies / Pupil): 2) Education Subsidies / Population 3) Non-education Spending / Population 4) Education Administration / Pupil 5) Education Administration / Population 6) Education Instruction and Operations / Pupil 7) Education Instruction and Operations / Population

		8) Education Transportation / Pupil 9) Education Transportation / Population 10) Education Other / Pupil 11) K-12 Education 12) Wages 13) Distance 14) Population 15) Location Quotient 16) AG 17) CONS 18) MANU 19) TRANS 20) WHOLE 21) RETAIL 22) FIRE 23) SERVICES 24) Portland Dummy 25) County Dummy Variables: 16 counties 26) Over-dispersion Parameter: ?unknown variable Note: Definitions too long to fit here. See page 27-28 of the article for a full detail.

	RESULTS	Note: Regression results, generated by Poisson (P) and negative binomial (NB) estimators, on the determinants of business location. The dependent variable used in models 1P and 1NB is the number of business investments, between 1993 and 1995, per municipality-industry. The model 2P focus on the number of business investments per municipality (129 observations), rather than per municipality-industry (1,032 observations) Model 1P: variables that are significant at 10% significance level: IV10; variables that are significant at 5% significance level: IV25 (4 counties); variables that are significant at 1% significance level: IV1, 2, 3, 6, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, and 25 (7 counties) Model 1NB: variables that are significant at 10% significance level: IV10, 11, and 25 (3 counties); variables that are significant at 5% significance level: IV3, 6, 13, and 25 (3 counties); variables that are significant at 1% significance level: IV1, 2, 14, 15, 16, 18, 19, 20, 21, 23, 24, 25 (2 counties), and 26 Model 2P: variables that are significant at 10% significance level: IV10 and 25 (1 county); variables that are significant at 5% significance level: IV25 (5 counties); variables that are significant at 1% significance level: IV1, 2, 3, 6, 11, 13, 14, 24, 25 (5 counties) Additionally, empirical findings suggest that businesses are generally attracted to municipalities that spend high amounts on public goods and services, even when these expenditures are financed by an increase in local taxes (see page 35-36 for full results)

REFERENCE 61		
Garrett, T. A., & Wall, H. J. (2006). Creating a policy environment for entrepreneurs (No. 2005-064B). St. Louis, MO: Federal Reserve Bank of St. Louis.	OBJECTIVE/S	1) Examines the influence of government policy on rates of entrepreneurship across (the states of) U.S.; 2) Determine whether the geographic pattern of entrepreneurship is related to the geographic pattern of policy environments.
	METHODOLOGY	It extends the regression model (state-level panel) used by Georgellis & Wall (2000) by adding a vector of explanatory variables that controls for the policy environment.
	DV/S	Rates of entrepreneurship, by state, during the 90s.
	IV/S	Policy Environment 1) Homestead exemption rate (HER) 2) HER squared 3) HER cubed 4) Max. personal-income tax rate (MPITR) 5) MPITR squared 6) Max. corporate-income tax rate (MCITR) 7) MCITR squared 8) Min. wage relative to productivity Business Environment 9) Unemployment rate 10) Real income per capita 11) Relative proprietor's Wage 12) Real wealth per capita 13) Real median house price 14) Industry shares Demographics 15) Share of population in metro areas

		16) Adult share aged (ASA) 45-65 17) ASA 65+ 18) Female share of employment 19) Black share of employment 20) Native American share of employment 21) Asian share of employment 22) Hispanic share of employment Year Effects 23) Year effects 1993 24) Year effects 1994 25) Year effects 1995 26) Year effects 1996 27) Year effects 1997 28) Year effects 1998
	RESULTS	IVs 1, 2, 3, 6, 8, 9, 10, 13, 15, 16, 17, 18, 20, 24, 25, 26, 27 and 28 significant at the 10 percent level or higher And… The authors find that corporate-income tax rates, bankruptcy law, and minimum wage legislation have statistically and economically significant effects on rates of entrepreneurship across U.S. states; Geographic pattern of entrepreneurship is similar to the geographic pattern of policy environments – the low-entrepreneurship states of the Great Lakes and the South tend to have relatively unfriendly policy environments. The high entrepreneurship states of the West tend to have relatively friendly policies. On the other hand, although the New England states tend to have relatively unfriendly policy environments they also have high rates of entrepreneurship

REFERENCE 62		
Gaygisiz, E., & Koksal, M. Y. (2003). Regional variation in new firm formation in Turkey: Cross-section and panel data evidence (No. ERC Working Papers in Economics 03/08). Ankara, TR: Economic Research Center, Middle East Technical University.	OBJECTIVE/S	To explorer the variation in new firm formation in manufacturing sector across regions of Turkey and investigates the effects of regional characteristics on new firm formation. The study also provides a comparison of the differences in regional variation in underlying firm birth processes between developed countries and Turkey
	METHODOLOGY	Multivariate linear regression - Cross section and panel data analyses. It used two different firm birth rates: one identified according to the labor market approach (per 100,000 individuals) and the other is according to the ecological approach (number of new firms in manufacturing per 100 establishments)
	DV/S	GROSSLAB = (total number of new SMEs in manufacturing in a province in a certain year / total labor force in that province in that year) * 100,000) GROSSEST = (total number of new SMEs in manufacturing in a province in a certain year / total total number of establishments in manufacturing in that province in that year) * 100)
	IV/S	GRGDP = Annual growth rate of real GDP per capita GRPOP = Annual growth rate of population POPDEN = Population density IMMIG = Share of immigrants in the

		population POPEDU = share of the university graduates in the labor force POPTECH = share of the labor force in technical professions UNEMP = unemployment rate GRUNEMP = change in unemployment ESTSIZE = average firm size POPENT = share of entrepreneurs in the labor force GRDEP = annual growth rate of bank deposits GOVIN = share of each province in government investment expenditure
	RESULTS	POPDEN is the most significant variable explaining the variation in new firm formation across the regions of Turkey GRGDP and GRPOP surprisingly not significant POPTECH is another variable that is found to be significant and it has a positive impact on new firm formation GRPOP yields a significant positive impact on new firm formation GRGDP and GDP per capita indicates a negative impact of demand growth on new firm formation Higher rates of UNEMP are associated with lower firm birth rates in manufacturing in Turkey

REFERENCE 63	OBJECTIVE/S	Local industrial businesses in the Commerce City area were surveyed to: (1) determine the reasons for their present location, and (2) determine the attitudes of business towards present Commerce City and general public sector policy and practices in encouraging or discouraging industrial development. The survey is based on a sample interview of 42 businesses; 3 of which left Commerce City in the last two years
Goodstat, G., & Montgomery, J. (1976). Survey and analysis of industrial business location needs and attitudes in Commerce City (No. 11/1976). Denver, CO: Denver Regional Council of Governments, City of Commerce City.	METHODOLOGY	Survey questionnaire
	DV/S	Characteristics of Businesses Surveyed: Of the 42 businesses surveyed, 21 (50%) had their main office in Commerce City, 4 (10%) inside Colorado, and 17 (40%) outside Colorado The types of businesses were as follows -- Business Types and Number: Transportation equipment = 8 Non-electric industrial machinery and equipment = 7 Heavy construction = 5 Fabricated metals = 4 Primary metals = 4 Petroleum and coal = 3 Other = 11 In terms of their markets, 10 percent of the respondents indicated the Denver area, 62 percent the State of Colorado, and 28 percent a regional multi-state market

	IV/S	Locational Needs: Businesses were asked to identify those factors most effecting their present location. In asking the question it was important to distinguish between factors affecting regional, local, and site location decisions. For instance, a firm might be most concerned with the availability of labor and raw materials in selecting a region of the country to locate a firm, but more concerned with land and municipal improvements in selecting a locality or site to locate in. The size of the business and the person interviewed also affected the relative importance assigned to each location factor. A small business, operating only one plant, was usually more concerned with those factors that were of a local or site nature. Larger businesses operating more than one plant in and out of Colorado expressed a concern with the general supply of labor and raw materials. A greater concern in statewide or regional factors was also expressed by respondents who held a higher level of management responsibility. (Corporate presidents of larger firms often resided out of state and were not available for interview) -Distance and speed to customers (market) -Availability and cost of land -Industrial climate and local attitudes -Access to materials -Zoning and other regulations -Public utilities (water, sewer, gas) -Local taxes -Productivity and skill of labor -State taxes -Wage rates and low cost labor -Size of town -Local sources of financing

		-Other
	RESULTS	Importance of Factor. Businesses in Commerce City were asked to identify the five most important factors effecting their present location. Their responses were as follows -- Factor, No, and Percentage: -Distance and speed to customers (market) = 31, 15.8 -Availability and cost of land = 27, 13.8 -Industrial climate and local attitudes = 24, 12.2 -Access to materials = 23, 11.7 -Zoning and other regulations = 22, 11.2 -Public utilities (water, sewer, gas) = 15, 7.6 -Local taxes = 15, 7.6 -Productivity and skill of labor = 11, 5.6 -State taxes = 9, 4.6 -Wage rates and low cost labor = 7, 3.6 -Size of town = 6, 3.1 -Local sources of financing = 4, 2.0 -Other = 2, 1.0 Quality of Location Factor. Asks the respondent to rank From “1" to "3" the quality of each factor as it relates to Commerce City. A ranking of "1" indicates "favorable to industry; "2" indicates “marginal to industry;" and "3" indicates "unfavorable to industry."

		-Percentage Response (across) Location Factor, Favorable, Marginal, and Unfavorable -Access to materials (rail, truck, meter, or air) = 79%, 15%, 6% -Distance and speed to customers (market) = 55, 42, 3 -Bearing strength of soil = 27, 62, 12 -Availability and cost of land = 48, 52, 0 -Marketing and advertising facilities = 19, 67, 15 -Wage rates and availability of low cost labor = 37, 63, 0 -Productivity and skill of labor market = 21, 76, 3 -State taxes = 16 56, 28 -Local taxes = 25, 39, 36 -Zoning and other regulations = 40, 40, 20 -Industrial climate, local attitudes toward industry =42, 45, 12 -Water-sewer utilities and power = 39, 48, 13 -Size of town = 26, 63, 11 -Employee housing = 11, 52, 37 -Education and recreation facilities = 15, 46, 38 -Local sources of financing = 19, 41, 41

Competitive Advantage: asks businesses to describe those changes in conditions in the last 10 years that have effected the competitive advantage or disadvantage of their present location. Most of the respondents' attention was given to describing competitive disadvantages.

Responses --
Comments, No., Percent:

-Local taxes = 6, 31.6 '
-Federal and state regulations = 4, 21.1
-Local zoning and regulation = 3, 15.8
-Cost of transportation and fuel = 3, 15 .8
-Other = 3, 15.8

Suggested Methods for Commerce City. Businesses were also asked to suggest methods by which Commerce City could attract and maintain industry. The nature of the responses were as follows.

Responses -- No., Percent:

-Make local taxes and policy more receptive and consistent to local industrial needs = 12, 27

-Professionalize city employees and practices = 9, 20

-Improve city streets and internal access = 6, 13

-Clean up city and improve housing and community facilities = 6, 13

-Provide local financing and financial incentives = 5, 11

-Increase available land and knowledge of =

		3, 7 -Deregulate government = 2, 4 -Upgrade utilities, especially sewerage = 2, 4 Summary and Conclusions: The businesses surveyed were headquartered both in and out of the State of Colorado, and served both statewide and multi-state markets. The majority of the businesses interviewed were involved in either industrial and transportation equipment or heavy construction. Fifty-seven percent of the businesses operated in Commerce City for less than ten years. Eight businesses had definite or possible plans to relocate, and eleven businesses had plans to expand. Businesses, in selecting their present location, indicated that they were most concerned with access and location to customer markets and suppliers, availability and cost of land, and local attitudes and zoning policies. They felt that Commerce City was a good location in terms of access to materials and speed to customers. A marginal to unfavorable attitude was expressed regarding local attitudes to industry, availability of land, and zoning and regulatory practices. They also felt that the City's local taxes, employee housing supply, community facilities, and local sources of financing were marginal or unfavorable to industrial needs. The respondents indicated that local taxes, and local zoning regulations placed them at a competitive disadvantage. When asked to suggest methods to improve

		the industrial environment in Commerce City, 5 major suggestions were made. 1. Make local taxes and policy more responsive to local industrial needs. 2. Professionalize city employees and practices; make them more receptive to industrial needs and the resulting mutual benefits. 3. Provide local financing and incentives. 4. Increase the availability of land and knowledge of availability; possibly through annexations. 5. Clean up City and improve housing and community facilities

REFERENCE 64		
Guesnier, B. (1994). Regional variations in new firm formation in France. Regional Studies, 28(4), 347-358.	OBJECTIVE/S	(Note: article translated from French – appears to have missed important research points, such as clear objectives and other items); that being said… The analysis is oriented toward an effort to determine the major causal factors affecting demographic changes among French firms: 1) to determine the relative impact of spontaneous evolution, and 2) to determine which forces can be modified to shift the economic changes in a desired direction
	METHODOLOGY	Regressions and correlations: 1) Stock 1991 = stock 1981 + net difference 1981 to 1991 2) Net difference = creation flow 1981 to 1991 – death flow 1981 to 1991 3) Stock 1991 = stock 1981 + creation flow 1981 to 1991 – death flow 1981 to 1991
	DV/S	Firm creation, by region, 1986-1991: 22 French regions Firm birth rates, 1991: Equation 1: Firm births per 100 existing firms and Equation 2: firm births per 10,000 active workers
	IV/S	V1 = Population density (square toot) V2 = Population growth V3 = change in average net household

		income V4 = Proportion of small firms (1-49 jobs) V5 = Economic sector concentration: index V6 = Change in unemployment rate V7 = Unemployment rate, 1989 V8 = Percentage adults with bachelors degrees V9 = Percentage workforce 20-40 year old men V10 = Percentage middle management in workforce V11 = Proportion of local taxes paid by households V12 = Proportion professional taxes paid by enterprises V13 = Second homes as percentage of all dwellings V14 = Percentage owner-occupied dwellings V15 = Percentage socialist votes (Miterrand-1988)
	RESULTS	For firm birth rates: Equation 1 – significant coefficients: V1, V2, V4, V5, V6, V7, V9, V10, and

		V14 Equation 2 – significant coefficients: V1, V2, V4, V5, V7, V9, V10, V12, V13, and V14

REFERENCE 65		
Guimaraes, P., Figueiredo, O., & Woodward, D. P. (2003). A tractable approach to the firm location decision problem. The Review of Economics and Statistics, 85(1), 201-204.	OBJECTIVE/S	This paper demonstrates that the coefficients of the conditional logit model can be equivalently estimated using a Poisson regression. This discovery may prove particularly useful for further research in partial equilibrium location modeling
	METHODOLOGY	Modeling: The conditional logit model based on random utility maximization
	DV/S	Firm Location Decision
	IV/S	(Variables not defined) Total manufacturing agglomeration Industry-specific agglomeration Foreign-specific agglomeration Service agglomeration Labor costs Elementary education Secondary education Population density Distances to Porto and Lisbon Porto Lisbon
	RESULTS	(Notes: The first four columns report the results using the McFadden – McF'adden, D. "Conditional Logit Analysis of Qualitative Choice Behavior" (pp. 105 142). in P. Zarembka (Ed.), Frontiers in Econometrics (Ne\\ York: Academic Press, 1974) and "Modelling the Choice of Residential Location" (pp. 75—96), in A, Karquist, L. Lundqvist, F. Snickars, and J. Weibuli (Eds.). Spatial Interaction Theory and Planning Model*

		(Amsterdam: North-- Holland, 1978) – randomization approach. We present the maximum and minimum values for the p estimates and /-values obtained in 100 runs using random subsets of dimension 10, 20, 30, and 40 choices, respectively. The fifth column presents the result of a regression where the full choice set was restricted to those choices which had investments, and the last column presents an estimate using the full 275 choices) → As one increases the number of random choices, the range of the estimates tends to diminish. However, as shown in this particular application, it is possible to obtain estimates quite different from those with the full choice set. As expected, the t-tests for the full choice set estimation are usually higher than those obtained by the random sampling. Overall the estimates obtained with the restricted choice set (column 5) are not much different from those obtained with the full choice set (column 6). However, it is possible to obtain coefficients and levels of significance for the individual parameters quite different from those with the full choice set. This can be seen looking, for example, at the coefficients and t-values associated with variables 1 and 3. This latter variable becomes significant in column 5. an unexpected result.

REFERENCE 66		
Guimaraes, P., Figueiredo, O., & Woodward, D. P. (2004). Industrial location modeling: Extending the random utility framework. Journal of Regional Science, 44(1), 1-20.	OBJECTIVE/S	To propose solutions to model complex choice scenarios where the decision maker confronts many, and narrowly defined, spatial alternatives. The intent is to illuminate the advantages of exploiting the conditional logit model (CLM)-Poisson relation while controlling for the potential Independence of Irrelevant Alternatives (IIA) violations.
	METHODOLOGY	To demonstrate the CLM-Poisson relation in empirical location modeling, the authors posit a general profit function for firms in a particular industry and location. Specifically, the authors model the location determinants of manufacturing plant births for the 3,066 counties belonging to the 48 contiguous U.S. states.
	DV/S	Number of establishments for each county by industry, two-digit Standard Industrial Classification code for all establishments in the manufacturing sector (SIC20-39).
	IV/S	Include the county characteristics that can affect a firm's profit function, from both the cost and revenue side: 1) LABOR COSTS: wage and salary earnings per job in 1988 and 1996 2) LAND COSTS: population density for the years 1988 and 1996 as proxy (Bartik, 1985)

		3) TAXES: per capita property taxes for 1987 and 1997 4) MARKET SIZE: total county personal income for the years 1988 and 1996 5) URBANIZATION ECONOMIES: proxied by the county density of manufacturing and service establishments per square kilometer in 1988 and 1996 6) LOCALIZATION ECONOMIES: measured by the number of establishments per square kilometer in the same two-digit SIC industry and show year as the investment 7) STATE DUMMIES: to account for observable and unobservable state-level characteristics 8) COMBINATION OF YEAR-TWO DIGIT SIC SECTOR DUMMIES: to ensure compatibility between CLM and Poisson approaches.
	RESULTS	Several models were ran: 1) Standard conditional logit; without county effects; no state dummies — MODEL1 2) Standard conditional logit; without county effects; state dummies — MODEL2 3) Mixed logit model; with county effects; random effects; no state dummies — MODEL3 4) Mixed logit model; with county effects; random effects; state dummies — MODEL4 5) Mixed logit model; with county effects; fixed effects — MODEL5 MODEL1: IV1, 2, 3, 4, 5, and 6 significant at the 1% level of significance

		MODEL2: IV1, 2, 3, 4, 5, and 6 significant at the 1% level of significance MODEL3: IV1, 2, 3, 4, 5, and 6 significant at the 1% level of significance MODEL4: IV1, 2, 3, 4, 5, and 6 significant at the 1% level of significance MODEL5: IV3 and 6 significant at the 1% level of significance; IV5 significant at the 10% level of significance.

REFERENCE 67		
Guimaraes, P., Rolfe, R. J., & Woodward, D. P. (1998). Regional incentives and industrial location in Puerto Rico. International Regional Science Review, 21(2), 119-138.	OBJECTIVE/S	The aim is to access the effect of regional policies on new plant location choices in Puerto Rico
	METHODOLOGY	Nested logit model employed was fitted to micro data on manufacturing plant openings by firms in Puerto Rico. Nested logit model (NLM) clusters choices with the similar attributes – suitable when choice set can be portioned into mutually exclusive subgroups
	DV/S	The 76 municipalities of Puerto Rico – the sample of plant openings encompasses 205 manufacturing plant openings from 1979 to 1986 (67 located in the core region and the remaining 140 in the periphery)
	IV/S	V1: Major highway distance = log of the road distance to a major highway (miles) V2: San Juan distance = log of the road distance to San Juan (miles) V3: Ponce = 1 if the municipality is Ponce, 0 otherwise V4: Population density = log of the population per square mile V5: Manufacturing Agglomeration = log of the number of Manufacturing establishments V6: Zone1 = 1 if the location is in the low development-high incentive zone one, where the tax holiday is greater than 15 years, 0 otherwise

		V7: Zone2 = 1 if the location is in the intermediate zone, where the tax holiday is greater than 10 years but less than or equal to I5 years, 0 otherwise
	RESULTS	Maximum Likelihood Estimates * Statistically significant at the 0.01 level and ** Statistically significant at the 0.05 level; P/N = Positive or Negative coefficients Major highway distance = **N Ponce = **P Population density = **N Manufacturing agglomeration = **P

REFERENCE 68		
Hack, G. D. (1999). Site selection for growing companies. London: Quorum Books.	OBJECTIVE/S	A comprehensive discussion of the issues and tools involved in the location or relocation of a business operation. The book also provides tables and survey samples. Focus of this review is on chapter 4: Community Location Factors.
	METHODOLOGY	The author aims to provide an easy to read, step-by-step, systematic approach to the selection of new business location. The emphasis is on small businesses. A comprehensive appendix contain several surveys and evaluation forms, including: A) Data sources for preliminary are evaluation B) Analysis of present operations C) Site requirements for a proposed new facility D) Site evaluation E) Community Survey F) Methods of appraising a community.
	DV/S	Community for the location of new facility.
	IV/S	Major factors governing the selection of a community as the location of new facility include: 1) Local labor supply 2) Local labor costs

		3) Labor-management relations 4) Labor training programs 5) Transportation facilities and services 6) Cost and reliability of electric power 7) State and local taxes 8) Telecommunication services 9) Adequacy of streets and highways 10) Police protection 11) Fire protection 12) Recreation, parks, and highways 13) Natural gas cost and service 14) Cost and reliability of water service 15) Adequacy of sewer system 16) Waste disposal 17) Health and medical services and facilities 18) Educational services and facilities For each of these major IVs there are a series of “sub-IVs” representing a measurement of one aspect of the major variable.
	RESULTS	For each of the IVs, the author presents a number of evaluation tools nut no direct empirical results to back the conjectures (except for the bibliography of related business locational studies)

REFERENCE 69		
Hackler, D. (2000). Location, location, information? Industrial location and cities in the information age. Unpublished Doctor of Philosophy of Political Science and Economics, Claremont Graduate University, Claremont, CA.	OBJECTIVE/S	Dissertation - Examines the influence of information technology (IT) on industry location through two main research questions: 1) Is IT allowing high-technology industries to be footloose, or disperse more than low-technology industry? 2) Does high-technology industry react statistically different from low-technology to location determinants such that high-technology industry's response to location determinants is greater?
	METHODOLOGY	Econometric analysis – non-linear model (log-linear)
	DV/S	High-tech establishments growth Low-tech establishments growth Total establishments growth.
	IV/S	(see page 54 for definitions) State: IV1: Corporate tax rate IV2: State labor skills IV3: Higher education expenditures Metropolitan: IV4: Wages IV5: Union membership IV6: Civilian labor force density IV7: Employment density IV8: Housing affordability IV9: County labor skills IV10: Quality of schools

		IV11: Restaurants IV12: Core (dummy) City: IV13: Federal contracts IV14: Property crime IV15: Establishments IV16: Property tax rate IV17: Public expenditures.
	RESULTS	- IT's influence on high-technology growth does not contribute to footlooseness. - Change in business location determinants do not stimulate much high-technology growth nor are significant determinants necessarily maneuverable by policy High-tech at 0.05 significant level: IVs 1, 2, 6, and 8 Low-tech at 0.05 significant level: IVs 1, 2, 3, 4, 5, 6, 7, 9, 10, and 11 With high-tech dummy coefficient at 0.05 significant level: IVs 3, 11, and 15.

REFERENCE 70	OBJECTIVE/S	The intention of this research is to determine whether or not professional economic developers have the same perception of industrial attraction as manufacturing company officials. The strategy for this research project was to determine if there exists a significant difference in the commonalties in the perception of industrial attraction between economic developers and manufacturing companies in Alabama
Hamilton, F. L. (2004). What's driving industrial location decisions in Alabama: A perception analysis. Unpublished Ph.D., Nova Southeastern University, Fort Lauderdale-Davie, FL.	METHODOLOGY	A survey instrument was mailed to professional economic development organizations in Alabama that were randomly selected from the 2003 Economic Development Association of Alabama Directory. Moreover, manufacturing companies in Alabama with 50 or more employees and had a Standard Industrial Classification number, 20 through 39 was randomly selected from the 2003-2004 Alabama Industrial Directory. These two (2) groups were asked to complete the same survey instrument in order to answer the research question. A T-Test analysis was used to determine there was a significant correlation in the perception of industrial attraction between economic developers and manufacturing company officials in Alabama
	DV/S	The two dependent variables are the perception of industrial attraction between economic developers and manufacturing companies

	IV/S	The independent variables include financial and tax incentives, infrastructure, labor, transportation, and quality of life.
	RESULTS	Based on the survey instrument, the economic developers and manufacturing companies in Alabama were asked to rate 1-4 their perception of the following industrial location factors: 1. closeness to output markets 2. closeness to input markets 3. labor availability 4. non-union labor 5. labor cost 6. lower taxes 7. government location inducements 8. proximity to foreign firms 9. regional quality of life/amenities/climate 10. other In addition, the economic developers and manufacturing companies in Alabama were asked to give their perception of local factors presented in the survey instrument. The economic development organizations and the manufacturing companies in Alabama were asked to rank 1-4 the following local factors: 1. skilled labor availability 2. unskilled labor availability 3. availability of technical training programs 4. availability of land construction and expansion 5. availability of vacant facility 6. proximity to interstate highway 7. proximity to product markets and supplies 8. proximity to college or university 9. proximity to airport with commercial air service 10. proximity to metro area 11. adequacy of water supply and waste disposal facilities 12. availability of housing

		13. primary and secondary education 14. recreational opportunities/cultural resources 15. other (please list and rate) Independent Sample Test for closeness to input markets – Closeness to input markets: F = 18.395, Sig = .000, t = 1.344, df = 133, Sig. (2-tailed) = .181 Independent Sample Test for government location inducement – Government location inducement: F = 22.848, Sig = .000, t = 4.207, df = 131, Sig. (2-tailed) = .000 Independent Sample Test for proximity to other foreign firms – Proximity to other foreign firms: F = 21.022, Sig = .000, t = 7.500, df = 129, Sig. (2-tailed) = .000 Independent Sample Test for regional quality of life/amenities/climate – Regional quality of life/amenities/climate: F = 17.239, Sig = .000, t = 2.303, df = 133, Sig. (2-tailed) = .023

		Independent Sample Test for availability of vacant facility – Availability of vacant facility: F = 30.176, Sig = .000, t = 2.572, df = 133, Sig. (2-tailed) = .011 Independent Sample Test for proximity to interstate highway – Proximity to interstate highway: F = 26.490, Sig = .000, t = 4.123, df = 134, Sig. (2-tailed) = .000 Independent Sample Test for proximity to product markets and supplies – Proximity to product markets or supplies: F = 22.617, Sig = .000, t = 3.793, df = 134, Sig. (2-tailed) = .000 Independent Sample Test for local government incentives/services – Local government incentives/services: F = 19.891, Sig = .000, t = 2.797, df = 134, Sig. (2-tailed) = .006 Independent Sample Test for availability of housing – Availability of housing: F = 20.236, Sig = .000,

		t = 3.506, df = 133, Sig. (2-tailed) = .001

REFERENCE 71		
Hansen, E. R. (1987). Industrial location choice in Sao Paulo, Brazil. A nested logit model. Regional Science and Urban Economics, 17(1), 89-108.	OBJECTIVE/S	To analyze industrial location choice and examine the influence on plant location choice of economic factors. Which economic factors influence the choice of location of manufacturing plants within the state of Sao Paulo, Brazil
	METHODOLOGY	Nested multinomial logit used to model the location decisions – to account for the differences between the Greater Sao Paulo and other locations in the state. A sample of 360 manufacturing firms (with 10 ore more employees), which either relocated their plants or built branch plants in Sao Paulo state between 1977 and 1979
	DV/S	Greater Sao Paulo Other locations: Campinas, Ribeirao Preto, Sococaba, Other minor locations (11 locations total) > Separated by Traditional and Intermediate sector class: Textiles, Clothing Leather Wood Furniture Beverages Food Paper Printing Mineral products Diverse

		And > Modern and engineering sector class: Chemicals Pharmaceuticals Perfume Plastics Rubber Iron and steel Other metal working Machinery Electrical equipment Transport products
	IV/S	WAGE = Wage rate of semi-skilled workers by sector in 1970 (ln) DIST = Road time distance to the City of Sao Paulo in 1978 LANDPRICE = Price of industrial land in 1980 (ln) EMPL = Localization economies: number of employees in worn manufacturing sector in 1975 (ln) SKIL = Urbanization economies: number of manufacturing employees with 10 or more years of education (ln)
	RESULTS	(Note: not very clear what is (and what is not) significant at any level); but it appears that… Not controlling for sector class, outside of Sao Paulo: EMPL and SKIL have positive coefficients and are significant at the 95 percent and 90 percent confidence levels, respectively. Controlling for sector class, outside of Sao Paulo: Cannot tell from text which variables are significant and which are not significant

REFERENCE 72		
Harris, K. (2001). The influences on business location decisions: Theoretical and empirical considerations. Unpublished Doctor of Philosophy in Managerial Economics, Rensselaer Polytechnic Institute, Troy, NY.	OBJECTIVE/S	Through survey questions submitted to Rensselaer County (NY) Regional Chamber of Commerce business, to determine how do various factors influence business location decisions.
	METHODOLOGY	Survey questions submitted to Rensselaer County (NY) Regional Chamber of Commerce business: services, manufacturers and retailers sectors were examined in detail. After a statistical comparison of means and a binomial logit analysis was performed on the data, a conceptual model was formulated.
	DV/S	Exploratory survey research: the various factors influence business location decisions.
	IV/S	Exploratory Variables: 1) Wholesalers 2) Retailers 3) Services 4) Construction Firms 5) Business employing 1-3 people 6) Business employing 4-7 people 7) Business employing 8-20 people 8) Business employing 21-99 people 9) Exporters

		10) Respondents between the ages of 26-35 11) Respondents between the ages of 36-50 12) Respondents between the ages of 51-65 Exploratory location factors of the logit model: 13) Efforts to attract more customers 14) Efforts to attract more businesses 15) Quality and availability of labor 16) Manageability of regulations 17) Tax increases 18) Networking opportunities 19) Quality of telecommunication systems 20) Quality of transportation systems 21) Labor Cost Increases.
	RESULTS	Logit results for location factors (significance at least $p < 0.10$) IV 13 significant with IVs 5, 6 and 7 IV 14 significant with IVs 3, 6, 11 and 12 IV 15 significant with IVs 3, 4, 5, 8, 11 and 12 IV 16 significant with IVs 4, 11 and 12 IV 17 significant with IVs 10 and 11 IV 18 significant with IVs 3 and 4 IV 19 significant with IV 4 IV 20 significant with IVs 3, 4, 6 and 9

		IV 21 not significant with any other IVs

REFERENCE 73		
Hekman, J. S. (1982). Survey of location decisions in the South. Economic Review / Federal Reserve Bank of Atlanta, June 1982, 6-19.	OBJECTIVE/S	This article examines the surveyed manufacturing firms which decided to build or expand plants in the Southeast during the last five years –their preferences and how it relates to the growth trends to the southeast region's changing industrial structure
	METHODOLOGY	To shed some light on the reasons for manufacturing location in the Southeast today – conducted an industrial survey in three states in March 1982. The results are in harmony with many national plant location studies, but they also serve to isolate some of the Southeast's unique factors that draw industry to this region. In order to place the survey in perspective, it compared with similar national studies. In 1977, Fortune magazine polled the top 1,000 industrial concerns and asked them what factors had been most important in siting a plant within the previous five years. Transportation, proximity to customers, unskilled labor, energy supply and productivity were the top five concerns expressed
	DV/S	N/A
	IV/S	N/A
	RESULTS	(Note: Some location-decision based results) Where The Site Decision Was Made For North Carolina Facilities – North Carolina Industrial Facility Location Decisions

		Location Decision Maker: National Headquarters: 62% Plant Personnel: 24% Regional Headquarters: 12% Other: 2% Ranking Of Business Location Factors by Major Industry Groups; Sequence: Rank by all firms, Textiles, Apparel, Furniture, Chemicals, Rubber & Plastic, Fabricated metals, Nonelectrical machinery, Electrical Equipment, and Transportation Equipment. Stale/Local industrial Climate = 1, 2, 5, 3, 2, 4, 1, 1, 2, 1 Labor Productivity = 2, 3, 1, 2, 9, 2, 7, 2, 1, 2 Transportation = 3, 9, 3, 7, 1, 3, 9, 4, 8, 3 Land Availability/Room tor Expansion = 4, 4, 8, 1, 6, 4, 4, 3, 4, 5 Cost of Land & Construction = 5, 1, 7, 4, 3, 11, 2, 5, 10, 10 Wage Rate = 6, 6, 3, 6, 12, 4, 9, 7, 3, 9 Business Taxation = 7, 13, 6, 7, 6, 9, 2, 5, 11, 5 Electricity Availability/Cost = 8, 12, 9, 12, 10, 4, 6, 8, 9, 8 Skilled Labor Supply = 9, 7, 2, 4, 15, 9, 11, 11, 6, 4 Proximity to Suppliers/Services = 10, 14, 10, 16, 13, 13, 11, 10, 13, 10 Proximity to Markets = 11, 18, 13, 10, 5, 1, 5, 12, 15, 10

		Unskilled Labor Supply = 12, 8, 15, 11, 14, 8, 15, 16, 7, 13 State/Local Environmental Regulations and Permit Processing = 13, 9, 12, 13, 4, 17, 17, 12, 12, 16 Water Supply = 14, 11, 14, 17, 6, 14, 16, 15, 15, 16 Availability of Technical Training Programs = 15, 17, 19, 18, 18, 10, 8, 8, 5, 7 Fuel Availability/Cost = 16, 15, 11, 9, 11, 14, 11, 17, 14, 13 State Financial Incentives = 17, 15, 17, 14, 14, 16, 14, 14, 17, 13 Public Wastewater Treatment Capacity = 18, 5, 15, 14, 19, 18, 18, 19, 18, 16 Solid/Hazardous Waste Disposal Facilities = 19, 19, 17, 19, 16, 19, 19, 18, 19, 19 Site Comparisons By Firms; Factors Considered to be Better at Chosen Site In South Carolina When Compared to Next Best Site in North Carolina – Business Factors (in order of most frequently mentioned) State and Local Industrial Climate Land Availability, Room for Expansion Cost of Land and Construction Availability of Technical Training Programs Wage Rate Labor Productivity Unskilled Labor Supply Factors Considered to be Better at Chosen

		Site in North Carolina When Compared to Next Best Site in South Carolina – Business Factors (in order) Wage Rate Unskilled Labor Supply Cost of land and Construction Labor Productivity Proximity to Markets Top Location Factors (in order) Proximity to Markets Industrial Climate Labor; Productivity Unskilled Labor Supply Skilled Labor Supply

REFERENCE 74	OBJECTIVE/S	To analyze the link between rural entrepreneurship and economic growth using county level data – rural county level employment growth from 1976 to 2001.
Henderson, J. (2006). Understanding rural entrepreneurs at the county level: Data challenges (No. Working Paper, October 2006). Omaha, NE: Federal Reserve Bank of Kansas City & Center of Economic Studies, Census Bureau.	METHODOLOGY	Regression models – 11 models are used to analyze the relationship between the entrepreneurship measures and the employment growth.
	DV/S	County employment growth rate (a proxy for entrepreneurial activity).
	IV/S	1) E(Den) = Average share of non-farm employment during the 80s 2) E(Grow) = Average annual growth rate in entrepreneurs from 1980-1990 3) Mete(Den) = Interaction variable 1 4)Mete(Grow) = Interaction variable 2 5) Birth = Average number of per capita new business starts from 1981-1991 6) Survive = Average number of per capita new business starts from 1981-1991 that survived five years 7) HiGrow = Average number of per capita new business starts from 1981-1991 that produced high-growth during the first five years 8) Death = Per capita measure of firm deaths

		9) Metro = Dummy variable identifying metropolitan counties in 1990 10) Adjacent = Identify counties adjacent to a metro area 11) Pop (Den80) = Not defined 12) Grad = Percentage of county's population that is 25 years or older with a high school diploma in 1980 13) Tax = Property taxes per capita in 1982 14) Road = Access to the national interstate road system 15) Rail = Access to the rail system 16) Weather = Places with temperate summers and warmer winters 17) Geog = Composite geographical landscape 18) Region1 = NOT DEFINED 19) Region2 = NOT DEFINED 20) Region3 = NOT DEFINED 21) Region4 = NOT DEFINED 22) Region5 = NOT DEFINED 23) Region6 = NOT DEFINED 24) Region7 = NOT DEFINED.
	RESULTS	Model 1 = E(Den) and E(Grow) added to test the hypothesis that entrepreneurship has a bigger impact on economic growth in agglomerated economies

IVs 1, 2, 9, 10, 12, 13, 14, 16, 17, and 20- 24 significant (sig) at the 0.01 level
IV 15 sig at the 0.05 level

Mode 2 = Mete(Den) and Mete (Grow) added: multiplying entrepreneurship growth and density by the dummy variable identifying metropolitan counties
IVs 1-4, 9, 10, 12, 13, 16, 17, 20-24 sig at the 0.01 level

Model 3 = Birth added
IVs 5, 9, 10, 12-17 and 20-24 sig at the 0.01 level
IV 11 sig at the 0.05 level

Model 4 = Survive added
IVs 6, 9, 10, 12-17 and 20-24 sig at the 0.01 level
IV 11 sig at the 0.05 level

Model 5 = HiGrow added
IVs 7, 9-17 and 20-24 sig at the 0.01 level

Model 6 = Includes Birth and HiGrow
IVs 5, 7, 9-17 and 20-24 sig at the 0.01 level

Model 7 = Death included
IVs 8-10, 12-17 and 20-24 sig at the 0.01 level
IV 11 sig at the 0.05 level

Model 8-11 = Uses only Birth, Survive and HiGrow and the interaction with Metro

Model 8
$p < 0.01$ IV 5 (also with Metro interaction)
Model 9
$p < 0.01$ IV 6 (also with Metro interaction)
Model 10
$p < 0.01$ IV 7 (not sig with Metro interaction)
Model 11
$p < 0.01$ IV 7
$p < 0.05$ IV 5 (with Metro interaction)

REFERENCE 75		
Hofer, C. W., & Bygrave, W. D. (1992). Researching entrepreneurship. Entrepreneurship Theory & Practice (Spring 1992), 91-100.	OBJECTIVE/S	To discuss how the various aspects of the entrepreneurship research process are affected by the utilization of models that are built from the social sciences.
	METHODOLOGY	Literature review.
	DV/S	N/A
	IV/S	N/A
	RESULTS	Major items discussed: Topics to be covered by all good research-Theory building steps: 1. The issue or problem to be studied 2. The rationale for the research 3. The research objectives and questions 4. The literature survey 5. Model construction and hypothesis generation Theory testing steps: 6. The research design 7. Measurement issues 8. Data-gathering methods 9. Data analysis techniques 10. Findings and conclusions

		11. Implications for further/future research 12. Implications for practice Characteristics of entrepreneurial process: 1. Initiated by an act of human volition 2. Occurs at the level of the individual firm 3. Involves a change of state 4. Involves a discontinuity 5. Is a holistic process 6. Is a dynamic process 7. Is unique 8. Involves numerous antecedent variables 9. Generates outcomes that are extremely sensitive to the initial conditions of those variables * Nine basic types of research designs: 1. Study of representative exemplars 2. Study of best exemplars 3. Comparisons of best and average exemplars 4. Comparisons of best, average, and worst exemplars 5. Cross-sectional comparisons 6. Time-series/longitudinal comparison 7. Controlled variable comparison

		8. Matched-pair comparisons 9. Formal experimental designs * The key reasons for their use are given on page 94.

REFERENCE 76	OBJECTIVE/S	This study chiefly hypothesizes that the location decisions of firms oriented toward local input are significantly impacted by the average level of education attained by a state's labor force. But other variables are also studied: energy prices, wage levels, unionization, taxes, and public services.
Hoke, S. D. (1998). Is educational attainment a significant determinant of where firms decide to locate or expand operations? , Virginia Polytechnic Institute and State University, Falls Church, VA.	METHODOLOGY	Cross-sectional dataset for changes in business activity from 1993 to 1994. It focuses on the level of business activity measured as the percent change in the number of establishments in year t (1994) to year t-1 (1993). A disequilibrium model provides the basis for the functional form. The above approach closely follows that of Plaut and Pluta (1983), and Wasylenko and McGuire (1985).
	DV/S	Percentage change in the number of establishments the following industries: 1) Electronic and other electric equipment (SIC 36) 2) Transportation equipment (SIC 37).
	IV/S	1) Energy: the unit price of energy per state 2) % LFUnion: percent of private workers that are union members 3) Wage: average annual pay level of employees by state

		4) EDUC90: percentage of a state's population with a college degree 5) ValAdd: amount of value added to goods by processing done by firms 6) URate: unemployment rate 7) Tax: ratio of taxes paid on corporate income to total tax collections Note: the above definitions and measurements not very clearly defined in the study.
	RESULTS	IV3 significant at the 5% level for both SIC36 and SIC 37 IV4 significant at the 5% level for SIC 37 IV5 significant at the 10% level for SIC36 IV6 significant at the 5% level for both SIC36 and SIC 37 IV7 significant at the 5% level for SIC36

REFERENCE 77	OBJECTIVE/S	An Information Bulletin of the community and economic development task force or urban consortium. It examines the information that is available to answer the following questions: - How do businesses make location decisions? - What are the most important factors in those decisions, and how have those factor changed in recent years? - What business development tools are available to local governments, and hat tools do businesses use? - What steps can a local government take to design a comprehensive business development strategy? - What are the most innovative and effective approaches that local governments are adopting?
Humberger, E. (1983). Business location decisions and cities: An information bulletin of the community and economic development task force of the urban consortium (No. HA-5493). Washington, DC: Public Technology, Inc.	METHODOLOGY	A compilation and summary of previous studies in business location research.
	DV/S	N/A – see above.
	IV/S	Author cites on page 41 a list of twenty-six characteristics that are important to cities desiring business activity (in the form of new business formation).
	RESULTS	It is a comprehensive report consisting on about 100 pages and containing the following

		main chapter headings: Chapter 2: trends affecting urban economic development Chapter 3: Business location decisions Chapter 4: Business location Chapter 5: City policies and business locations Chapter 6: Strategies for business development Chapter 7: Policy implications and future research.

REFERENCE 78		
Jian, G., & De, S. (2007, September 8). Entrepreneurial activity: Measurement and determinants for its difference. Analysis for regional level of China. Paper presented at the IAMOT Conference, Beijing, P.R. CN.	OBJECTIVE/S	To analyze determinants of entrepreneurial activity in China at the regional level and to discuss regional attributes of entrepreneurial activity in China
	METHODOLOGY	Three regression models: WLS, Panel-data, and OLS
	DV/S	Entrepreneurial activity rate based on the labor market approach (standardize the number of new firms with respect to the size of the labor force)
	IV/S	V1: Population density = population in the region divided by regional area V2: Rate of consumption growth = rate of increase of consumption level in the region (calculating the change of consumption level in two years and then standardizing the change with respect to the number of consumption level in the first year) V3: Unemployment rate = number of unemployment divided by the total number of labor force V4: Industrial structure = proportion of service industry employment in all industries (standardizing the number of employment in service industry with respect to the number of employment in all industries) V5: Technology innovation = measured by regional R&D investment divided by GDP in the region

		V6: Availability of financing = measured by average deposits of family in the region (standardizing the deposits of inhabitants saved in all kinds of financing institutions with respect to population in the region) V7: Entrepreneurship culture = growth rate of the proportion of private enterprise each year, and then standardizing the changes in two years with respect to the proportion of employment of private enterprises in the first year) V8: Human capital = labor force’s education attachment (not further defined)
	RESULTS	Model 1 (WLS) significant values at 0.01 and 0.05 levels (in parentheses): V1, V3, V4, and V6 (0.01); V7 and V8 (0.05) Model 2 (Panel-data): significant values at 0.01 and 0.05 levels (in parentheses): V1, V3, and V6 (0.01); V4 and V8 (0.05) Model 3 (OLS): significant values at 0.01 and 0.05 levels (in parentheses): V1, V3, V6, and V8 (0.01)

REFERENCE 79		
Johnson, P., & Parker, S. (1996). Spatial variations in the determinants and effects of firm births and deaths. Regional Studies, 30(7), 679-688.	OBJECTIVE/S	To model the interdependence between new business births, business deaths and economic variables, using county level data for the United Kingdom.
	METHODOLOGY	Using section panel data vector auto regression (VAR) econometric techniques: involving regressing each variable on the lagged values of every variable.
	DV/S	United Kingdom's county-level firm births and deaths in 1990, based on 1988 and 1989 dataset.
	IV/S	1) The number of unemployed (U) 2) The real per capita GDP at factor cost (Q) 3) Average gross weekly earnings of males on adult rates (E) – data on female earnings at county level was found to be incomplete 4) The proportion of a county's workforce in employment which is in services (M) 5) A measure of real net average housing wealth (V) 6) The stock of businesses (S).
	RESULTS	Firm births in 1990 (B90) significant with U88 (p = .10), V88 (p = 0.01) and S88 (p = 0.10) Firm deaths in 1990 (D90) significant with V89 (p = 0.10)

		U90 significant with B88 ($p = 0.01$), B89 ($p = 0.01$) and D89 ($p = 0.01$) Q90 significant with B88 ($p = 0.01$), B89 ($p = 0.05$) and D89 ($p = 0.5$) V90 significant with B88 ($p = 0.01$) S90 significant with B88 ($p = 0.01$)

REFERENCE 80	OBJECTIVE/S	To present an analysis of the differences in factors that determine both overall and foreign affiliate employment shifts -- to explain foreign direct investment (FDI) and domestic investment activities.
Kahley, W. J. (1986). What's behind patterns of state job growth? Economic Review, May, 4-18.	METHODOLOGY	Using the shift-share framework to explain specific divergence in state employment due to comparative advantage factors requires two empirical procedures: first, the measurement of change in state employment; second, this figure is used as the DV in a regression models (six of them) that includes comparative advantage factors as IVs.
	DV/S	1) Manufacturing, non-manufacturing, and total employment change in multi-establishment foreign –owned firms between 1975 and 1982 2) Manufacturing, non-manufacturing, and total employment change in all U.S. establishments between 1975 and 1982.
	IV/S	Labor: 1) Skilled Workers: ratio of state population over 25 years of age with a high school education to the comparable U.S. figure 2) Union Membership: ratio of percent unionization in a state to the percent in the United States Energy: 3) Fuel Cost: ratio of state's average fuel cost per 1,000 Kilowatt-hour equivalent to the

		comparable U.S. average fuel cost 4) Climate: ratio of a state's normal seasonal heating plus cooling days to the comparable national norm Infrastructure: 5) Trade Volume: ratio of state's waterborne trade to total U.S. waterborne trade 6) State Development Effort: ratio of the number of state economic development organizations to the U.S. total Centralization Preference: 7) 1975 Employment Share: state's share of U.S. total or affiliate employment Market: 8) Personal Income: ratio of a state's total personal income to the U.S. total.
	RESULTS	Results divided into: Affiliate: (a) Total, (b) Manufacturing and (c) non-manufacturing Domestic and Affiliate: (d) Total, (e) Manufacturing and (f) non-manufacturing IV1 significant a the 1% level: (d); significant at the 5% level: (a) and (e) IV2 significant a the 1% level: (b); significant at the 5% level: (a), (c), (d), and (f) IV3 significant a the 1% level: (a) and (c); significant at the 5% level: (d) and (f) IV4 significant a the 1% level: (a) and (f); significant at the 5% level: (c), (d), and (e) IV5 significant a the 1% level: (a); significant at the 5% level: (d) and (e)

		IV6 significant a the 1% level: (c) and (f); significant at the 5% level: (a) IV7 significant at the 5% level: (a), (b), and (c) IV8 significant a the 1% level: (d); significant at the 5% level: (a), (b), and (e)

REFERENCE 81		
Kangasharju, A., & Moisio, A. (1998). Births-deaths nexus of firms: Estimating VAR with panel data. Small Business Economics, 11, 303-313.	OBJECTIVE/S	To investigate dynamic interrelationships between the births and deaths of firms – on 88 Finnish sub-regions during 1989 and 1993.
	METHODOLOGY	Analyzed using vector auto-regressions (VAR) and an instrumental variable estimator – that is, panel data regressions, variance matrix, and lag lengths.
	DV/S	N/A
	IV/S	N/A
	RESULTS	The main findings were: - The incidence of firm births does not determine the incidence of later deaths; firms deaths do determine future births - Previous growth rates of firm births and deaths affect future firm births with a two-year lag structure - Firm deaths are determined by their own one-year lags only - The use of instrumental variable estimator is important in the dynamic panel data context, as the use of OLS estimator appeared to bias the results.

REFERENCE 82	OBJECTIVE/S	This study attempts to provide empirical evidence on the importance of cost and other location-related variables. The 84 fastest-growing businesses in New England and New York were surveyed utilizing 27 variables associated with location decisions. Most of the 27 variables are industry-specific and their importance varies from industry to industry
Karkaya, F., & Canel, C. (1998). Underlying dimensions of business location decisions. Industrial Management and Data Systems, 98(7), 321-329.	METHODOLOGY	Factor analysis, using principal component extraction method and varimax rotation
	DV/S	Facility location decision
	IV/S	Availability of low cost labor Availability of skilled labor Availability of unskilled labor Availability of colleges/universities Availability of industrial park(s) Availability of industrially zoned land Educational level of residents Land prices Construction prices Cost of housing Availability of existing building(s) for business

		Local investment incentives Availability of transportation facilities Availability of recreational facilities Availability of local airport Proximity to major highways/seaports Proximity to major US airports Availability of medical services Real estate tax rate State tax rate State regulatory environment Availability of capital financing Presence of competing business Availability of suppliers (e.g. vendors) Presence of distributors Cost of utilities Availability of fresh water
	RESULTS	Tables on: Importance of factors influencing location decisions - analyzed by industry (Manufacturing, Banking, Insurance, Consultants, and Retail business) - Importance of factors influencing location decisions – analyzed by industry, using Duncan's multiple range tests Importance of factors influencing location

		decisions – analyzed by company size (< 500 employees, btw 500 and 999 employees, and > 1,000 employees) The most important factors in influencing business site selection decisions are as follows: (1) Availability of skilled labor. (2) Transportation facilities. (3) State tax rates. (4) State regulatory environment. (5) Real estate tax rate. (6) Proximity to major highways/seaports. (7) Proximity to major US airports. (8) Cost of utilities. (9) Construction prices. (10) Availability of local airport

REFERENCE 83	OBJECTIVE/S	To provide a critical overview of recent empirical research on the relationship between entrepreneurship and economic growth.
Karlsson, C., Friis, C., & Paulsson, T. (2004). Relating entrepreneurship to economic growth (No. CESIS Paper 13). London, UK: The Royal Institute of Technology, Centre of Excellence for Studies in Science and Innovation.	METHODOLOGY	Literature review.
	DV/S	N/A
	IV/S	N/A
	RESULTS	- There is some controversy regarding the impact of small firms and start-up activities on net employment growth - Competition appears to correlate positively with both employment levels and growth in total factor productivity - Small firms are found to produce a large share of the total number of innovations (with significant sectoral differences) - Small firms are found to innovate in less explored technological fields, thus involving greater risk and potential for growth.

REFERENCE 84		
Katona, G., & Morgan, J. N. (1952). The quantitative study of factors determining business decisions. Quarterly Journal of Economics, 66(1), 67-90.	OBJECTIVE/S	Empirical research intended to clarify the factors influencing business decisions via personal interviews with a representative sample of business executives and survey samples
	METHODOLOGY	Personal interviews and survey
	DV/S	Manufacturers located in Michigan
	IV/S	Distance to markets Distance to materials Prevailing wage rates Productivity of workers
	RESULTS	Executives' reasons for locating in Michigan: -Personal Reasons = 51% -To Be Near Markets = 33 -Enabling Factors, such as Availability of Plants or Plant Sites, or Opportunity to Buy or Rent at a Favorable Price = 12 -To Be Near Materials = 8 -Availability of Suitable Manpower or Skills = 6 -Assistance or Encouragement by Local Groups = 2 -Miscellaneous Reasons = 5 -Reason Unknown = 5

		Opinions of Executives in different localities on disadvantages of Michigan location – percentages of employment represented in Metropolitan Detroit, Other Cities, Towns, Total: -Wage Rates and Labor in General = 63%, 43, 33, 51 -Pressure of Organized Labor = 13, 14, 8, 12 -Distance from Materials = 15, 22, 11, 16 -Distance from Markets = 5, 18, 16, 11 -Local Taxes = 15, 2, 4, 9 -Power, Fuel, Utilities = 8, 0, 11, 6 -Other = 7, 12, 25, 12 -None at All. = 20, 25, 39, 25 Executives' plans for leaving Michigan: -Might Move Away Part or All of Their Operations = 6% -Were Considering Expansion Outside Michigan = 6 -Might Move Out Under Certain Circumstances, Have Not Considered Where = 4 -Are Considering Expansion, Don't Know Where = 9 -Do Not Plan to Move or to Expand Outside Michigan = 75

		Quantification of reasons given for expansion of manufacturing plan – Percentage Distribution of Firms in Recent Past Expansion, Contemplated Expansion: -Current Demand and Current Orders = 61, 45 -Policy of Expanding = 4, 14 -Coot or Efficiency Considerations = 17, 20 -Future Demand = 8, 13 -Change of Product = 10, 8 Relation between expansion plans and the evaluation of current business conditions – Percentage Distribution of Firms According to Executives' Opinions of Current Business Conditions… Very Good, Good, and (Middle Position)/Bad: -To Build New Plants or Additions to Plants = 45, 18, 22 -To Add New Machinery = 19, 20, 11 -Uncertain or Not Ascertained = 10, 9, 4 -Will Not Expand = 26, 53, 63 Relation between expansion plans and the evaluation of business prospects – Percentage Distribution of Firms According to Executives' Opinions of Business Prospects… Better, About the Same, Pro-con/Depends/Don't Know, and Worse: -To Build New Plants or Additions = 49, 27, 25, 21 to Plants

		-To Add New Machinery = 11, 23, 17, 16 -Uncertain or Not Ascertained = 6, 9, 8, 6 -Will Not Expand = 34, 41, 50, 57

REFERENCE 85	OBJECTIVE/S	(using the World Bank Group Entrepreneurship Survey, 2007) This study offers a methodology for collecting data on new business creation, serving as a first step in enabling research on the dynamic of entrepreneurial activity. Furthermore, the data can be used as a benchmark for changes in the composition of the private sector, and further advance the study of the impact of regulatory, political, macroeconomic, and institutional changes on entrepreneurship and growth
Klapper, L., Amit, R., Guillen, M. F., & Quesada, J. M. (2007). Entrepreneurship and firm formation across countries (No. WPS 4313). San Francisco: Policy Research working paper.	METHODOLOGY	(using the World Bank Group Entrepreneurship Survey, 2007) Aims to define entrepreneurship – to measure entrepreneurship and make data universally comparable
	DV/S	Entry = New registered corporations during year t divided by Existing stock of corporations as of end of yeart-1 Entry Per Capita = New registered corporations during year t divided by Population (000s) Business Density = Stock of corporations as of end of year t divided by Population (000s)
	IV/S	Entry Procedures = Log of number of entry procedures (Doing Business) Rigidity of Employment = Rigidity of

		employment index (Doing Business) Governance = Average of governance indicators Domestic Credit (% GDP) = Domestic credit divided by GDP GDP Per Capita = Log of GDP per capita, PPPs, 2000 int'l dollars (WB) Year
	RESULTS	GEE = Generalized Estimating Equations regression GLS = random-effects regression * significance at 10% level ** significance at 5% level *** significance at 1% level P and N = Positive and Negative coefficients Entry (GLS): Governance*P Entry (GEE): Governance**P, Year***P Entry Per Capita (GLS): Procedures*N, Domestic Credit**P, GDP Per Capita***P Entry Per Capita (GEE): GDP Per Capita**P Density (GLS): Procedures***N GDP Per Capita**P Density (GEE): Procedures*N Governance**P

		Year***P

REFERENCE 86	OBJECTIVE/S	To describe how companies today are using the internet to launch their site location searches
Krizner, K. (2005). Surfing the web leads startup company to find its site. Expansion Management, 20(11), 9-15.	METHODOLOGY	Business cases
	DV/S	N/A
	IV/S	N/A
	RESULTS	Comprehensive list of State Economic Development Web Sites The internet quickens the location pace “If communities don’t have sufficient information on the Web, then they are eliminated out of the gate” TVA.gov/econdev = Tennessee Valley Authority website with a comprehensive checklist of what companies look for in a big site, then put that information on the web in an easy-to-use format Information fuels a successful site search = using the web site, executives can quickly identify optimal locations for their businesses by searching communities and available property, creating market analysis reports, and identifying geographic advantages of doing business in a location through interactive online mapping. The mapping capabilities of many sites should include the ability to zoom in and out, move the map, identify information and view

		geographic layers of information, such as parks, schools, airports, railroads, ZIP codes, points of interest, neighboring communities, labor force, education level, consumer spending, and population characteristics. Saving time means saving money “If we don’t have a direct working relationship with a company, the web gets us 70 percent to 85 percent of the way there prior to a site visit. That’s the continuum we work with”

REFERENCE 87	OBJECTIVE/S	To examine these questions, the article and research start from micro-foundations by analyzing location decisions of individual firms – How do differences in the local business environment influence location of industry within countries? How do the benefits of a good business environment compare to benefits from good market access and agglomeration economies from industry clustering? And, can improvements in the local business environment enhance industrial activity in geographically (and historically) disadvantaged cities? Finding answers to these questions is important for assessing the role of local policies or interventions in terms of influencing investment flows and industrial activity, particularly in small and medium sized cities. This paper thus focus on two aspects of regulatory quality businesses in India face today. These are: (a) the degree of labor regulations, (b) and the intrusiveness or predatory nature of the administration of general business regulations
Lall, S. V., & Mengistae, T. (2005). Business environment, clustering, and industry location: Evidence from Indian cities (No. Working Paper 3675, August 2005). New York: World Bank Policy Research.	METHODOLOGY	Modeling development – It follows a modeling approach to evaluate what factors matter when a firm is considering a location to start production. Using firm level data collected in the 2003 round of the Investment Climate Survey (ICS) for India. For the analysis in this paper, we develop a measure of own industry concentration that

		adjusts industry employment in each region for the industry's local firm-size distribution. This measure (e) is firm-size adjusted employment for industry / in city r.
	DV/S	Firm location decisions and estimates of differences in valuation between branch plants and single establishment firms
	IV/S	Business Environment – Labor regulations: Not defined Enforcement of business regulations: frequency of visits by inspectors to plants in each city Utilities: Not clearly defined, but it seems related to frequency of power outages and cost Transport (Access to external markets): Locating in a region with good access to markets Access to land: Not defined Access to finance: Not defined Factor prices: relate to the level of wages it seems
	RESULTS	Parameter estimates on interactions in conditional logit – Sequence: Multiple establishment firm X City Characteristic and Low Medium, Medium Technology, and High Technology; + significant at 10%; * significant at 5%; significant at 1 %; P/N = positive or negative coefficient. “-“ = no significance. Pro labor regulation = N+, -, - (In) inspector visits = P**, -, - (In) power outages = -, -, - (In) distance to international port = N+, N+, N+

		stamp duty rate = N+, N+, - (ln) industrial credit = -, -, P** (ln) wages = -, -, - (ln) own industry concentration =-, -, - Factors influencing industry location (city attractiveness) – Sequence: City Attractiveness and Low Medium, Medium Technology, and High Technology; + significant at 10%; * significant at 5%; significant at 1 %; P/N = positive or negative coefficient. "-" = no significance. Pro labor regulation = N**, N**, N** (ln) inspector visits = N**, N**, N** (ln) power outages = N**, N**, N** (ln) distance to international port = N**, N**, N** stamp duty rate = N**, N**, N** (ln) industrial credit = P**, P**, P** (ln) wages = P**, -, N** (ln) own industry concentration = P**, P**, P** Factors influencing industry location – IV Estimates – Sequence Low Medium (OLS and IV), Medium Technology (OLS and IV), and High Technology (OLS and IV); + significant at 10%; * significant at 5%; significant at 1 %; P/N = positive or negative coefficient. "-" = no significance. Pro labor regulation = N**, N**, N**, N**, N**, N**

		(In) inspector visits = N**, N**, N**, N**, N**, N** (In) power outages = N**, N**, N**, N**, N**, N** (In) distance to international port = N**, N**, N**, N**, N**, N** stamp duty rate = N**, N**, N**, N**, N**, N** (In) industrial credit = P**, P**, P**, P**, P**, - (In) own industry concentration = P**, P**, P**, P**, P**, P** (In) wages = P**, P**, -, N**, N**, P**

REFERENCE 88		
Landstrom, H. (2005). David birch: A genuine pioneering achievement and a breakthrough for entrepreneurship and small business research Pioneers in entrepreneurship and small business research. Baltimore, MD: Springer Science+Business Media.	OBJECTIVE/S	Review of David Birch’s body of work.
	METHODOLOGY	Literature review.
	DV/S	N/A
	IV/S	N/A
	RESULTS	The essay addresses the following subjects (in order of appearance): - Career - Stream of interest in David Birch’s research - The report “the job generation process” (1979) - … and after - Job creation in America (1987) - Gazelles (1994) - Perspective on high growth firms (Gazelles).

REFERENCE 89		
Lee, S. S., & Osteryoung, J. S. (2001). A comparison of determinants for business start-up in the U.S. and Korea. Journal of Small Business Management, 39(2), 193-200.	OBJECTIVE/S	To compare Korean and U.S. Small businesses in terms of 1) owner/manager and firm characteristics and 2) the relative importance placed on determinants of business start-up
	METHODOLOGY	Survey: four page questionnaire sent to 240 business operators drawn at random from the membership in the Jim Moran Institute in the College of Business at Florida State University, the Korea Productivity Center entrepreneurship school, and the University in Korea
	DV/S	New business start-up
	IV/S	N/A
	RESULTS	(Note: poor description of results) Chi-Square Analysis of operator and firm characteristics; all results below significant at 0.01 level, but not broken down into finer categories: Age (under 30, 31-40, 41-50, and over 50) Major at college (business/economics, engineering, and other) Level of education (high school diploma, undergraduate degree, masters degree, and doctoral degree) Years of experience with current business (less than one year, 1-2 years, 3-4 years, and

		more than 5 years) Ownership type (sole proprietorship, partnership, corporation, and other) Type of site (general (free) location, industrial complex, and other) And… Importance of Business Start-Up Factors to Owner/ Managers of General/Opportunistic Firms; all results below significant at 0.001 level, unless otherwise noted: Marketing Factors Expected market share (0.05) Pricing concerns Technological factors Availability of technical manpower (0.05) Technology intensity Availability of production technology Economic/financial factors Availability of machine and facilities (0.05) Profitability (0.01) Governmental and regulation factors Financial support of government Environmental issues Tax support Managerial ability Capability of funds raising (0.05) Capability of marketing/service management (0.05) And… Importance of Business Start-Up Factors to Owner/ Managers of Technical/Craftsman Firms; all

		results below significant at 0.05 level, unless otherwise noted: Marketing Factors Expected market share (0.01) Economic/financial factors Profitability Governmental and regulation factors Financial support of government (0.001) Tax support

REFERENCE 90	OBJECTIVE/S	Explores regional social characteristics and human capital in 320 MSAs/PMSAs (Metropolitan Statistical Areas/Primary Metropolitan Statistical Areas) and LMAs (Labor Market Areas) on new firm formation between 1997 and 1998.
Lee, S. Y., Florida, R., & Acs, Z. J. (2004). Creativity and entrepreneurship: A regional analysis of new firm formation. Regional Studies, 38(8), 879-891.	METHODOLOGY	Bivariate and multivariate analysis (regressions) of the factors associate with regional variations in new firm formation.
	DV/S	Firm birth per 1 million people (MSAs/PMSAs) and 1,000 people (LMAs).
	IV/S	MSAs/PMSAs: 1) Creativity index 2) Diversity index 3) Melting pot index 4) Human capital 5) Population (‘90) 6) Income growth rate (‘90-‘96) 7) Patents per 100,000 people (‘95) 8) Population growth rate (’90-’96) LMAs: 1) Establishment size (’94) 2) Industry intensity (’94) 3) Income growth 4) Population growth 5) Share of proprietors 6) Unemployment rate (average ’93-’94) 7) Share of high school dropout 8) Share of college graduates 9) Creativity index 10) Melting pot index.

	RESULTS	MSAs/PMSAs: All Industries $p < 0.05$: IVs 4 and 6 $p < 0.01$: IVs 1 and 8 MSAs/PMSAs: Manufacturing Industries $p < 0.05$: IV 8 $p < 0.01$: IVs 1, 4 & 7 MSAs/PMSAs: Service Industries $p < 0.05$: IVs 2 and 6 $p < 0.01$: IVs 1, 4 & 8 LMAs: Model 1* $p < 0.10$: IV 6 $p < 0.01$: IVs 1, 2, 3, 4, 7, 8 & 9 LMAs: Model 2* $p < 0.05$: IV 6 $p < 0.01$: IVs 1, 2, 3, 4, 7 & 8 LMAs: Model 3* $p < 0.05$: IVs 6 and 10 $p < 0.01$: IVs 1, 2, 3, 4, 7, 8 & 9 *Models 1, 2 and 3 not defined.

REFERENCE 91	OBJECTIVE/S	To develop a methodology for integration of remote sensing and census data within a GIS framework to assess the quality of life in Indianapolis, Indiana, United States
Li, G., & Weng, Q. (2007). Measuring the quality of life in city of Indianapolis by integration of remote sensing and census data. International Journal of Remote Sensing, 28(2), 249-267.	METHODOLOGY	Socio-economic variables, including population density, income, poverty, employment rate, education level and house characteristics from US census 2000, were integrated with the environmental variables at the block group level to derive indicators of quality of life. Pearson's correlation was computed to analyze the relationships among the variables. Further, factor analysis was conducted to extract unique information from the combined dataset. Three factors were identified and interpreted as material welfare, environmental conditions and crowdedness respectively. Each factor was viewed as a unique aspect of the quality of life. A synthetic index of the urban quality of life was created and mapped based on weighted factor scores of the three factors. Finally, regression models were built to estimate the quality of life in the city of Indianapolis based on selected environmental and socioeconomic variables.
	DV/S	Quality of life in Indianapolis city based on the integration of remote sensing imagery and census data

	IV/S	PD: population density HD: housing density GV: green vegetation IMP: impervious surface T: temperature MFI: median household income MFI: median family income PCI: per capita income POV: percentage of families under poverty level PCG: percentage of college above graduates UNEMP: unemployment rate MHV: median house value MR: median number of rooms
	RESULTS	Selected QOL estimation models: Economic QOL: R-Squared of 0.92 Per capita income Median house value Percentage of college above graduates Environmental QOL: R-Squared of 0.91 Green vegetation Impervious surface Crowdedness: R-Squared of 0.92 Housing density Synthetic QOL: R-Squared of 0.94 House density Green vegetation

		Per capita income

REFERENCE 92		
Li, Y., & Hu, J.-L. (2002). Technical efficiency and location choice of small and medium-sized enterprises. Small Business Economics, 19(1), 1-12.	OBJECTIVE/S	This study consists of an empirical investigation of FDI (Foreign Direct Investment) location choices for Taiwan SMEs (Small-Medium Enterprises), which have capital less than NT$60 million (US$1 = NT$32.51 on 06/01/99) or have fewer than 200 employees, during the period from 1989 to 1996
	METHODOLOGY	A questionnaire survey was employed to collect data. The sample firms are selected at random in the book Registry of Approved Firms in the Center-Satellite Factory System issued by the Corporate Synergy Development Center. Questionnaires are mailed to all 510 selected firms (including 103 automotive firms, 97 machinery firms, and 310 electronics firms). Of the 510 company questionnaires sent out in this study, 114 were returned, making the effective return 22.4% and multi-logit model for main analysis
	DV/S	Dependent variable is a category variable including three groups: the reference group consists of those Taiwan's SMEs who did not invest abroad; the second group includes observations that invested in mainland China; the last group contains those that invested in other countries
	IV/S	TEF = Technical efficiency levels SIZE = Real total sales (NTS billion)

		KL = Capital intensities, real fixed assets (NTS billion) divided by the number of employees RD = Real R&D expenditure (NTS billion) EX = Export ratios (%): the value of exports divided by total sales Labor = 1 if 'cheaper labor' is a motive for FDI; 0, otherwise Land = 1 if 'cheaper land' is a motive for FDI; 0, otherwise Market = 1 if 'market expansion' is a motive for FDI; 0, otherwise Tax = I if 'tax incentives' are a motive for FDI; 0, otherwise DM = 1 if firm n belongs to the machinery industry; 0, otherwise DE = 1 if firm n belongs to the electronics industry; 0, otherwise
	RESULTS	Empirical results of the multi-logit model; Mainland China versus Taiwan (1) and Other countries versus Taiwan (2); *: P-value < 0.1; **: P-value < 0.05; ***: f-value < 0.01; P/N = Positive or Negative coefficients TEF = (1)**N SIZE = (1)***P; (2)**P KL = (1)***N; (2)**N EX = (1)**P Labor = (1)***P; (2)**P Market = (1)*P DE = (1)***N; (2)**N

REFERENCE 93	OBJECTIVE/S	Three objectives guided the research: 1. To delineate a comprehensive set of facilities/amenities/services that constituted Quality of Life and to assess their relative importance to key decision-makers who had recently made a decision to locate a business in Colorado. 2. To identify the relative importance of Quality of Life to other factors among this sample of decision-makers. 3. To describe characteristics of companies that placed most importance on Quality of Life in their location decisions
Love, L. L., & Crompton, J. L. (1999). The role of quality of life in business (re)location decisions Journal of Business Research, 44, 211-222.	METHODOLOGY	An initial set of location items were derived from individual in-depth personal interviews with seven economic development agency officials and with 16 key decision-makers in businesses that had recently initiated, expanded, or relocated in Colorado. The interviews focused exclusively on interviewees' perspectives of the location process. The interview instruments used both unstructured and structured questions to elicit responses. These interviews were taped and content analyzed for items that were cited as being important. The list of items that emerged from this process was supplemented by additional items from a review of the literature

	DV/S	N/A
	IV/S	N/A
	RESULTS	Level of Importance of Specific Items in Location Decisions; Mean value on a scale from 0 to 5: Libraries = 1.8 Workers' compensation = 2.8 Proximity to corporate headquarters = 2 Size of the new community = 2.7 Local government cooperation = 3.1 Availability of nearby foot or bike trails = 1.7 Outdoor recreation opportunities at state or national parks = 2.5 Environmental quality = 3.2 Cost to relocate employees = 2.6 Skill level of local labor force = 3.4 Local recreation opportunities = 2.2 Commuting time = 3.0 Crime rate = 3.1 Availability of capital financing = 2.2 Natural environment of Colorado = 3.1 Proximity to colleges or universities = 2.7 Labor costs = 3.4 Availability of child care = 2.0

		Potential for expansion = 3.4 Cost of utilities = 3.1 State government support/cooperation = 3.1 Health/medical services = 2.7 Commercial entertainment opportunities = 1.9 Potential for interaction with other companies = 2.6 Ambiance of the area = 3.0 Business operating costs = 3.7 Access to transportation = 3.6 Spouse employment opportunities = 2.0 Taxes on personal income and property = 2.9 Proximity to competitors = 2.0 Availability of labor = 3.6 Government assistance with labor training = 2.1 Quality of the local community parks, open space, and treescape = 2.4 Climate/weather = 3.1 Proximity to wildlife sanctuaries = 1.8 Tax incentives or site/infrastructure subsidies = 2.5 Labor unionization = 2.2 Quality of landscaping in the community = 1.9

		Cultural opportunities = 2.1 Personal safety = 3.1 Proximity of suppliers = 2.4 Cost of relocating the business = 3.1 Private recreation opportunities = 2.3 Cost of office or plant = 3.8 Proximity to customers = 2.8 Housing costs = 3.0 Work ethic of the local labor force = 3.4 Quality of primary/secondary education = 2.8 Taxes on business income and property = 3.2 Proximity to state and national forests = 2.1

REFERENCE 94	OBJECTIVE/S	Measure of (small businesses) entrepreneurial breadth and depth as well as activity across the United States (non-metropolitan counties); Breadth is defined as the size of a region's entrepreneurial foundation or how many small businesses employ local resources, generate local income, and enhance local quality of life). Depth reveals how the above foundations contribute to the local economy and whether a region's entrepreneurs are reaching the frontiers of the marketplace.
Low, S. A., Henderson, J., & Weiler, S. (2005). Gauging a region's entrepreneurial potential. Economic Review -- Third Quarter, 90(3), 61-89.		
	METHODOLOGY	Initial regressions performed with ordinary least squares (OLS). Two-stage least squares (2SLS) estimation method implemented to reduce the effects of simultaneity between the dependent variables and the explanatory variables (results of 2SLS estimation procedure are similar in coefficient sign and significance to OLS results).
	DV/S	Three DVs (and models): 1st. County Entrepreneurship Breadth, 2nd. County Entrepreneurship Depth-Income, and 3rd. County Entrepreneurship Depth-Revenue Where: Breadth = Proprietor employment/total nonfarm employment

		Depth-Income = proprietor income over proprietor employment Depth-Revenue = Average proprietor income over average non-employer receipts.
	IV/S	1) Metro = metropolitan counties 2) Micro = micropolitan counties 3) West = Western states 4) Midwest = Midwest states 5) Northeast = Northeast states 6) College = Percent of population age 25+ with BS degree or higher, 2000 Census 7) Foreign = Percent of population foreign born, 2000 Census 8) Info/Arts = LQ of NAICS 52 & 71 over total nonfarm employment 9) Topography = Scale, 20 being the highest mountain, 0 being flattest plains 10) Broadband = Counties with > 3 high-speed internet providers, 1999 11) Deposits/Pop = Total deposits ($1,000) over population 12) Interstate= Dummy variable: counties containing a portion of interstate highway.
	RESULTS	First model: IVs 1, 2, 3, 4, 5, 7, 9, 10 and 12 significant at 0.01 level Second model:

		IVs 1, 3, 4, 5, 6, 7, 8, 10, 11 and 12 significant at 0.01 level Third model: IVs 1, 3, 4, 5, 7, 8, 9, 10, 11 and 12 significant at 0.01 level.

REFERENCE 95		
Lu, J., & Tao, Z. (2007). Determinants of entrepreneurial activities in China (No. MPRA 5675). Munich, GR: University Library of Munich.	OBJECTIVE/S	Studies the determinants of entrepreneurial activities in twenty cities in China between 1978 and 1994.
	METHODOLOGY	Data comes from a life-stories and job histories survey of 2,854 urban residents between age 25 and 65 – Logit model for discrete-time event history analysis.
	DV/S	Total number of Entrepreneurs (when a respondent started his/her on business).
	IV/S	1) Male 2) Male*Legal Position (LP) 3) Marriage 4) Marriage*LP 5) Age 6) Age*LP 7) Education 8) Education*LP 9) Home ownership 10) Home ownership*LP 11) Entrepreneurial parent 12) Entrepreneurial parent*LP 13) Job change frequency

		14) Job change frequency*LP 15) Government agencies or public organizations 16) Government agencies or public organizations*LP 17) State-owned enterprises 18) State-owned enterprises*LP 19) Collective enterprises 20) Collective enterprises*LP 21) Party membership 22) Party membership*LP 23) Legal position (the legal status of private ownership businesses to proxy the institutional environment for private sector development : 1 for years on or later than 1989, 0 otherwise).
	RESULTS	IVs 11 and 23 significant at 0.10 level IVs 6, 9, 14, 20, 21 and 22 significant at 0.05 level IVs 7, 13, 15, 17, and19 significant at 0.01 level

REFERENCE 96	OBJECTIVE/S	To test the proposition that firms are not restricted in their choice of location by sunk costs – an examination of new firm location choices across jurisdictions with varying environmental stringency in India in 1994.
Mani, M., Pargal, S., & Huq, M. (1996). Does environmental regulation matter? Determinants of the location of new manufacturing plants in India in 1994 (No. November 1996). Washington, DC: The World Bank.	METHODOLOGY	Conditional logit models (core and special cases) used to estimate the impact of variables on firms' profits as reflected by their choice of location.
	DV/S	Location of new manufacturing plant
	IV/S	IV1. Wage IV2. Energy costs IV3. Power shortage IV4. Man-days lost due to disputes IV5. Output IV6. Cases per plant IV7. Plan environment expense/total plan expense IV8. Per capita income IV9. Population density IV10. Road density IV11. Education

		IV12. South IV13. West IV14. North
	RESULTS	*Core models: Model 1: at 0.05 confidence level: IV9 at 0.01 confidence level: IVs 3, 4, 5, 7, 8, 12, 13, and 14. Model 2: at 0.05 confidence level: IV14 at 0.01 confidence level: IV5 *Special cases models: Multi-plant firms: at 0.05 confidence level: IVs 8 and 9 at 0.01 confidence level: IVs 4, 5, 7, 12, 13, and 14 Plants w/ foreign collaboration: at 0.05 confidence level: IV2 at 0.01 confidence level: IVs 1, 3, 4, 5, 7, 12, 13, and 14 Polluting Sector Plants: at 0.05 confidence level: IV6 at 0.01 confidence level: IVs 2, 3, 4, 5, 7, 9, 12, 13, and 14 *Core and Special Cases models (and sub-models) not reasonably defined

REFERENCE 97	OBJECTIVE/S	This paper examines regional characteristics affecting the latent entrepreneurship in Japan, focusing on regional macroeconomic indicators, existing density of establishments and human capital, and business start-up assistance programs by local governments
Masuda, T. (2006). The determinants of latent entrepreneurship in Japan. Small Business Economics, 26(3), 227-240.	METHODOLOGY	Regression: This paper measures the rate of latent entrepreneurship by using data from the ESS Employment Status Survey). The ESS asks working people whether they would wish to change their job3 or wish to have additional jobs. For persons not working, the ESS also asks whether they would wish to have any work. Furthermore, the ESS asks of persons answering "yes" what they wish to change, or have, in addition to present conditions or what kind of job is desired. They choose between the following kinds of jobs: Regular staff Part-time, "Arubaito" Self-employed worker Family worker Piecework at home Other The focus is on people wishing to change their jobs, and regard the people who choose "self-employed worker" as persons having latent entrepreneurship. Hence, latent entrepreneurship is divided into two categories: one is for persons merely wishing to be a self-employed worker (the WSE); the other is for persons preparing to be self-employed (the PSE). We adopt both

		categories. Then we define the rates of latent entrepreneurship as follows: WLE = WSE/WP PLE = PSE/WP where WP is the total number of working persons
	DV/S	The number of entrepreneurs by region: 1997 The number of entrepreneurs by sex: 1968, 1971, 1974, 1977, 1979, 1982, 1987, 1992, 1997 Latent entrepreneurs by age and status in employment: 1997 Latent entrepreneurs by annual income: 1997
	IV/S	(1) Total cash earnings (TCED): This variable is a regional macroeconomic indicator. It is used as a substitute for demand or income growth. If the increase ratio of total cash earnings in 1997 to the previous year is plus = 1, otherwise = 0. (2) Unemployment rate (UN): This is another regional macroeconomic indicator. UN = [(Seeking a job of not working persons /(Working persons + Seeking a job of not working persons)] x 100. (3) Female dummy (FD): We also use a dummy variable – If the ratio of female workers to total working persons increases from 1992 to 1997 = 1, otherwise = 0. (4) Venture business (VB): A high density of Venture business is proxied for entrepreneurship. VB = (the number of venture business / Total of 47 prefectures) x 100.

		(5) 25-29-years-oid (AG): People wanting to be a self-employed worker start preparation at the age of 26.4 years on average. AG = (25-29-years-old/Working persons) x 100. (6) College or University graduates (CUG): This is a proxy measure of the technical skills needed in the economy, for example engineers and scientists, and skills needed to start and build a business. College or university (including graduate school) graduates, especially engineers provide a supply of labor to local firms. CUG = (College or University graduates / Working persons) x 100. (7) Services workers ISW): An absolute and/ or relative decline in manufacturing seems to be a common phenomenon among advanced countries. SW = (Services workers/Working persons) x 100. (8) Technical workers (TW): The rate of technical workers indicates a proxy measure of regional entrepreneurship. TW = (Technical workers/Working persons) x 100. (9) Managers and official workers (MW): Most new entrepreneurs were originally employed as managers and officials. MW = (Managers and Official workers / Working persons) x 100. (10) Professional workers (PW): This variable shows persons excluding technical workers. For example, this indicator includes medical, social workers, and teachers. PW = (Professional workers / Working persons) x 100. (11) Financial assistance dummy (FAD): Many local governments provide financial assistance programs. Here we used a dummy variable. When local governments assist with

		loans, if a client is claimed any security =1, otherwise = 0. (12) Business management assistance dummy (BMAD): In addition to financial assistance, local governments also have many assistance programs. Whether or not a local government has business management assistance programs seem for the latent entrepreneur to be as important as financing. Here we also use a dummy variable. If a local government has such an assistance program = 1, otherwise = 0.
	RESULTS	There are seven complex results tables that I chose not to summarize here… some main findings can be summarized: (1) Total cash earnings and the unemployment rate have positive effects on latent entrepreneurship. (2) The high density of female workers has also had a positive effect on latent entrepreneurship. (3) High density regions of college or university graduates, venture businesses, 25-29-year olds, technical workers, services workers, managers and official workers all these factors attract people to be entrepreneurs, and contribute to regional externalities. (4) The effectiveness for two latent entrepreneurships is different in only business start-up assistance programs by local governments. Business start-up assistance programs, in both financial and management assistances, were still not sufficient and adequate for people preparing to be entrepreneurs

REFERENCE 98		
Mazzarol, T., & Choo, S. (2003). A study of the factors influencing the operating location decisions of small firms. Property Management, 21(2), 190-208.	OBJECTIVE/S	This paper examines the factors influencing the purchase decision of small and large firms in selecting industrial land. It draws upon the findings of a survey of small and large firms in Australia, as well as previous literature relating to small firms organisational buying behaviour. Its aim is to investigate industrial land purchase behaviour among SMEs while drawing some comparisons with their larger counterparts
	METHODOLOGY	Surveys and Literature Review
	DV/S	N/A
	IV/S	N/A
	RESULTS	Original Findings include (not from literature review): Influencing factors "My firm's current location is important because" – rating from 1 (strongly disagree to 5 (strongly agree); Sequence: Micro < 5 employees, Small 6-20 employees, Medium 21-200 employees, Large > 200 employees and * = difference between the four sub-populations was found significant at 0.05 level We are close to our customers = 3.7, 3.6, 3.1, 2.8 and * We are close to our suppliers = 3.1, 2.9, 2.7, 2.9 It has easy access to key highways = 3.5, 3.4,

		3.5, 3.2 It has easy access to major freeways = 3.2, 3.3, 3.5, 3.3 It is close to the CBD = 3.1, 3.3, 3.4, 3.1 It is close to key population centres = 3.7, 3.6, 3.5, 3.4 It is close to freight terminals = 2.6, 2.5, 2.8, 4, and * It is close to where I live = 3.5, 3.2, 3.3, 2.3, and * It is close to where key staff live = 3.4, 3.5, 3.4, 2.7 It is close to amenities = 3.8, 3.9, 4, 3.4 It is close to public transport = 3.3, 3.2, 3.1, 2.6 Influencing factors "My firm's decision to relocate is because" – rating from 1 (strongly disagree to 5 (strongly agree); Sequence: Micro < 5 employees, Small 6-20 employees, Medium 21-200 employees, Large > 200 employees and * = difference between the four sub-populations was found significant at 0.05 level We need to get closer to our customers = 2.3, 2.2, 1.8, 1.0 We need to get closer to our suppliers = 2.0, 2.1, 1.9, 1.0 We need to get closer to key transport routes = 2.2, 2.5, 2.3, 1.0 Our current site is too small = 2.9, 3.4, 3.6, 4.0

		We would like to own our own premises = 3.8, 4.0, 3.2, 5.0
		We have been asked to move by landlord = 1.7, 1.6, 1.6, 1.0
		We need to be closer to public transport = 2.1, 2.0, 1.8, 1.0
		I want to be closer to where I live = 2.5, 1.9, 1.9, 2.0 and *
		We need to be closer to key population areas = 2.4, 2.2, 2.0, 1.0
		We are receiving complaints e.g. noise, dust = 1.6, 1.6, 1.6, 1.0
		We need to be closer to freight terminals = 1.9, 2.0, 2.3, 1.0
		Factors influencing choice of indeustrial land by firm size and block size sought – rating from 1 (strongly disagree to 5 (strongly agree); Sequence: Micro < 5 employees, Small 6-20 employees, Medium 21-200 employees, Large > 200 employees and * = difference between the four sub-populations was found significant at 0.05 level
		We are close to our customers = 3.7, 3.6, 3.1, 2.8, and *
		We are close to our suppliers = 3.1, 2.9, 2.7, 2.9
		It has easy access to key highways = 3.5, 3.5, 3.5, 3.2
		It has easy access to major freeways = 3.2, 3.3, 3.5, 3.3

		It is close to the CBD = 3.1, 3.3, 3.4, 3.1 It is close to key population centres = 3.7, 3.6, 3.5, 3.4, and * It is close to freight terminals = 2.6, 2.5, 2.8, 4.0, and * It is close to where I live = 3.5, 3.2, 3.3, 2.3, and * It is close to where key staff live = 3.4, 3.5, 3.4, 2.7 It is close to amenities = 3.8, 3.9, 4.0, 3.4 It is close to public transport = 3.3, 3.2, 3.1, 2.6

REFERENCE 99		
Mazzarol, T., Volery, T., Doss, N., & Thein, V. (1999). Factors influencing small business start-ups. A comparison with previous research. International Journal of Entrepreneurial Behaviour and Research, 5(2), 48-63.	OBJECTIVE/S	Sheds light on the process leading to new enterprise formation and identifies the impact of some selected demographic variables on business start-ups. -- The goal of this research was to identify the demographic characteristics of selected demographic variables likely to affect small ventures formation
	METHODOLOGY	A joint venture between the Institute for Small Business Research and the Institute for Research into International Competitiveness of the Curtin Business School, the study drew a sample of 93 respondents. Forty-eight of these entrepreneurs had successfully established a small business within the previous two years prior to interview. The remaining 45 individuals had given serious consideration to establishing a business (e.g. they had attended a small business training program or demonstrated a strong desire to found a business) within the previous two years, but had not proceeded for some reason
	DV/S	N/A
	IV/S	N/A
	RESULTS	Logistic model for demographic variables influence on business start-up – Model Term: Gender = Positive Coefficient and $p < 0.01$ Previous experience in government employment = Negative Coefficient and $p < 0.05$

		Made redundant within previous two-three years = Negative Coefficient and $p < 0.05$ This research study has highlighted the potential importance of three demographic variables: (1) gender; (2) previous government employment; and (3) recent redundancy as potential negative influences on small business formation.

REFERENCE 100		
McDonough, S. (2007). Risky business: An examination of firm location decisions and their implications for inner cities. Unpublished Ph.D., Harvard University, Cambridge, MA.	OBJECTIVE/S	This dissertation makes use of new survey data and in-depth interviews to explore three questions: (1) Which factors seem to matter most in the location decision? (2) Why do these factors matter? (3) What can we learn about the implications of (1) and (2) for urban areas? The study confirms the importance of labor availability, transportation, and rents, but deemphasizes the significance of other factors frequently cited in econometric approaches to location theory
	METHODOLOGY	Corporate end user survey t-test
	DV/S	N/A
	IV/S	N/A
	RESULTS	Factors Identified as “Very Important (in %):” Onsite parking: 58 Rental rates: 56 Availability of appropriate labor: 50 Timeliness of approvals /appeals: 43 Predictability / clarity of permitting: 39 Access to major highways: 39 Land costs: 37 Quality / capacity of infrastructure: 36 Competitive labor costs: 36 Undesirable abutting land use: 33 Local tax / financial incentives: 33 Traffic congestion: 32 Property taxes: 31 Crime rate in area: 31 Fast track / concurrent permitting: 29

		State tax / financial incentives: 29 Zoning by right: 27 Awareness of brownfields: 25 State tax rates: 24 Physical attractiveness of area: 21 Public transportation: 21 Quality of local schools: 21 Municipal reputation for economic development: 20 Municipal reputation as a good place to work: 19 Municipal reputation as a good place to live: 17 Critical mass of similar firms: 17 Awareness of strong neighborhood organizations: 16 Permitting ombudsman: 16 Proximity to shops / restaurants: 16 Access to airports: 15 Cost of housing for employees: 15 Strong trade unions: 13 Complementary / supplemental business services: 11 Proximity to research / universities: 10 Informative website: 10 Availability of sports / cultural / recreational opportunities: 8 Access to railroads: 8 Customized workforce training: 7 Municipal minimum wage law: 7 Group Differences by Project Type (independent t-test) * Significant at $p < 0.05$ level Availability of appropriate labor Competitive labor costs Critical mass of similar firms Municipal rep. good place to work Proximity to research/universities Public transportation Access to major highways

		Access to railroads Proximity to restaurants / shops Predictability/clarity of permitting Informative municipal website Municipal rep. good place to live Cost of housing for employees Crime rate in the area Physical attractiveness of area Sports / cultural amenities Quality of local schools

REFERENCE 101		
McNamara, K. T. (1991). Recruiting manufacturing firms as a community development strategy (No. EC-659). Lafayette, IN: Purdue University, Cooperative Extension Service.	OBJECTIVE/S	Discusses a firm's industrial site location process and to provide an overview of regional plant locations in the U.S. during the past four years. It also discusses research that has examined regional and community attributes that impact location decisions
	METHODOLOGY	Literature review
	DV/S	N/A
	IV/S	N/A
	RESULTS	Community Location Factors – Agglomeration factors: Population Population density Commercial employment Number of manufacturing plants Distance to SMSA Industrial site attributes Labor quality/cost/availability: Labor force size Unemployment rate Wage rate

		Percent of adult population with High school diploma
		Labor productivity
		Distance to vocational school
		Distance to four year college
		Transportation facilities: Interstate highway access
		Distance to airport
		Site facilities and services
		Site quality
		Public site ownership
		Site price
		Sewer capacity
		Zoning
		Location incentives
		Funded development group
		Taxes: Property tax rate
		Freeport
		Access to Capital: Bank assets
		Bond financing
		Public services:

		Per pupil school expenditures High school math achievement test score Fire protection rating The findings of industrial location research arid a review of recent industrial location patterns suggest that rural communities are at a disadvantage compared to urban communities in attracting new manufacturing investment. Small, rural communities, especially those not in the East North Central or Southern regions, should be very cautious with investments to attract industry. Location trends and recent location research provide general insight into a specific community's potential for attracting new manufacturing investment. Location trends over the past several years Suggest that communities in the South and the East North Central regions are the most attractive locations in the United States. States in these regions attracted 4171 new manufacturing investments during the past four years, about 72% of the total new manufacturing investments made in the United States over the period. Communities in the other regions appear to be at some disadvantage in attracting industry because of the limited number of firms that have identified those regions as acceptable for location

REFERENCE 102		
McQuaid, R., Leitham, S., & Nelson, J. D. (1996). Accessibility and location decisions in a peripheral region of Europe: A logit analysis. Regional Studies, 30(6), 579-588.	OBJECTIVE/S	To analyze the links between accessibility to markets and factors of production and firms' location decisions in a peripheral region within the European Union
	METHODOLOGY	Survey considering the scope and nature of firms occupying new premises within the region of Strathclyde. The premises were visited and basic data established. Full postal self-completion questionnaires were then left at the premises. The validity of the return sample was tested against supplementary questions asked by the surveyors. A total of 2,076 premises built between 1981-91 were visited throughout the region and completed, validated questionnaires were received from 939 premises. With 498 premises being either vacant or used for storage, the return rate was therefore 59% for occupied premises, amounting to some one million square metres of floor-space and 24,500 employees
	DV/S	N/A
	IV/S	N/A
	RESULTS	Responses to the importance of accessibility related factors in the choice of current location; Survey responses (% of all firms); Very important (V), Important (I), and Not Important (N): Access to markets: V+I = 50; N = 14 Access to suppliers: V+I = 53; N = 14

		Access to support services: V+I = 38; N = 16 Access to public: V+I = 27; N = 24 Access to required staff: V+I = 57; N = 8 Coefficients for the importance of access to markets on the firms' location decision; *** = !%, ** = 5% and *=10% significance levels; P/N = Positive or Negative coefficients: Size of premises (C): 0-500 m2 = ***N Location of parent company (F): Rest of World = *P No parent company = **N Sub-regional location (H): Sub-region/ (Dumbarton) = *N Sub-region g (Cumnock) = *P Sub-region b (Lanarkshire) = **N Sub-region c (Glasgow) = **P Coefficients for the importance of access to suppliers on the firms' location decision; *** = !%, ** = 5% and *=10% significance levels; P/N = Positive or Negative coefficients: Nature of business (A): Construction = *P Other services = ***N Location of previous address (I): Rest of Strathclyde = ***N Rest of UK = **P Terms of occupation (G): Owner occupiers = *N Lease: enterprise company = **N Lease: local authority = **P

		Coefficients for the importance of access to suitable staff on the firms' location decision; *** = !%, ** = 5% and *=10% significance levels; P/N = Positive or Negative coefficients: Number of employees (B): 0-9 = **N > 50 = **P Location of parent company (F): No parent company = *N Terms of occupation (G): Lease: New Town = **P

REFERENCE 103	OBJECTIVE/S	The author describes the process of defining the basic requirements of a project, analyzing investment and operational costs, and assessing the local social climate and community facilities. Several examples from both the U.S. and Europe exemplify the impact that different factors can have on the success or failure of a new manufacturing plant.
Meirleir, M. D. (2008). Location, location, location. A plant location and site selection guide. New York: The Haworth Press.	METHODOLOGY	Techniques used: 1) Questionnaire -- to evaluate and calculate “all” (as per the author) the factors affecting the locational decision. The following main headings are included: The Objectives Site and Buildings Financial Assumptions Products, Workers, and Distribution Raw Materials and Industrial Services Labor or Human Resources Utilities Effect on Ecology 2) Tools – Administer the questionnaire Visit to a similar plant

		Collect and run statistics Evaluate the geography 3) Evaluate tangible and intangible location factors No other methodological or statistical analysis description given.
	DV/S	Location decision making.
	IV/S	Nonrecurring Cost Factors: 1) Site costs 2) Building costs 3) Equipment costs 4) Incentives: Cash Grants Recurring Cost Factors: 1) Labor costs 2) Transportation costs (inbound freight, outbound freight, and interplant freight costs) 3) Utility costs (power, gas, and water costs) 4) Pollution treatment 5) Taxation 6) Tax incentives Intangible Factors: 1) Investment climate 2) Social climate 3) Political climate 4) Economic situation Community and Site Analysis: 1) Geographic aspects 2) Socioeconomic aspects (Attitude and Behavior, Unions, and Unemployment)

		3) Location 4) Transportation 5) Population 6) Industrialization 7) Employment 8) Community Facilities.
	RESULTS	The author presents 30 “real-life” stories as “proof” that his methodology and tools work. These stories lack statistical and other validity details

REFERENCE 104	OBJECTIVE/S	The main objective is to contribute to the field of entrepreneurship in the areas of new firm formation, regional economic development, and individual behavior (in West Germany). (1) The first research theme addresses the spatial variation but temporal persistence of new firm formation activity. it complements other studies on regional determinants by additionally investigating factors that explain why some regions experience an increase in regional start-up activity. (2) The second theme examines why entrepreneurship matters. In particular, it analyzes the impact of new firm formation on regional development. Regional development is measured in different ways, namely as employment change, labor productivity, and economic growth rates. (3) Finally, the impact of the entrepreneurial environment on the individual decision to start a firm is investigated. This research question leads back to the first research theme by addressing the persistence of new firm formation from the individual perspective
Muller, P. (2006). Entrepreneursh ip and economic performance - the impact of new firm formation on regional development and individual behavior. Unpublished Ph.D., Technischen Univeritat Bergakademic Freiberg, Freiberg; Saxoni, DE.	METHODOLOGY	(1) Pooled regressions and panel fixed effect regressions (2) Correlations and time series with lag analysis
	DV/S	(1) start-up rate (new business per 1,000 persons in the workforce), 1984 - 2002

		(2) Percentage of employment change, t-1 through t-10
	IV/S	(1) Entrepreneurial climate. The share of employees working in small and young businesses is used as a proxy for the entrepreneurial climate in the respective region. Businesses were classified as small and young when they had less than 20 employees at the time of their founding and were no more than three years old Innovation activity. The regional share of R&D personnel is used as a proxy for innovative activity and measures the regional knowledge stock. Employees are classified as working in R&D if they have a university degree in engineering or natural sciences Agglomeration. Population density is used as a variable to capture these effects Demand. The percentage change of the regional gross value added measures the development of demand Unemployment. In addition to these variables, the past start-up rate is included in order to analyze the path-dependency of new business formation activity.
	RESULTS	(1) Note: I am not very clear how to interpret results due to the lack of key information from the author Determinants of new business formation – Regional Start-up rate; Pooled regression

		(Models I-IV = t-1 through t-4) and Panel fixed effects regression (Models V-VIII = t-5, t-10, t-15, and t-?); ** significant at 1%-level and * significant at 5%-level; P/N = Positive and Negative coefficients Share of R&D personnel (t-1) = II**P, III*P, VI**P, VII**P VIII**P Share of employees in small and young businesses (t-1) = II**P, III**P, IV**P, VI**P, VII**P, VIII**P Log population density (t-1) = II**N, III**N Change gross value added over 5 year period (t-5) = II*P, VI**P Gross value added per workforce (t-1) = III*P, VII*P Unemployment rate (t-1) = IV**N, VIII**P Start-up rate (t-5) = I**P, II**P, III**P, IV**P Note: I am not very clear how to interpret results due to the lack of key information from the author -- Determinants of changes of the number of start-ups; Percent change of number of start-ups; Pooled regression (Models I and II = t-1 and t-2 ?) and Panel fixed effects regression (Models III and IV = t-3 and t-4 ?); ** significant at 1%-level and * significant at 5%-level; P/N = Positive and Negative coefficients Share of R&D personnel (change over 5 years, %) = I**P, II**P, III**P Share of employees in small and young firms (change over 5 years, %) = I**P, II**P, III**P, IV**P

		Share of R&D personnel (t-1) = II**P, III**P, IV**P Share of employees in small and young firms (t-1) = I**P, II**P, III**P, IV**P Log population density (t-1) = I**N, II**N, IV*P Gross value added per labor force (t-5) = I**P, III**P Change gross value added over 5 year period (t-5) = IV**N Start-up rate (t-5) = I**N, II**N, III**N, IV**N (2) Some of the results were: When including all start-up rates in one model, the highest positive impact for new business formation of the current year and of the years t-6 and t-7 were found, i.e. the start-up rates of six and seven years ago. Start-up rates of periods t-3 and t-4 have a significantly negative impact on employment change. Thus, the results of the regression including all relevant start-up rates between t and t-10 indicate both a positive and a negative relationship between entrepreneurial activity and employment growth. The separate regressions with the single start-up rates show the strongest impact for the start-up rates of years t-5 and t-6. The impact of start-ups on employment change first increases and then decreases with rising time lags from the period to which the dependent variable is related. The start-up rates of the most distant years (t-9 and t-10) are not statistically significant.

		Lags: The pattern found for the lag distribution of the impact of new business formation on regional employment suggests a certain time sequence of the different effects – The positive employment impact for start-ups in the current year can be understood as the additional jobs created in the newly founded businesses at the time of inception. It is known from other analyses that employment in entry cohorts tends to be stagnant or declining from the second or the third year onward. Therefore, new business formation in years t-1, t-2 and in earlier years should not lead to any significant direct employment effect. As soon as a new business is set up, it is subject to market selection and will perhaps gain market shares from incumbent suppliers. It may therefore be assumed that the negative impact of the start-ups in years t—1 to t—5 results from exiting capacities, i.e. new businesses that fail to be competitive and from the crowding out of incumbents. The positive impact of new business formation for the years on employment, t-6 to t—10, is probably due to a dominance of indirect supply-side effects, i.e. increased competitiveness of the regional suppliers resulting from market selection. After about nine or ten years, the impact of new businesses on regional employment has faded away. (3) Note: Unfortunately, I am not very clear how to interpret results due to the lack of key information from the author. Further chapters analysis will not be completed.

REFERENCE 105		
Nagy, C. N., Olfert, M. R., & Skotheim, J. (2004). Targeting business investment in rural communities. Regional Analysis and Policy, 34(2).	OBJECTIVE/S	Same as: Nagy, C. N., Skotheim, J., & Olfert, M. R. (2004). Industrial targeting for rural communities (No. SK/RES 0002). Saskatoon, SK: Canadian Agricultural Rural Communities Initiative (CARCI) & University of Saskatchewan.
	METHODOLOGY	N/A
	DV/S	N/A
	IV/S	N/A
	RESULTS	N/A

REFERENCE 106		
Nagy, C. N., Skotheim, J., & Olfert, M. R. (2004). Industrial targeting for rural communities (No. SK/RES 0002). Saskatoon, SK: Canadian Agricultural Rural Communities Initiative (CARCI) & University of Saskatchewan.	OBJECTIVE/S	To develop a tool that will assist rural communities in identifying potential businesses that would locate in the community, given a community's characteristics – for the years 2006 to 2010, based on the 1990 to 2000 data.
	METHODOLOGY	A logistic regression procedure is used to generate the predicted probabilities of the dependent variable. Business growth of industry sectors between 1995 and 2000 was estimated using the 22 IV of the 33 communities in 1990 plus a lagged industry growth variable for 1990 to 1995. Then the estimated equation along with IVs for 2001 plus the lagged industry growth variable for 1995-2001 are used to calculate the expected 2006-2010 probabilities of industry location in each community. Two sets of parameters estimates were generated: one using the 1991 community characteristics and the other using the 1996 community characteristics.
	DV/S	Growth in industry sector in prior period (binary var.) 1) Construction 2) Food Manufacturing 3) Textiles and Apparel 4) Lumber, Furniture and Paper 5) Printing and Publishing

		6) Concrete, Chemical, Stone Products 7) Fabricated metal Machinery and Equipment 8) Other Transportation 9) Trucking and Transportation Services 10) Communications 11) Electric, Gas, and Sanitary Services 12) Wholesale Trade 13) Building Materials and Garden Supplies 14) Food Stores 15) Automotive Dealer and Service Stations 16) Other Retail 17) Easting and Drinking Places 18) Insurance and Holding 19) Real Estate 20) Hotels and Lodging Places 21) Other Personal Services 22) Beauty and Barbershops 23) Other Business Services 24) Management Consultant, Equipment Leasing 25) Auto and Other Repair 26) Motion Pictures and Amusements

		27) Legal Services.
	IV/S	1) Average family income (AVGINC)
		2) Population density (DENSITY)
		3) Amount spent on police & fire (SAFETY)
		4) Amount spent on municipal roads (ROAD)
		5) Municipal tax (TAX)
		6) Population (POP)
		7) Amount spent on K-12 education (EdEXP)
		8) Employment in agriculture (EmAG)
		9) Employment in manufacturing (EmMAN)
		10) Employment in service sector (EmSERV)
		11) Employment rate (EmRATE)
		12) Rate of poverty (POVERTY)
		13) High school education (DIPLOMA)
		14) Functional economic areas (FEA)
		15) Value of houses (HOUSE)
		16) Presence of special care home (SCH)
		17) Presence of a hospital (HOSP)
		18) Soil zone (SOIL)
		19) Local airport (LocAIR)
		20) Commercial airport (ComAIR)
		21) Located on highways #1 or #16

		(HIGHWAY) 22) Median age of residents (AGE).
	RESULTS	Due to the very complex and broad results, only a summary is given here. The following IVs and DVs are significant at a minimum p=0.05 level: IV 1 with DVs 1, 17, 20 IV 2 with DVs 7, 11, 17, 19 and 20 IV 3 with DVs 1 and 19 IV 4 with DVs 1, 19, 20 and 22 IV 5 with DVs 1, 7, 19 and 22 IV 6 with DVs 7, 17 and 19 IV 7 with DVs 7 and 20 IV 8 with DVs 1, 7, 11, 19 and 22 IV 9 with DV 1 IV 10 with DVs 1 and 21 IV 12 with DVs 7 and 11 IV 13 with DVs 19, 20, 21 and 22 IV 14 with DVs 1 and 21 IV 15 with DVs 1 and 20 IV 16 with DVs 1, 19 and 20 IV 17 with DVs 4 and 11 IV 18 with DVs 7, 11, 17, 19, 20 and 21 IV 19 with DVs 1 and 7 IV 20 with DVs 1 and 4 IV 21 with DVs 7 and 21 IV 22 with DVs 1, 20 and 22

REFERENCE 107		
Naik, S. (2005). Assessing a city's potential in attracting high-tech firms: Based on location behavior of high-tech industries. Unpublished Master of Community Planning, University of Cincinnati, Cincinnati, OH.	OBJECTIVE/S	The goal of this study is to help cities assess their potential for attracting high tech industries. This study involves collection of factors which attract high-tech industry based on prior research and literature review.
	METHODOLOGY	The collected factors are then ranked based on expert opinions. In addition, a set of hypotheses are formulated for these factors stating their contribution in attracting high-tech industry. A correlation analysis is conducted to determine the strength of relationship with high-tech status of cities
	DV/S	Factors in attracting high-tech industries
	IV/S	University 1. Proximity to university 2. University industry connection 3. University funding Labor 4. Labor Skills 5. Labor Availability 6. Labor Costs/productivity 7. Labor Climate 8. Labor Mobility Capital 9. Venture capital 10. Federal Defense procurements Firm Attributes 11. Structure of inter firm transactional activity (Linkages, Horizontal integration, Vertical disintegration)

		12. Openness to competition
		13. Concentration of firms
		14. Alternative employers for spouses (Industrial diversity)
		15. Size distribution of firms: number, age, organization structure
		16. Innovation potential
		Business Climate 17. Community attitude towards business
		Infrastructure 18. Physical infrastructure (Air line facilities & Highways-roadways)
		19. Proximity to clients/markets , (Supplier-customer links)
		20. Communication and information services
		21. Entrepreneurial activity
		Quality of Life 22. Quality of Life (Amenities; recreation opportunities)
		23. Good schools/quality of Public education
		24. Cost of living: housing costs/availability
		25. Desirable physical environment
		26. Climate
		Cost 27. Taxes
		28. Incentives/subsidies (Industrial policy/Government attitude)

		29. Energy costs/availability Location Attribute 30. Metropolitan 31. Urbanized areas (Airline facilities; Cultural activities; Public transportation) 32. Prestige/reputation(Economic performance Employment growth) 33. Decision-makers place of residence 34. Nearness to family/social connections
	RESULTS	Note from the author: The results are used to summarize characteristics of high-tech cities. Additionally, the results are tested against the set of hypotheses to determine if the literature findings are supported by statistical tests or not. These findings are used to evaluate the significance of various factors for attracting high-tech industry and the extent to which they influence high-tech industry locations The factors that strongly support the hypothesized statement include Skilled Labor, Academic Institutions, Innovative Transportation, Physical Infrastructure, R&D Spending, Connected Citizenry and Energy efficiency. The results reaffirm the importance of these factors stated to be important in literature. Thus it can be said that the above mentioned factors are indeed important for attracting high-tech industry. The most surprising results were for the following factors rated highly in literature- Concentration of industries, Cost of living, Business climate and Quality of life. The results for above factors do not strongly support the hypothesized claim, suggesting that they may be overrated in terms of its

		influence in high-tech industry location decisions. Some unexpected results are as follows. The popular belief for factors including Population, Cost of doing business and Business expansion or relocation is that they do play a role in attracting high-tech firms. But the results for these factors do not support the hypotheses. In fact results for Population factor indicate the opposite to be true. This suggests that these factors may not be as significant as claimed. There is a conflict in results for Job growth factor. Out of six variables for this category only two factors moderately support the hypotheses, thus it cannot be determined if the results support the hypothesis or not due to insufficient evidence. The results for Overall High-Tech growth output do not support the hypothesis indicating the high output or growth does not necessarily attract high-tech. The results for Salaries & wages show a moderate relationship to high-tech status. There is a conflict in literature on the influence of labor costs. The results seem to be favoring the argument that high labor costs indicate higher productivity and do not adversely influence high-tech industry locations

REFERENCE 108		
Nishioka, H., & Krumme, G. (1973). Location conditions, factors and decisions: An evaluation of selected location surveys. Land Economics, 49(2), 195-205.	OBJECTIVE/S	In this paper, the authors first examine selected Japanese and American locational surveys in view of some of their inherent problems; the market and its role in different locational surveys serves as an example. Secondly, some related conceptual thoughts on the necessity to differentiate between environmental or location conditions, location factors and stages of location decision-making processes are presented
	METHODOLOGY	Literature review and secondary survey analysis
	DV/S	N/A
	IV/S	N/A
	RESULTS	Conclusions: In this paper, the authors attempted to evaluate some of the biases which tend to encroach upon the results or interpretations of conventional location surveys. The difference between general conditions of the locational environment and those factors which actually influence the accounting system and the objective function of the firm seems to be a particularly significant cause for misinterpretations of the role of the market in locational decision-making. In addition, it was suggested that all but the most simplistic location decisions are integral parts of complex location-decision processes

		or even general entrepreneurial decision sequences within which the selection of a region, community, or site may assume a dominant role or may be rather insignificant or coincidental. In either case, but maybe particularly in the latter, the location analyst trying to understand the final locational outcome will have to go far beyond the type of analysis and survey which focuses, in a cross sectional rather than sequential fashion, merely on a narrowly perceived location decision, a focus which so very much resembles the manner in which classical location theorists have deduced partial equilibrium locations

REFERENCE 109		
Norris, J. (2006). Job development in King County's urban centers: Factors that influence and tools that incentivize firm location. Unpublished Masters of Public Administration, University of Washington, Seattle.	OBJECTIVE/S	At the request of King County officials, the research addresses the following research questions: 1. What are the key factors that influence job growth in Urban Centers in King County 2. What tools can local governments use to encourage further job development
	METHODOLOGY	Research conducted to create the report includes these methods: - Survey of the literature - Stakeholder interviews - Descriptive statistical analysis of King County Urban Center data.
	DV/S	N/A
	IV/S	Starting on page 35, the author lists 27 factors that influence firm location – these factors are based on the literature review of empirical studies.
	RESULTS	Comprehensive report that includes the following main chapter headings: Chapter 2: Methodology Chapter 3: King County Urban Centers overview Chapter 4: Job Development factors,

		strategies, and tools Chapter 5: Aligning tool usage and urban center categories Chapter 6: Major themes, further areas of study, and policy suggestions

REFERENCE 110		
Nystrom, K. (2005). Determinants of regional entry and exit in industrial sectors. CESIS, Electronic Working Paper Series, May 2005(33), 1-27.	OBJECTIVE/S	This paper investigates the regional determinants of entry and exit considering that the regional variation of new firm formation can be explained by differences in industrial structure
	METHODOLOGY	Panel Data Analysis – The empirical analysis is performed using data on Swedish firm entry and exit rates for 1997-2001. The data used in the empirical analysis are collected by Statistics Sweden and consist of firm level data where the firms are classified as belonging to different industries according to the Standard Industrial Classification (SIC) system on the 5-digit level. The data consist of information regarding the financial situation for enterprises in the corporate sector
	DV/S	Regional variation in entry and exit rates for industrial sectors
	IV/S	E (r,i,t) = Entry rate: The number of entering firms in industry i, region r at time t divided by the number of firms in industry i region r at time t. X (r,i,t) = Exit rate: The number of exiting firms in industry I, region r at time t divided by the number of firms in industry i region r at time t. Pop (r,t) = Population: The population in region r at time t Change in Pop (r,t) = Population change: Population in region r at time t minus

		population in region r at time t-1 divided by the population in region r at time t Inc (r,t) = Income: Total income from employment and business in region r at time t.(In fixed prices using harmonized CPI 1996 as deflator.) Change in Inc (r,t) = Income change: The total income from employment and business in region r at time t minus total income from employment and business in region r at time t-1 divided by the total income from employment and business in region r at time t.(In fixed prices using harmonized CPI 1 996 as deflator) Unemp (r,t) = Unemployment: The Number of unemployed aged 16-64 in region r at time t (including persons in unemployment programs)/population aged 16-64 in region r. Change in Unemp (r,t) = Unemployment change: Unemployment rate in region r at time t minus unemployment rate in region r at time t-1. Edu (r,t) = Number of employees with a university degree in region r /number of employees in region r. Size (r,i,t) = Firm size: A concentration measure summing the squared individual firms share of the employment in industry i and region r. Loc (r,i,t) = Localisation economies: Number of firms in industry i, region r divided by the population in region r. Urb (r.t) = Urbanisation economies: The number of firms in region r divided by the population in region r.

		Dum (i) = Industry dummy variable
	RESULTS	Aggregate regional level: Results from OLS and fixed effects model estimation with entry rates as dependent variable; * denotes significance at the 5% level; P/N = positive or negative coefficient; Sequence: OLS and Fixed Effects Model. "-" = not significant Local demand factors: Population = P*, - Population change = -, - Income = N*, N* Income change = -, P* Supply of founders: Unemployment = -, N* Unemployment change = -, P* Education = P*, - Firm size = -, - Agglomeration effects: Urbanisation economies = -, P* Aggregate regional level: Results from OLS and fixed effects model estimation with exit rates as dependent variable; * and ** denotes significance at the 5% and 10% levels respectively; P/N = positive or negative coefficient; Sequence: OLS and Fixed Effects Model. "-" = not significant Local demand factors: Population = P*, P* Population change = N*, N** Income = N*, - Income change = N*, N** Supply of founders: Unemployment = -, N* Unemployment change = -, - Education = P*, -

		Firm size = -, - Agglomeration effects: Urbanisation economies = -, N* Industry and regional level: Determinants of entry rates; * and ** denotes significance at the 5% and 10% levels respectively; P/N = positive or negative coefficient. “-“ = not significant Local demand factors: Population = - Population change = - Income = - Income change = P** Supply of founders: Unemployment = - Unemployment change = - Education = - Firm size = N* Agglomeration effects: Urbanisation economies = P* Industry and regional level: Determinants of exit rates; * and ** denotes significance at the 5% and 10% levels respectively; P/N = positive or negative coefficient. “-“ = not significant Local demand factors: Population = - Population change = N* Income = - Income change = - Supply of founders: Unemployment = -

		Unemployment change = - Education = - Firm size = N* Agglomeration effects: Urbanisation economies = P*
		Individual industry level: Summary of panel data regressions on entry rates for 47 industrial sectors. Positive and significant = PS; Negative and significant = NS and number. Local demand factors: Population = 0PS and 1NS Population change = 0PS and 0NS Income = 0PS and 4NS Income change = 1PS and 1NS Supply of founders: Unemployment = 3PS and 9NS Unemployment change = 6PS and 4NS Education = 5PS and 1NS Firm size = 0PS and 38NS Agglomeration effects: Localization economies = 16PS and 0NS Urbanisation economies = 2PS and 1NS
		Individual industry level: Summary of panel data regressions on exit rates for 47 industrial sectors. Positive and significant = PS; Negative and significant = NS and number. Local demand factors: Population = 8PS and 0NS Population change = 0PS and 0NS Income = 1PS and 2NS Income change = 1PS and 1NS

		Supply of founders: Unemployment = 6PS and 9NS Unemployment change = 2PS and 4NS Education = 0PS and 0NS Firm size = 5PS and 33NS Agglomeration effects: Industry density = 16PS and 10NS Economic density = 1PS and 2NS

REFERENCE 111		
Nystrom, K. (2007). An industry disaggregated analysis of the determinants of regional entry and exit. Annals of Regional Science, 41, 877-896.	OBJECTIVE/S	Investigates the regional determinants of entry and exit of new firms (81 individual regions) between various industries, except industries with SIC code 11 (extraction of crude petroleum and natural gas), 13 (mining of metal ores), 16 (manufacture of tobacco products), and 41 (collection, purification, and distribution of water).
	METHODOLOGY	Uses panel data methods at three different levels of aggregation: A (Aggregate regional level), B (Industry and regional level), and C (Individual industry level – estimated for each of the 47 industries).
	DV/S	Regional entry and exit rates of new firm formation. Number of entering/exiting firms in industry (i), region (r) at time (t) divided by number of firms in industry (i) region (r) at time (t).
	IV/S	- Population in (r) at time (t) - Population change - Income from employment, CPI 1996 - Income change - Unemployment aged 16-64 divided by population 16- 64 - Unemployment change - Education: number of employees with a university degree

		- Size: concentration measure summing the squared individual firm's share of the employment in industry (i) and region (r) - Localization economies: number of firms in industry (i), region (r) divided by population in region (r) - Urbanization economies: number of firms in region (r) divided by population in region (r) - Dummy: industry dummy variable for industry (i). The industries are compared with Manufacture of fabricated metal products (SIC code 28).
	RESULTS	(complex set of results – similar to this dissertation); summary of results are given below): - Firm size variable influences the patterns of entry and exit - Industry dummies are significant when included in the analysis, implying that industry structure is more important than regional characteristics for determining the regional patterns of entry and exit - Localization economies has a positive impact on new firm formation rates for many industries - On the aggregate regional level: urbanization economies influence entry and exit decisions.

REFERENCE 112	OBJECTIVE/S	Investigate the relationship between the regional institutional environment and regional new firm formation
Nystrom, K. (2007). Institutional environment and new firm formation in Swedish regions. Stockholm, SE: The Ratio Institute.	METHODOLOGY	Regression models – standard linear regression
	DV/S	New firms in all industries in the municipality 2001 (log) New firms in manufacturing industry New firms in private service sector
	IV/S	V1: Attitudes = Attitudes regarding private enterprises. Perceptions of attitudes regarding private enterprises from the general public, the local government politicians, municipal employees, media and educational system respectively in each municipality. The value ranges from 0.2 to 1.2. A higher value of the measure implies more positive attitudes private enterprises. An average of five categories of attitude measures are constructed V2: Tax = Local tax in per cent in the municipality 2001 V3: Political majority = Dummy variable taking the value 1 if the municipality is governed by parties that defined as right bloc parties; 0 otherwise V4: Local government sector = Size of the local government sector measured as the

		number of employed in the local government per capita in the Municipality (Log) V5: Rules and bureaucracy = Perceptions of the extent of rules and bureaucracy in municipality. The measure ranges between 1 and 6 where a higher score corresponds to better (less) rules and bureaucracy V6: Population = Population in the municipality 2001 (Log) V7: Income = Average income (thousand SEK) in municipality 2001. The measure includes incomes from both employment and business (Log) V8: Education = Share of employees with a university degree in the municipality 2001. (Log) V9: Unemployment = Unemployment rate in the municipality 2001 V10: Firm size = Average firm size in the region 2001 (Log)
	RESULTS	Regression results new firms in all industries; significant at 5 percent level: V1, V3, V4, V6, V7, V8, and V10 Regression results new firms in manufacturing industry; significant at 5 percent level: V6 Regression results new firms in private service sector; significant at 5 percent level: V1, V3, V6, V8, and V10

REFERENCE 113	OBJECTIVE/S	This paper uses an institutional approach to investigate the relationship between the regional institutional environment and regional new firm formation
Nystrom, K. (2008). Regional institutional environment and Swedish regional new firm formation, CESIS (Vol. Paper No. 142). Stockholm, SE: The Royal Institute of Technology.	METHODOLOGY	Econometric method – regressions
	DV/S	New Firm Formation = Number of entering firms in the municipality 2001 (Logarithm)
	IV/S	Attitudes = Attitudes regarding private enterprises. Perceptions of attitudes regarding private enterprises from the general public, the local government politicians, municipal employees, media and educational system respectively in each municipality. The value ranges from 0.2 to 1.2. A higher value of the measure implies more positive attitudes private enterprises. An average of five categories of attitude measures are constructed. Tax = Local tax in % in the municipality for 2001. Political Majority = Dummy variable taking the value 1 if the municipality is governed by parties that defined as right bloc, 0 otherwise. Government Sector = Size of the local government sector measured as the number of employed in the local government per capita in the municipality (logarithm). Rules and Bureaucracy = Perceptions of the extent of rules and bureaucracy in

		municipality. The measure ranges between 1 and 6 where a higher score corresponds to better (less) rules and bureaucracy. Population = Population in the municipality 2001 (logarithm). Income = Average income (thousand SEK) in municipality 2001. The measure includes incomes from both employment and business (logarithm) Education = Share of employees with a university degree in the municipality 2001 (logarithm). Unemployment = Unemployment rate in the municipality 2001. Firm Size = Average firm size in the region 2001 (logarithm)
	RESULTS	Regression results new firms in all industries is the dependent variable; *indicates significance at the 5 % level. ** indicates significance at the 10 % level. P/N = positive or negative coefficient; “-“ not significant Attitudes = P* Tax = - Political majority = P* Local government sector = N* Rules and bureaucracy = - Population = P* Income = N* Education = P* Unemployment = - Firm size = N* Regression results new firms in manufacturing industry is the dependent variable; *indicates significance at the 5 % level. ** indicates

		significance at the 10 % level. P/N = positive or negative coefficient; “-“ not significant Attitudes = - Tax = - Political majority = - Local government sector = - Rules and bureaucracy = P** Population = P* Income = - Education = - Unemployment = - Firm size = - Regression results new firms in private service sector is the dependent variable; *indicates significance at the 5 % level. ** indicates significance at the 10 % level. P/N = positive or negative coefficient; “-“ not significant Attitudes = P* Tax = N** Political majority = P* Local government sector = - Rules and bureaucracy = - Population = P* Income = N** Education = P* Unemployment = - Firm size = N*

REFERENCE 114		
O'Farrell, P. N., & Crouchley, R. (1985). An industrial and spatial analysis of new firm formation in Ireland. In D. J. Storey (Ed.), Small firms in regional economic development: Britain, Ireland and the United States. London: Cambridge University Press.	OBJECTIVE/S	An industrial and spatial analysis of new firm formation in Ireland. It analyses the rate of indigenous new firm formation in Ireland over the period 1973-1981.
	METHODOLOGY	Analysis based upon the Industrial Development Authority's (IDA) annual employment survey conducted at the first day of each year. Indigenous new firm formation rates are classified by town size group. Twenty-five industry groups were selected in order to maximize product homogeneity and minimize employment size variance between industries. Multiple regression analysis.
	DV/S	Two DVs are defined: First DV: Multiple regression framework. Inter-industry difference in formation rates, DV defined as the number of new indigenous single plant firms per annum per 1,000 employees in industry "i" in the base year entering between 1973 and 1981. Second DV: Multiple regression framework. (Smaller scale) DV defined as the number of new indigenous single plant firms per annum per 1,000 employees in manufacturing industry in county "j" in the base year (1973). It includes survivors and those firms which opened and subsequently closed.

	IV/S	X1: Percentage of plants in industry “i” employing fewer than twenty persons in 1973 X2: Rate of employment change of the 1973 stock of plants in industry “i” between 1973-81 X3: Percentage of total employment in industry “i” located in plants employing over 200 persons in 1973 X4: Median employment size of new indigenous single plant firms in industry “i” at end of first year X5: Median age of the 1973 stock of plants in industry “i” X6: Percentage of total employment in industry “i” controlled by multi-plant firms in 1973 X7: Percentage of plants in county “j” employing fewer than twenty persons in 1973 X8: Rate of change in manufacturing employment in county “j”, 1973-1981 X9: Percentage of manufacturing employment in county “j” concentrated into plants employing over 200 persons in 1973 X10: Percentage of employment in county “j” living in towns of over 5,000 population, 1971 X11: Percentage of employment in county “j” in commerce, retailing and wholesaling, 1971 X12: Percentage of population of county “j” living in towns of over 5,000 population, 1971 X13: Percentage of manufacturing employment in county “j” employed in indigenous single plant firms, 1973

		X14: Median age of 1973 stock of plants in county “j.”
	RESULTS	Irish new firm formation rates at industry level are related to: The size configuration of each industry (X1), The age of the existing plant firm (X5), and The extent to which employment is controlled by multi-plants (X6) Spatial variations in entry rates are related to: The proportion of small plants/firms in an area (X7), The degree of urbanization (X12), and The rate of manufacturing employment change(X8)

REFERENCE 115		
Okamuro, H. (2007). How different are the regional factors of high-tech and low-tech start-ups? Evidence from Japanese manufacturing industries. International Entrepreneurship Management Journal. doi:10.1007/s11365-007-0062z.	OBJECTIVE/S	To analyze regional determinants of the start-up ratio in the Japanese manufacturing sector of 235 industrial districts.
	METHODOLOGY	Ordinary Least Squares (OLS) regression of gross start-up ratio of manufacturing plants from 1998 to 2000 on various regional factors; Distinction is made between high-tech (HT) and low-tech (LT) industries.
	DV/S	The number of start-ups per 10,000 labor force
	IV/S	1) Gross profit ratio (price-cost margin) of the manufacturing sector (MS) 2) Growth of the total shipment of MS 3) Average wage of MS 4) Unit land price in industrial estates 5) Unemployment ratio 6) Ratio of university graduates 7) Number of research institutes relative to the number of manufacturing plants 8) Business density 9) Degree of manufacturing industries / Industry specialization

		10) Ratio of manufacturing industries 11) Ratio of high-tech manufacturing 12) Average size (number of employees) of existing establishments.
	RESULTS	Start-up ratio of all manufacturing plants is significant higher in regions characterized by low ratio of university graduates (6), high unemployment ratio (5), high business density (8), high ratio of employees in the manufacturing sector (9) and small average business size (12). All others IV (1-4, 7, 10 & 11) were not significant. IVs 1 and 2 not significant with both LT and HT; IV 3 shows a strong negative effect on both LT and HT, except when controlling for IV 12; IVs 4 and 9 never show any significant effect; IV 5 is positive and significant only in LT; IV 6 is negative and significant only in LT; IV 7 is positive and significant only in HT; IVs 8, 10 and 11 reveal positive and significant effects in both LT and HT; IV 11 is positive and significant in HT and negative and significant in LT

REFERENCE 116		
Okamuro, H., & Kobayashi, N. (2006). The impact of regional factors on the start-up ratio in Japan. Journal of Small Business Management, 44(2), 310-313.	OBJECTIVE/S	To analyze the regional determinants of the start-up ratio in Japan in the late 1990s.
	METHODOLOGY	Weighted least square analysis, using the number of establishments in 1996 as the weight, and estimate linear multiple regression models.
	DV/S	Gross start-up ratio of private establishments during 1996-1999.
	IV/S	1) Population growth rate (GRPOP): a demand factor 2) Average wage in manufacturing sector (WAGE): a cost factor 3) Unemployment ratio (UNEMPL): an human resource factor 4) University graduates (UNIV): an human resource factor 5) Employment in professional and technical occupations (EXPERT): an human resource factor 6) Householders (MYHOME): a finance factor 7) Density of establishments (DENS): industry agglomeration and industry structure factor 8) Proportion of manufacturing plants (MRATIO): industry agglomeration and industry structure factor

		9) Average size of establishments (AVESIZE): "other factor" 10) Access to the Shinkansen Express stations (SHINK): "other factor" 11) Access to highway interchanges (HIWAY): "other factor" 12) Ratio of civil servants to the population (CIVSERV): "other factor."
	RESULTS	The results using the municipality sample are as follows (significance values not given): GRPOP: positive and statistically significant WAGE: negative and statistically significant UNEMPL: negative and statistically significant UNIV and EXPERT: positive and statistically significant DENS: positive and statistically significant MRATIO: negative and statistically significant SHINK and HIWAY: positive and statistically significant CIVSERV: negative and statistically significant The results using the economic area sample are as follows (significance values not given): WAGE: negative and statistically significant UNEMPL: negative and statistically significant UNIV and EXPERT: positive and statistically significant MRATIO: negative and statistically significant

		CIVSERV: negative and statistically significant

REFERENCE 117		
Okamuro, H., & Kobayashi, N. (2007). Determinants of regional variations in the start-up ratio: Evidence from Japan (No. Unknown). Tokyo, JP: Hitotsubashi University, Graduate School of Economics.	OBJECTIVE/S	To analyze the regional determinants of regional start-up ratio variations in Japan in the latter half of the 1990s.
	METHODOLOGY	Weighted least square (WLS) and the ordinary least square (OLS) analyses, using a linear multiple regression model with the start-up ratio as the dependent variable.
	DV/S	Start-up ratio (STARTR), using Municipality Level Data and Economic Area Data – the difference is that Economic Area Data tends to aggregate some of the municipalities data.
	IV/S	Rate of population growth (GRPOP) Average wage in manufacturing (WAGE) Unemployment ratio (UNEMPL) Ratio of university graduates to the population older than 15 years old (UNIV) Ratio of employment in professional and technical occupations to the total number of employment (EXPERT) Ratio of households with own housings (MYHOME) Business density: number of establishments per km2 (DENS) Share of manufacturing plants to total number of establishments (MRATIO) Average establishment size by number of

		employees (AVESIZE) Dummy for Shinkansen Express railway access (SHINK) Dummy for highway access (HIWAY) Log of public expenditures per capita (PUBEXP) Number of local civil servants pr 100 inhabitants (CIVSERV).
	RESULTS	Results using Economic Area Data and STARTR as the dependent variable (Note: a total of eight different models were presented, but no explanation of their difference was stated, so only the results of the first model, “Model 1,” is presented here) WLS estimation: Significant at p = 0.01: WAGE, UNEMPL, UNIV, MRATIO and AVESIZE Significant at p = 0.05: DENS Significant at p = 0.10: CIVSERV OLS estimation: Significant at p = 0.01: WAGE, MYHOME, MRATIO and AVESIZE Significant at p = 0.05: UNEMPL and UNIV

REFERENCE 118		
Pages, E. R., Freedman, D., & Von Bargen, P. (2001). What makes a region entrepreneurial? (No. DoTaRS). New York: Regional Business Development Literature Review, SGS Economics and Planning Pty Ltd.	OBJECTIVE/S	To summarize the findings of an inquire into “what policies are needed to help create more entrepreneurs and what will ensure that more entrepreneurs succeed
	METHODOLOGY	Interviews of over 250 entrepreneurs – from urban and suburban areas and most had tried to start more than one business – 18 focus groups with people from across the U.S.
	DV/S	Generally the entrepreneurs were asked “what are the key differences between regions that nurture entrepreneurs and those where the environment is less supportive”
	IV/S	N/A
	RESULTS	Diversity in sources of capital Enabling culture Strong local networks Supportive infrastructure Entrepreneurs-friendly government

REFERENCE 119		
Pages, E. R., & Poole, K. (2003). Understanding entrepreneurship promotion as an economic development strategy: A three-state survey (No. January 2003). Washington, DC: Joint Project, National Commission on Entrepreneurship and Center for Regional Economic Competitiveness.	OBJECTIVE/S	1) To better understand the current state of entrepreneurial development policy 2) To assess the overall return on investment from such programs.
	METHODOLOGY	Survey of entrepreneurial development programs in three states: Maine, Nevada and Pennsylvania (a test sample): a total of 518 economic development organizations, from which 238 were included in the survey; received 97 useable surveys back (41 percent).
	DV/S	N/A
	IV/S	N/A
	RESULTS	Among many of the findings derived from the survey, the following is related to attracting new companies and encouraging entrepreneurial development. The following are program goals by the states surveyed (overall ranking): 1) Local economic base diversification 2) High wage/skilled jobs 3) Competitiveness of the region 4) Expansion of tax base 5) Technology commercialization 6) Self-employment opportunities

		7) Global visibility of the region 8) Employment opportunities for lower- or semi-skilled workers 9) Support research and development 10) Business ownership for target populations

REFERENCE 120		
Peake, W. O., & Marshall, M. I. (2007). Getting the most bang for the buck: An analysis of states' relative efficiencies in promoting the birth of small firms (No. 290). Washington, DC: U.S. Small Business Administration, Office of Advocacy.	OBJECTIVE/S	To evaluate the impact of various state government expenditures on business births from 1999 to 2002 (for the 48 contiguous sates).
	METHODOLOGY	Regression analyses and non-parametric efficiency testing.
	DV/S	Birth of small firms.
	IV/S	1) Education 2) Health 3) Highways 4) Police 5) Natural Resources 6) Parks and recreation.
	RESULTS	No Fixed Effects IVs 3, 4 and 5 sig)at 0.01 level IV 6 sig at 0.05 level With Robust Standard Errors IVs 1, 3 and 4 sig at 0.01 level IV 5 sig at 0.05 level Time Fixed Effects IVs 1, 3 and 4 sig at 0.01 level IV 5 sig at 0.05 level Also… states ranked by average efficiency index 1999 to 2002; the top three and bottom

		three are CA, NY, FL and ND, NM, and WV

REFERENCE 121	OBJECTIVE/S	To perform statistical tests on measures of business climate, explicit on the treatment of tax and non-tax variables, both of which may affect business climate (of state manufacturing growth). Industrial growth measured as: 1) Percentage change in real manufacturing value-added, 2) Percentage change in manufacturing employment, and 3) Percentage change in real manufacturing capital stock.
Plaut, T. R., & Pluta, J. E. (1983). Business climate, taxes and expenditures, and state industrial growth in the United States. Southern Economic Journal, 50(1), 99-119.		
	METHODOLOGY	Correlation of business climate rankings and measures of overall, capital-intensive, and labor-intensive industrial growth, and Multiple regressions are related to the three methods of industrial growth – the model is the disequilibrium-adjustment model.
	DV/S	Related the three measures of industrial growth.
	IV/S	1) Market accessibility: measured by the ratio of personal income potential (PIP) to manufacturing value-added potential (VAP) 2) Cost and availability of capital: money capital assumed to flow freely between regions

		3) Labor cost, availability, activity, and productivity: four variables – cost measured by the average hourly wage rate in manufacturing; availability measured by the unemployment rage; activity measured by presence of unions and by a principal component index (percentage of working time lost due to work stoppages, percent of work force unionized, and a right to work state dummy variable); productivity measured by a principal components index 4) Energy cost and availability: measured by a principal components index (cost per BTU of fuels and power used in manufacturing and the ratio of energy production to consumption in the state) 5) Cost and availability of land and raw materials: measured by a principal components index of the value of agricultural land and buildings per acre and population density) 6) Climate and the environment: measured by two principal components indices of average annual temperature, percentage of possible sunshine, percentage of months with the average maximum temperature exceeding 80 degrees F, or with the average minimum temperature less than 65 degrees F, and the average annual precipitation rate; this IV delineate two climatic zones: semi-arid, variable temperature climate of the west and the hot, humid climate of the southeast 7) Business Climate, state and local taxes and government expenditures: measure by two variables. Business climate measured by a principal components index of the FANTUS and COSMA (Conference of State Manufacturers) business climate rankings; State and local tax effort measured by total state and local taxes as a percentage of

		revenue capacity (or potential yield). The relative burden of state and local taxes on business and households is measured by four variables: 1) Corporate taxes, 2) Principal components index of state personal income and marginal state personal income tax rate, 3) Sales tax, and 4) Property tax. Note: The three measures of industrial growth are related to the 18 IVs using pooled state data for the periods 1967-72 and 1972-77.
	RESULTS	Significant Results: Market Accessibility: PIP/VAP: positively related to both % Δ Employment and % Δ Real Capital Stock (both at 10% significance level) Labor: Wage rate: positively related to both % Δ Employment (5% significance level) and % Δ Real Capital Stock (10% significance level) Unemployment rate: positively related to both % Δ Real Value Added (5% significance level) and % Δ Employment (1% significance level) Union activity: negatively related to both % Δ Real Value Added (1% significance level) and % Δ Employment (1% significance level) Inherent productivity: negatively related to % Δ Real Capital Stock (5% significance level) Energy: High price-low availability: positively related to % Δ Real Value Added (1% significance level)

		HP-LA x 1972 dummy: negatively related to both % Δ Real Value Added and % Δ Real Capital Stock (both at 1% significance level) Land: High price-low availability: negatively related to both % Δ Real Value Added (10% significance level) and % Δ Real Capital Stock (5% significance level) Climate: Semi-arid-variable-Western: positively related to both % Δ Real Value Added (5% significance level) and % Δ Employment (1% significance level) Business Climate, Taxes & Government Expenditures: Business Climate: negatively related to both % Δ Employment and % Δ Real Capital Stock (both at 1% significance level) Tax effort: negatively related to % Δ Employment (1% significance level) Property tax: positively related to % Δ Real Value Added, % Δ Employment, and % Δ Real Capital Stock (all three at 1% significance level) Total-education expenditures: positively related to both % Δ Real Value Added (10% significance level) and % Δ Employment (5% significance level)

		Welfare Expenditures: positively related to % Δ Real Capital Stock (1% significance level) And… 1972 dummy: positively related to % Δ Employment (1% significance level) F for Pooling: positively related to % Δ Real Value Added (5% significance level), % Δ Employment (10% significance level), and % Δ Real Capital Stock (10% significance level).

REFERENCE 122		
Porter, M. (1998). Clusters and the new economics of competition. Harvard Business Review, November-December, 77-90.	OBJECTIVE/S	In this essay, Michael Porter explains how clusters foster high levels of productivity and innovation and lays out the implications for competitive strategy and economic policy.
	METHODOLOGY	N/A
	DV/S	N/A
	IV/S	N/A
	RESULTS	Porter explains how clusters affect competition in three broad ways: 1. By increasing the productivity of companies based in the area; 2. By driving the direction and pace of innovation; 3. By stimulating the formation of new businesses within the cluster.

REFERENCE 123		
Rasker, R., & Hansen, A. (2000). Natural amenities and population growth in the Greater Yellowstone region. Human Ecology Review, 7(2), 30-40.	OBJECTIVE/S	To test the relative influence of ecological, amenity, social, and economic variables on rural population growth – using the states of Idaho, Montana, and Wyoming, and the Greater Yellowstone Region as examples.
	METHODOLOGY	Overall method to test first whether ecological, or amenity variables explain variation in population growth, and if they do, how they compare to the explanatory power of social and economic variables. Correlation matrix was developed to determine which variables explain variation among county population growth rates. Based on the results of which variables are correlated with population growth, a linear regression best-fit regression model (backward elimination technique) was developed for the Greater Yellowstone Region that incorporates all of the statistically significant variables at the 95 percent and 99 percent confidence levels).
	DV/S	Rural (percent) population growth – using the states of Idaho, Montana, and Wyoming, and the Greater Yellowstone Region – 1970 to 1997 Metropolitan counties (Beale Code definitions): 0 = Central counties of metropolitan areas 1 = Fringe counties of metropolitan areas of 1 million population or more 2 = Counties in metropolitan areas of 250,000 – 1,000,000 population

		3 = Counties in metropolitan areas of less than 250,000 population Non-metropolitan counties: 4 Urban population of 20,000 or more, adjacent to a metropolitan area 5 Urban population of 20,000 or more, not adjacent to a metropolitan area 6 Urban population of 2,500 – 19,999, adjacent to a metropolitan area 7 Urban population of 2,500 – 19,999, not adjacent to a metropolitan area 8 Completely rural (no places with a population of 2,500 or more) adjacent to a metropolitan area 9 Completely rural (no places with a population of 2,500 or more) not adjacent to a metropolitan area.
	IV/S	Ecological variables: IV1 = Percent in forest cover IV2 = Total length of streams IV3 = Percent of area in lakes IV4 = Standard deviation of elevation (topography) IV5 = Annual minimum precipitation (1961-1990) IV6 = Annual maximum precipitation (1961-1990) IV7 = Annual mean precipitation (1961-1990) IV8 = Annual mean temperature

		IV9 = Percent in nature preserves (congressional designated wilderness, National Park, or wildlife refuge) Social variables: IV10 = Percent of population over 18 years old with a college degree, 1990 IV11 = Number of colleges and universities in the county IV12 Serious crimes known to police per 100,000 in 1991 Economic variables: IV13 = Counties where over 15 percent of personal income is earned in producer services in 1995 IV14 = Percent of total employment in business services,1995 IV15 = Community hospital beds per 100,000 in 1991 IV16 = Percent of total employment in hotels and lodging, 1995 IV17 = Percent of total employment in real estate IV18 = Percent of total employment in health services IV19 = Access to airport.
	RESULTS	Population growth in the rural counties of Idaho, Montana, and Wyoming is significantly correlated with IVs 1 (0.01 level), 4 (0.05 level), 6 (0.05 level), and 9 (0.01 level)

		Population growth in the rural counties of Greater Yellowstone Region is significantly correlated with IVs 1 (0.05 level), 5 (0.05 level), 7 (0.05 level), 9 (0.06 level), 10 (0.01 level), 13 (0.01 level), and 14 (0.01 level) The model with the best fit – rural counties of the Greater Yellowstone Growth - (with the highest adjusted R-square value at 0.743 and a confidence level of over 99 percent), have the following variables: IV4, IV5, IV10, and IV19.

REFERENCE 124		
Reynolds, P. D. (2007). Business creation in the United States: A PSED I overview. Hanover, NH: Now Publishers.	OBJECTIVE/S	A U.S. Panel Study of Entrepreneurship Dynamics (PSED) to assess firm creation process.
	METHODOLOGY	Started by screening 64,000 U.S. adults followed by four two-phase interviews spread over a five year period. Analysis began with 75 factors (that may affect the decision of adults to create of new business. Eventually, over 130 factors were explored. The study focused on understanding how 200 nascent entrepreneurs that started businesses were different from the 468 who quit or still continuing working on starting a business.
	DV/S	Main DV: New firm (Nascent entrepreneurs reporting a new firm a any time before the end of six years) Secondary DV: Active SU (those nascent entrepreneurs reporting disengagement from the effort any at time the end of six years or, by default, are considered to be still active in the start-up effort).
	IV/S	Firm creation -- Sig at 0.05 level (SIG) and not significant (NS): Socio-demographic factors: SIG: Ethnicity NS: Gender, Age, at entry the start-up, Age

		gender interaction (subgroups), Education attainment, parents owned a business, Worked for parents business, encourage by friends and family, impression of business ownership from friends and relatives, Years lived in county, Years lived in state, and Born outside the United States Current social, work life context factors: SIG: Satisfied with life overall and Time use reports-hours on start-up NS: Satisfied with recent job, household income, household net worth, marital status, Household structure, and Household size Personal traits, orientation, and attitudes factors: SIG: Locus of control, Confidence in social settings, Cognitive style (doing better, not different things), Economic sophistication (focus on current value in decisions, not cost to acquire), Prefers individual work activities, and Expect firm to be operating in five years NS: Emotional Control, Shyness, Business Problem Solving, Defining problem complexity, Economic sophistication (ignore sunk costs in current decisions), Prefers challenge/task focus versus social focus, Emphasis on high payoff/high risk choices, Emphasis on high personal impact choices, In choosing between firms emphasize financial issues and operational issues, Career motivations (six dimensions), Entrepreneurial expectations, Entrepreneurial Intensity, Sales in first of fifth year of operation, Jobs in first or fifth year of operation, Prefer firm to grow as much as possible, Expect firm to major source of household income, Expected equity ownership in five years, Perception of work demands (three measures), Motivation/Business idea sequence, Belief in systematic search of good ideas, and Belief good ideas just occur

		Business Background and Experience: SIG: Years of full-time paid experience, Years of administrative or supervisory and/or managerial experience, Labor force activity in prior 12 years (less activity as one who is unemployed seeking work and/or unpaid volunteer work), Same industry experience, General management work experience, Operations management work experience, Human relations and finance classes (at 0.07 sig level) NS: Labor force activity in prior 12 years (overall activity counts and nine specific activities), Prior start-up experience, General management classes, and Operational management classes Perceived business and economic context: SIG: start-up problems (social challenges), Economic and community contextual uncertainty (operational aspects more challenging) NS: Start-up problem index, Start-up problems (personal challenges), Entrepreneurial climate (three dimensions), and Economic and community contextual uncertainty (overall, financial, and competition) Business activity, context, and start-up investments factors: SIG: Total start-up team hours, conception to first interview; Average hours per start-up team member, conception to first interview; Average total hours per month, conception to first interview; Average hours per month per team member, conception to first interview; Total funds invested at first interview; Average funds per month per team member, conception to first interview; Average funds per member at first interview; Average funds per month, conception to first interview; Legal form (partnership less successful); Proportion

		legal new firm ownership (if over 50% institutional ownership); Size of start-up team (four person team less successful) – sig at 0.09 level; Any contact with helping programs; Business plan sophistication; Competitive strategy (High technology); Low technology emphasis – sig at 0.08 level NS: Economic sector (five types); Type of location; Number of programs known about; Number of programs contacted; Nature of helping programs; Hours spent receiving program assistance; Value of help provided (estimated); Accounting sophistication; Competitive strategy (new, quality products; lower prices; superior location, convenience; niche market; superior quality); Social network (presence reported and average number of persons) Ambient community factors: SIG: Population density, persons per square mile (low density, more new firms); Urbanization index, four items (least urbanized, more new firms) NS: per capita income total personal income; percent households with annual income of $75,000 or more; Percent population 25-44 years old; Percent population 25 years and older with college degrees; and Average annual population growth.
	RESULTS	Factors associated with entry into start-ups and new firm creation Factors affecting entry into a start-up -- Primary factors: Age Gender Current work activity Ethnic background Factors affecting entry into a start-up -- Secondary factors:

		Household Income Household net worth Recent community population growth Extent, intensity of management training and administrative experience Positive impressions, encouragement from friends and family Strong commitment and expectations from an entrepreneurial career option Factors affecting new firm creation -- Primary factors: Start-up activity to produce a good or service Start-up activity to develop a presence for the new firm Measures of business experience, particularly in the same industry Start-up activity to create a financial and organizational structure Start-up team financial commitments Concentration of resources (time, money) and speedy completion of start-up activities Factors affecting new firm creation -- Secondary factors: Presence in a less urbanized, more rural area Personal traits: 1. Locus of control, 2. Try to do better, not different, 3. Economic sophistication, and 4. Social confidence Ethic background

REFERENCE 125		
Reynolds, P. D., & Curtin, R. T. (2008). Business creation in the United States in 2006: Panel study of entrepreneurial dynamics II initial report. Boston, MA: Now Publications.	OBJECTIVE/S	Business Creation in the United States presents the results of PSED II and is designed to provide an introductory overview to the research project and describe the major results. The project is designed to replicate, with appropriate methodological improvements, PSED I. The report is designed to provide an introductory overview to the research project and describe the major results. The focus is on the most basic features of the process.
	METHODOLOGY	The design of the two projects (PSED I and II) is very similar and consists of three phases. The initial phase is the use of commercial survey firms to interview a representative sample of adults to identify those active in the firm creation process. About 87% of those identified as active nascent entrepreneurs agreed to participate in the study. The second phase, comprised of a detailed (60 minute) phone interview – about 60% completed the second phase. The third phase involves follow-up contacts to determine the results of their efforts to create a new firm. The dates of initial screening and detailed interview number 1 – for PSED I was July 1998 to January 2000; for PSED II was October 2005 to January 2006. PSED II study was underway at the time of the book publication – thus results are minimal and general.

	DV/S	Main DV: New firm (Nascent entrepreneurs reporting a new firm a any time before the end of six years) Secondary DV: Active SU (those nascent entrepreneurs reporting disengagement from the effort any at time the end of six years or, by default, are considered to be still active in the start-up effort).
	IV/S	Please see PSED I and the Objectives of this book
	RESULTS	Preliminary summary of results: Introduction PSED I study was based on a cohort identified in 1999 and as followed with annual interviews for three years. PSED II began in 2005 with the selection of a cohort of 1,214 nascent entrepreneurs chosen from a representative sample of 31,845 adults. The first 12 month follow-up interviews were completed with 80% of the original cohort. Preliminary results: The prevalence rates and the major features of nascent entrepreneurs and nascent enterprises are very similar for the PSED I and II cohorts. Men were about twice as active as women in entering the start-up process, participation is greatest among those 25-44 years of age, and African Americans and Hispanics are considerably more involved than Whites. Educational attainment and household income had modest effects for all but women; women in low income households with little education are much less likely to have initiated a new firm. Overall, the individuals

		who were active in the start-up process tended to be in mid-career and heavily involved in work for pay. Nascent enterprises are represented in all economic sectors, with a slight emphasis on business services and retail firms. Start-up teams were associated with half of these efforts and teams with no family relationships represent about 20%. Most were independent start-ups, but 20% had some sponsorship by an existing business. At the time of the first detailed interview (2005), the typical nascent enterprise absorbed about 1,500 hours and $10,000 in personal finances from the start-up team. About 6% of the nascent enterprises are designed for a high growth trajectory; almost half expected to be a small scale initiative (self-employment). Those positioned for high growth were associated with larger, non-family teams, substantially more sweat equity and financial support, and reported more activities related to implementation of the new firm. A preliminary assessment of the outcome status of the 2005 cohort indicated that after 12 months 12% reported an operational new firm, 20% had disengaged, and 68% are continuing to work on the start-up. About 10 billion hours and $70 billion of personal funds were invested in 7.4 million nascent enterprises; about half of the sweat equity and personal financial support is associated with nascent enterprises that do not become operating businesses. Other results indicate that prior experience and an appropriate strategy are critical for completing a new firm birth; personal attributes, motivations, and contexts seem to

		have minimal effect

REFERENCE 126	OBJECTIVE/S	To analyze the effect of fifteen different aspects of the immediate context of the regional variation in the annuals birth rate (per 10,000 residents) of new business organizations – encompassing all private business organizations in the entire United States covering virtually all industry sectors over 6 two-year periods, 1976-88
Reynolds, P. D., Miller, B., & Maki, W. R. (1995). Explaining regional variation in business births and deaths: U.S. 1976-88. Small Business Economics, 7(5), 389-407.	METHODOLOGY	A number of linear models were developed with the LISREL procedure
	DV/S	Regional variation in business births and deaths: U.S. 1976-88
	IV/S	Note: Detailed description of variables too lengthy for this venue – please refer to article for further information Unemployment: Annual unemployment rate Transfer payments3 as percentage of total personal income Career opportunity: Percent population age 35-44 Percent some college Percent college degree Percent managers Percent professionals Percent technical occupations Industry mix: Pet work force: Construction

		Pet work force: Retail Pet work force: Consumer services Pet work force: Services Pet establishments: Construction Pet establishment: Consumer services Costs of factors of production: Business tax/worker Local government revenue/capita Local government debt/capita Earned income/worker Availability of production factors: Per capita demand deposits Per cap savings deposits Percent with HS Diploma only Percent adults age 1 5-64 Sales workers per square mile Clerical workers per square mile Service workers per square mile Skilled craftsmen per square mile Machine operators per square mile Transport operatives per square mi Laborers per square mile Efficient public infrastructure: Per capita gov't exp: Education Per capita gov't exp: Highways Per capita gov't exp: Welfare Per capita gov't exp: Police Access to customers, clients: Population/square mile Establishments/square mile Knowledge, R&D base: Post college/ 1 ,000 sq miles Professionals and technical employees/ 1,000 square miles Patents granted/1, 000 square mile Doctorates granted/ 1,000 sq miles

		Personal wealth: Personal income per capita Income per household Dividend, interest, + rent per capita Social status diversity: Educational diversity index0 Household income diversity index* Population growth: Ten year population change Percent living in same county five years earlier Percent in migration Size of economic base: Total population Total labor force Total establishments Economic diversity Establishment/employees: Establishment/employees Occupational diversity index National transportation access: Total population Total labor force Total establishments Flexible employment policies: Total population Total labor force Total establishments
	RESULTS	Note: Complex results due to the complex methodology – please refer to article for further information

		Headings: Factors, Differences among regions, and Summary of impact Economic diversity: Higher firm birth rates in more diverse economic systems; Major Firm births, Major Firm deaths, Major Volatility Career opportunity: More firm births where more mid-career, experienced adults reside; Major Firm births, Major Firm deaths (long term), Major Volatility (long term) Volatile industries: More firm births where volatile industries more prevalent; Major Firm births, Major Firm deaths (long term), Major Volatility (long term) Greater personal wealth: More firm births where greater personal wealth is present; Major Firm births, Major Firm deaths, Major Volatility (long term) Employment policy flexibility: More firm births in contexts with greater employment Flexibility; Major Firm births, None Firm deaths, Strong Volatility (long term) Population growth: More firm births in regions with more population growth; Strong Firm births (short), Strong Firm deaths (short), Strong Volatility (short term) Unemployment, desperation: More firm births where more unemployment; Minor Firm births, Minor Firm deaths, Minor Volatility (short term) direction reversed Social status diversity: More firm births where there is greater social

		status Diversity; Minor Firm births, Minor Firm deaths, None Volatility Economic system size: Higher firm birth rates in larger economic systems; Minor Firm births, None Firm deaths, Minor Volatility (long term) Factors of production costs: More firm births where input costs are lower; None National transportation access: Higher firm birth rates where access to national transportation is convenient; None Factors of production access: More firm births where factors of production are accessible; None Access to customers, clients: More firm births where access is more convenient; None Efficient public infrastructure: More firm births where public infrastructure better; None Information, R&D Base: More firm births where there is better access to R&D, info, innovation; None

REFERENCE 127	OBJECTIVE/S	This research examines birth rates of new firms by region in France, Germany (West), Italy, Ireland and the United Kingdom. Comparison is also made with similar studies which have been conducted in parallel for Sweden and the United States. Given this background the current study has set out to examine four main issues: 1. Is it possible to compile a relatively consistent data set which would facilitate cross-national comparison of the impact of regional factors on new firm birth rates in advanced market economies? 2. Can we explain why regions in some countries have higher new firm birth rates than others? 3. What contribution has public policy made to raising these new firm birth rates? 4. What lessons are there for public policy from these comparisons?
Reynolds, P. D., Storey, D. J., & Westhead, P. (1994). Cross-national comparisons of the variation in new firm formation rates. Regional Studies, 41(4), 123-136.	METHODOLOGY	Comparative study with regressions and past results of other studies
	DV/S	Firm birth rates (in different countries – see objective for list)
	IV/S	See Results, below
	RESULTS	Regional characteristics and firm births: all economic sectors -- Firm births/year/100 firms (France, Germany, Italy, Sweden, UK, and

		USA) and Firm births/year/10,000 population (France, Germany, Italy, Sweden, UK, and USA); + ^statistically significant positive influence, ( ) marginal significance. - = statistically significant negative influence, ( ) marginal significance. 0 = measure included, not statistically significant. NI—no measure included in the analysis. Demand growth: In-migration/population growth = + + 0 + + + + 0 + + + + Growth in Gross Domestic Product = NI 0 0 + + + NI 0 (-) 0 (+) + Urbanization/agglomeration: Percentage 25-44 years old = 0 0 0 NI NI 0 – 0 0 NI NI 0 Population density = + 0 0 (+) + 0 0 0 + + + 0 Percentage secondary housing = 0 NI NI NI NI NI + NI NI NI NI NI Percentage managers in workforce = NI (+) 0 NI 0 + NI 0 + NI + + Percentage with higher education = - NI 0 0 0 – 0 NI + 0 0 - Unemployment: Unemployment level = + + 0 0 0 + + 0 - + 0 + Change in unemployment = 0 + - - 0 0 0 + - - 0 0 Personal, household wealth: Household income = 0 NI 0 NI 0 NI 0 NI 0 NI 0 NI

		Percentage owner-occupied dwellings = + 0 - - 0 0 – 0 (-) 0 0 0 Dwelling prices = NI NI 0 NI + + NI NI 0 NI + + Land prices = NI 0 NI NI NI NI NI 0 NI NI NI NI Small firms/economic specialization: Proportion autonomous workers = NI NI 0 NI NI NI NI NI + NI NI NI Proportion small firms = + + 0 (-) – 0 + + 0 + + + Industry specialization index = 0 0 0 NI NI + + 0 (+) NI NI 0 Political ethos: Socialist voters = 0 NI 0 0 + NI 0 NI + 0 - NI Government spending/policies: Local government expenditures = NI 0 NI NI 0 – NI 0 NI NI 0 - Government assistance programmes = NI NI 0 0 0 NI NI NI (-) 0 0 NI Regional characteristics and firm births: manufacturing only -- Firm births/year/100 firms (France, Germany, Italy, Sweden, UK, and USA) and Firm births/year/10,000 population (France, Germany, Italy, Sweden, UK, and USA); + ^statistically significant positive influence, ( ) marginal significance. - = statistically significant negative influence, ( ) marginal significance. 0 = measure included, not statistically significant. NI—no measure included in the analysis.

		Demand growth: In-migration/population growth = + 0 0 0 + + 0 (-) (+) + + + Growth in Gross Domestic Product = NI 0 0 0 0 0 0 + 0 0 0 - Urbanization/agglomeration: Percentage 25-44 years old = 0 NI NI 0 NI 0 0 NI 0 NI NI - Population density = 0 + 0 0 + - + - (+) 0 + - Percentage secondary housing = 0 NI NI NI NI NI NI NI NI NI NI NI Percentage managers in workforce = NI 0 (+) 0 0 + 0 + 0 NI + + Percentage with higher education = - NI 0 0 0 0 NI – 0 0 0 0 Unemployment: Unemployment level = + 0 0 0 0 + - 0 (-) 0 0 0 Change in unemployment = 0 0 0 0 - - 0 0 0 0 0 - Personal, household wealth: Household income = 0 NI NI 0 0 NI NI NI 0 NI 0 NI Percentage owner-occupied dwellings = + 0 0 0 0 0 0 0 0 0 0 0 Dwelling prices = NI NI 0 0 0 + NI 0 0 NI 0 + Land prices = NI – NI NI NI NI 0 NI NI NI NI NI

		Small firms/economic specialization: Proportion autonomous workers = NI NI NI + NI NI NI NI (+) NI NI NI Proportion small firms = 0 0 0 0 + + + + + + + + Industry specialization index = + 0 0 0 NI + 0 0 + NI NI 0 Political ethos: Socialist voters = 0 NI NI 0 + NI NI NI 0 + (-) NI Government spending/policies: Local government expenditures = NI 0 NI NI 0 – 0 NI NI NI 0 0 Government assistance programmes = NI NI + 0 0 NI NI + 0 0 0 NI Overview of major results – Process included and All Economic Sectors Manufacturing Only; () = Indicates the number of countries where one or more indicators of the process could be included. 1. Demand growth = Positive (6), Positive (6) 2. Urbanization/agglomeration = Positive (6), Positive (5) 3. Unemployment = Positive (4), Mixed (5) 4. Personal, household wealth = Positive (3), None (4) 5. Small firms/specialization = Positive (6), Positive (7)

		6. Political ethos = Positive (2), Positive (2) 7. Government spending/policies = None (4), Positive (1)

REFERENCE 128		
Salvaneschi, L., & Akin, C. (1996). Location, location, location: How to select the best site for your business. Grants Pass, OR: Oasis Press/PSI Research.	OBJECTIVE/S	The author describes how to systematically go about researching for the right information as well as analyzing it. The book is written in a down to earth manner and is very easy to follow. It is comprehensive and contains several worksheets/surveys to aid the nascent entrepreneur finding a business location.
	METHODOLOGY	The basic premise of this book is based on the relationship between two things: location and market. The book explains how to: - Spot the essential characteristics of the best location - Understand why and how people move from one point to another and how this movement affects their retail business - Analyze and learn from your competitor's business so you can make your store a better shopping option - Use the concept of the analogue store to successfully project your store's sales - Learn about the retail trading zone and how to use it to capture the most customers.
	DV/S	N/A
	IV/S	N/A
	RESULTS	Use the following worksheets and instructions along with others to help through the site

		selection process: Retail Trade Zone Survey and instructions Long-Range Store Development Plan and instructions Real Estate and Construction Checklist and instructions Analogue Rating Score Sheet Hourly Sales Analysis Worksheet Success Model Worksheet

REFERENCE 129		
Salvesen, D., & Renski, H. (2003). The importance of quality of life in the location decisions of new economy firms (No. Reviews of Economic Development Literature and Practice No. 15). Washington, DC: U.S. Economic Development Administration.	OBJECTIVE/S	1) Review of literature on business location, focusing specifically on the links between location decisions and quality of life, and 2) A pilot study on business location decisions in the Raleigh-Durham-Chapel Hill (Triangle) region of North Carolina
	METHODOLOGY	Literature review and the pilot study included interviews with ten firms that recently located to the Triangle region. Survey questions: 1. How long has your firm been in its current location? 2. Were you involved in making the decision to move the firm to the Triangle? 3. What were the three main reasons why your firm chose to locate in the Triangle? 4. How important was quality of life in your firm's site selection process? 5. How does quality of life compare to other factors that were considered in your firm's decision to locate in the Triangle? 6. What does quality of life mean to you?
	DV/S	N/A
	IV/S	N/A

	RESULTS	Responses: None of the respondents cited quality of life as being the most important factor in their business location decision. Several firms stated that quality of life was one of several important factors, including cost of land and the quality and cost of labor. "It's not just one thing," stated one respondent, "it's the mix." Another respondent stated that "Quality of life wasn't the most important factor, but if it [the Triangle] was a dump, we wouldn't have come here." Other location factors cited as important include proximity to an international airport, a hospital system, universities, and to cultural and recreational opportunities. "We needed to be near an international airport and major highways, but access to restaurants, art, music, and entertainment was also important." According to another respondent, "Sure, quality of life was important, but it wasn't our only consideration. We also wanted to be near a major university and an airport with reasonable airfares." Two firms stated that while quality of life was not the most important factor in deciding where to locate the firm, quality of life factors had become important in attracting and retaining good employees. The meaning of quality of life varied among respondents. To some, quality of life meant a safe environment, mild climate, short commutes and low cost of living relative to income. To others, it meant access to cultural, recreational and professional opportunities. A number of traditional factors in business location theory were also mentioned as important. Two respondents indicated that they had initially located in the area because a

		local university has a program that makes space available at below market rates. One, however, indicated that the cost of space was greater in the Raleigh-Durham-Chapel Hill area than elsewhere, but they came to the Triangle anyway because of access to a high quality work force. Two of the respondents stated that being near the founder's home was important in choosing to locate in this area.

REFERENCE 130		
Schmenner, R. W. (1978). Look beyond the obvious in plant location. Harvard Business Review, 57(1), 126-132.	OBJECTIVE/S	This article outlines what the typical company ought to think about before calling in the location consultants. It draws on extensive interviews and research centering on manufacturing companies with operations in either Cincinnati or New England. Author interviewed more than 30 companies. In addition, more than 1,000 plants in the two locales completed detailed questionnaires that asked about present operations and recent history and that captured many features of the plants' production, marketing, purchasing, and financial characteristics. Of these plants, over 200 had recently relocated, and the author gathered data about their former as well as their present locations and about the differences between them. More than 150 of the plants were new, and most were new branch plants. In addition, more than 120 corporate headquarters filled out surveys about their location decision making
	METHODOLOGY	Evaluation of business cases
	DV/S	N/A
	IV/S	N/A
	RESULTS	Overwhelmingly, it is the small, growing plants, often independent of particular suppliers, markets, or labor sources and pressed for more production space, that move to larger, modern quarters and in the

process alter their production technology, sometimes in fundamental ways. The vast majority of relocations are over short distances (less than 2,0 miles), which helps to ensure continuity of labor force and retention of customer and supplier contacts.

To a lesser degree, relocations also occur to consolidate two or more plants into a single new facility and to escape from high site costs (wages, land values, taxes). It is the plants whose profits are hurting the most that see relocation chiefly as a means of lowering costs. These plants are also the ones most likely to move distances of greater than 20 miles in search of these lower costs.

Once a company has decided on a multi-plant manufacturing strategy and on plant size. site selection follows. The multi-plant strategy can frequently imply a lot about the choice of region. For example, clustering of plants in a particular region is most likely to occur under the process or the general purpose plant strategy and is least likely under the market area or the product-market strategy. The choice of where within a region to locate, however, is sometimes very straightforward and at other times baffling.

The next phase of site selection should be the exploration of the intangible and qualitative features of a location that could be expected to contribute to the company's competitive success. The intangibles can be of many varieties: risks associated with any of the quantitatively evaluated costs or the sales potential of the site; the area's prevailing "business climate" (which means different things to different people but which is a euphemism for long-tem competitiveness); educational and training strengths of the area; attitudes of the work force toward productivity, change, and unionization; the aesthetic and

		cultural attributes of the area (important aspects for attracting and holding managers); the cooperation of the local and he state government for resolving public service or other public matters faced by industry; the commuting distances for workers and managers; and the impact of other, perhaps competitive industry in the area

REFERENCE 131		
Schmenner, R. W. (1994). Service firm location decisions: Some Midwestern evidence. International Journal of Service Industry Management, 5(3), 35-56.	OBJECTIVE/S	This article extends previous research by employing questionnaire responses from individual service operations to shed light on what was in the minds of the operations managers when the location decisions were made
	METHODOLOGY	This study approaches the location decision as an intuitively appealing two-step procedure, that first chooses a "general area" for the service operation, and only then a "particular site". For each step in the decision, influences can be described as being "musts" or "wants". The decision maker is assumed to look first to "musts" and to satisfying them, and then to move on to consider otherwise desirable features, termed "wants", for the location. The questionnaire at the heart of this empirical study was constructed with this framework in mind. First, the influences on the "general area" are listed, and then the influences on the "particular site". For each, "musts" and "wants" can be identified from the list of potential influences provided
	DV/S	Some of the data gathered describe: (1) the individual location's characteristics (size, nature of space, what it is used for and when); (2) characteristics of the location's customers (from where, nature of customization or interaction with them);

		(3) why that service decided to locate where it did (both in the general area and at the particular site)
	IV/S	Descriptive Statistics for the Entire Sample: -Employment -Square footage -Year space first used by company -Year space constructed -Per cent of operations which have always located in vicinity -General office use -Retail use -Warehousing-distribution use -Other use -Per cent where there are similar company sites elsewhere in US --If yes, number of similar sites --If yes, nearest site to here (miles) -Hours per week operation is open -Radius within which half of sales generated (miles) -Per cent of operations self-sufficient, or nearly so -Per cent "feeding" other operations of the company

		-Per cent "fed" by other operations of the company -Capital-labour ratio -Customization given consumers -(1 = personalized ... 5 = very standard) -Interaction with consumers --(1 = little or none ... 5 = extensive) -Local business depends on --(1 = hardly... 5 = heavily) -Open Saturday and/or Sunday? --Saturday only --Both Saturday and Sunday --Not open weekends -Business is mainly a provider of services to: --City-town --Metropolitan or rural area --Part of state --State --Midwest region --Nation or world -Aspects of the specific location: --Downtown in office space --Downtown in non-office space (e.g., retail, wholesale) --Location on main street "strip" --Location on side street --Location in office park --Location in industrial park --Location in shopping centre/mall --Other -Importance of location to the operation: --Site critical --Site not critical but neighbourhood important --Neighbourhood not critical, but side of town is: --Anywhere in metro (or rural) area satisfactory --Anywhere in broad, multi-town area is

		satisfactory --Anywhere in state, or region, is acceptable -Number of alternative sites considered seriously (183 omitted) -Where alternative sites were located (of 584 responding): --Same neighbourhood --Same side of town --Same town --Same metro or rural area --Same part of state --Same state --Same Midwest region --Outside region
	RESULTS	Comparison of Locally-oriented versus regionally-oriented Service Firms: * indicates that the means for that pair are significantly different at the 5 per cent level; All Positive coefficients Category definitions, in sequence: Lone local: "For historical reasons, has this operation always been located in this general vicinity?" = Yes, and "Does the operation at this site resemble other operations of the company elsewhere in the US?" = No Branch operation: "For historical reasons, has this operation always been located in this general vicinity?" = No, and "Does the operation at this site resemble other operations of the company elsewhere in the US?" = Yes Local searcher: seriously considered alternative sites = same neighbourhood, side of town, town, or metropolitan or rural area Statewide searcher: seriously considered

		alternative sites = same part of state, same state, same Midwest region, or outside the region Local seller: radius within which half of sales are drawn is less than or equal to 25 miles Regional seller: radius within which half of sales are drawn is greater than or equal to 100 miles General area influences: Proximity to consumers or buyers = Regional* Labour costs = Statewide*; Regional* Ability to attract qualified labour = Statewide*; Statewide* Labour "climate" = Statewide*; Regional* Attractive place to live = Regional* Good infrastructure (e.g. roads, communication) = Regional* Favourable governmental policies = Statewide* Particular site influences: High customer traffic in the area = Regional* Adequate parking = Regional* Easy commute – managers and owners = Regional* Easy commute –employees = Regional* Favourable governmental policies (zoning, traffic) = Statewide* Favourable taxes here = Regional* General Area Influences by Industry Group: Statistically significant industry groups (at 5 per cent level); Sequence top to bottom on

		each entry: (1) Influence (in order of importance),
		(2) Higher than average, and
		(3) Lower than average
		(1) Good infrastructure (roads, communication, etc.)
		(2) Transportation-warehousing, wholesaling
		(3) Education-social
		(1) Proximity to consumer-buyers
		(2) Auto sales-service Banking Hospitals Retailing Wholesaling
		(3) Education-social Professional Service Utilities
		(1) Ability to attract good labour
		(2) Hospitals Personal-business services
		(3) Retailing Utilities
		(1) Attractive place to live
		(2) Personal-business services
		(1) Low rents, building costs
		(3) Banking Hospitals Utilities
		(1) Favourable taxes

		(2) Auto sales-service Wholesaling (3) Banking Education-social Hospitals Personal-business services (1) Favourable governmental policies (2) Transportation-warehousing (3) Personal business services (1) Proximity to suppliers-services (2) Transportation-warehousing (3) Retailing (1) Labour costs (2) Transportation-warehousing wholesaling (3) Amusement Personal-business services Utilities (1) Labour "climate" (2) Personal-business services Restaurants Wholesaling (3) Amusement Utilities (1) Proximity to competitors (2) Auto sales-service Banking (3) Amusement

		Education-social Personal-business services Utilities Particular Site Influences by Industry Group: Statistically significant industry groups (at 5 per cent level); Sequence top to bottom on each entry: (1) Influence (in order of importance), (2) Higher than average, and (3) Lower than average (1)Adequate parking (2) Restaurant-retailing (3) Construction Wholesaling (1) Attractive building (2) Banking Insurance-real estate (3) Construction Utilities (1) Attractive rent-cost (2) Retailing (3) Banking Construction Hospitals Hotels Utilities (1) Specialized space needs met here (2) Transportation-warehousing

		(3) Retailing (1) Easy commute for employees (2) Professional service (3) Auto sales-service Education-social Hotels (1) High customer traffic in area (2) Auto sales-service Banking Hotels Restaurants Retailing (3) Construction Professional service Utilities Wholesaling (1) Easy commute for managers-owners (2) Professional services (3) Auto sales-service Education-social Hospitals (1) Favourable governmental policies (zoning, traffic, etc.) (2) Restaurants-wholesaling (3) Professional services (1) Favourable taxes at site (2) Auto sales-service wholesaling (3) Hospitals

		Professional Service (1) Proximity to suppliers-services (3) Utilities (1) Proximity to competitors (2) Auto sales-service Banking (3) Amusement Education-social Personal-business services Utilities (1) Being in fully-developed site (2) Wholesaling (3) Construction Insurance-real estate Restaurant Utilities -Particular site within neighbourhood is critical: Space is not used for offices; space is used for retailing Operation is open weekends High customer traffic in the area is viewed as a "must" for the site The operation started there Access to highway transportation is very important -Being in this general neighbourhood is important Location is nearer downtown Proximity to suppliers and business services is viewed as a "must" for the general area choice

		Labour costs are less of a "must" for the general area location choice High customer traffic in the area is viewed as a "must" for the particular site Specialized space needs are a "must" for the particular site The operation did not start here -Being on this side of town is important Service is more standardized Operation has relocated An attractive building is less of a "must" for this particular site Adequate parking is more of a "must" for this particular site The physical appearance of the building is very important Labour costs are less important -Almost anywhere in the metropolitan (or rural) area is satisfactory Operation is not open weekends Labour cost is more of a "must" for the general area location choice High customer traffic in the area is less of a "must" for the general area location choice Proximity to suppliers and business services is less of a "must" for the particular site choice Physical appearance of the site/building is less important -Almost anywhere in a broad multi-town area is satisfactory Operation is not open weekends Location is further from downtown Attractive place to live is more of a "must" for the general area location choice Particular socio-economic groups are less important Auto traffic and parking policy is less important -Anywhere in the state, or even region, is

		acceptable Geographic scope of market served is broader Brief interactions with customers Local business does not depend much on this operation Proximity to suppliers and business services is less of a "must" for the general area location choice Population density is not an important factor

REFERENCE 132	OBJECTIVE/S	To introduce two innovations to plant location studies: (1) division of the decision into stages, and (2) use of plant-specific characteristics to either magnify or temper factors defined at the state level
Schmenner, R. W., Huber, J. C., & Cook, R. L. (1987). Geographic differences and the location of new manufacturing facilities. Journal of Urban Economics, 21(1), 83-104.	METHODOLOGY	Mail surveys -- Three sets of state-specific characteristics that affect the expected profitability of a plant. The first set includes indicators of the cost and availability of inputs. The second set treats government influence, both in the positive sense of benefits and services and in the negative sense of taxes and assessments. Finally, there are state characteristics that are largely geographic or demographic in nature, such as the attractiveness of the climate or the population density
	DV/S	Plant location decision in two stages
	IV/S	IVs are of two kinds: (1) State-specific effects that operate to advance or hinder the expected profitability of locating a plant within a state; (2) Plant-specific characteristics that magnify or temper the state effects (I) Input Costs and Availability: (1) Labor (a) Unionism (Right-to-work state, percentage unionization, percentage of time lost to work stoppage): Plant size —The bigger the plant, the greater

		the target for unionization, and thus the greater the incentive to avoid unions Skill makeup of workforce —The lower the skills needed, the greater the incentive to avoid unionism. If high skills are needed, unionism may be more tolerated Type of process —The more capital-intensive and line flow the process, the less concern about unionism by the plant. Labor is less of a factor in product costs Growth—The swifter the growth, and thus the greater the capacity additions contemplated, the less attractive unionism is for new plants. Unionism feared as an inhibitor of growth Independence of plant—The greater the independence, the less the unionism and the easier it is for the plant to avoid unionism (b) Wage rates (Average wage): Plant size—The bigger the plant, the higher the wage rate that it may be willing to pay. Such plants are part of clearly established companies Skill makeup of workforce—The higher the skills, the higher the wage rate Type of process—The more capital-intensive and line flow the process, the higher the wage rate that the plant may pay. Here labor costs are less of a concern for total costs Growth—The greater the growth, the higher the wage rate that the plant may be willing to pay. Here the plant may pay a premium to attract and hold people, particularly skilled people, who can help it cope with growth.

		Fast-growing companies typically do not concentrate on pinching pennies; they concentrate on delivering the product Independence of plant—The greater the independence, the lower the wage rates sought and the easier it is to avoid high wages (c) Education (Percentage completing high school, vocational education enrollments per production worker): Growth—The greater the growth, the more likely the plant is technologically oriented and thus the higher the skills needed and the education levels sought Type of process—The more capital-intensive and Vine flow the process, the less valued high levels of education are for the direct labor force. Job contents in such processes are often limited Skill makeup of workforce—The higher the skills used, the more concerned for education the plant is (2) Building costs (Building cost index): Plant size—The bigger the plant, the more sensitive to building costs it may be Character of space—The more special purpose the space, the more sensitive to building cost the plant may be (3) Energy costs (Average cost per KWH equivalent): Type of process—The more capital-intensive

		and line flow the process, the more sensitive the plant to energy costs because energy consumption is often greater for such processes Importance of transportation costs—The more important transportation is to the plant, the more sensitive it is to energy costs (II) Government Influences: (4) Tax rates (Corporate income tax rate, state and local property tax revenues per dollar of persona] income, workmens' compensation rate per dollar of payroll): Independence of the plant— The greater the plant's independence and footlooseness, the lower the tax rate and the easier it is to avoid high taxes Plant size— Especially for property taxes, the bigger the plant, the lower the tax rate sought Type of space—The more special purpose, and thus expensive, the space, the lower the tax rate (especially the property tax rate) sought (5) Benefits and expenditures (Average unemployment compensation benefits paid per worker, spending effort defined as state and local spending per dollar of personal income): Independence of the plant— The greater the independence and footlooseness, the higher the benefits sought and the easier it is to seek such benefits

		Plant size—The bigger the plant and its payroll, the higher the benefits sought Type of space—The more special purpose the space and the operation itself, the more insulated the plant from the outside and the lower the benefits enjoyed (III) Geographic/ demographic factors: (6) Mean January temperature (An indication of attractiveness for managers and engineers): Footlooseness and independence of the plant—The more independent the plant, the more attractive warm climates becomeand the easier it is to take advantage of such climates (7) Population density: Importance of the plant to the marketing and distribution effort—The more area-specific marketing and distribution there is, the more important high population density. This is especially true for products produced to forecast or to inventory, and not to customer order
	RESULTS	Notes: Complex results due to the two-stage methodology; individual significance values not provided. First-stage results – choice of States to be considered seriously – Panel A (pure geographic factors only); Panel B (pure + objective factors); Panel C (pure + objectives + subjective factors); calculated sign in parentheses

		Right-to-work (1 = yes)(+)
		Moderated by pursuit of labor-saving investment (-)
		Percentage unionization of workforce (+)
		Moderated by pursuit of labor-saving investment (-)
		Moderated by sentiment of a " favorable labor climate" as a " must" (-)
		Weeks lost to work stoppages (-)
		Average hourly wage (+)
		Moderated by plant employment (-)
		Moderated by pursuit of labor-saving investment (+)
		Moderated by " product plant" strategy (-)
		Percentage of workforce completing high school (-)
		Moderated by new product engineering on site (+)
		Moderated by type of production process (-)
		Moderated by recent growth of sales (+)
		Moderated by pursuit of state labor training program (-)
		Vocational education enrollments per production worker (-)
		Moderated by type of production process (-)
		Building cost index (+)

		Moderated by company owning building (-)
		Energy costs (+)
		Moderated by percentage really " raw" materials (+)
		Corporate tax rate (maximum for state) (+)
		Property tax revenues per dollar of personal income (-)
		Moderated by " product plant" strategy (-)
		Moderated by sentiment for " low taxes" (-)
		Workmen's compensation rates (-)
		Moderated by " product plant" strategy (-)
		Moderated by size of market area (+)
		State and local spending per dollar of personal income (-)
		Moderated by size of market area (+)
		Unemployment compensation benefits (+)
		Moderated by "product plant" strategy (+)
		Moderated by sentiment for "low taxes" (-)
		Mean January temperature (+)
		Moderated by size of market area (+)
		Population density (-)
		Moderated by customer order trigger for production (-)

		Second-stage results – choice of States from among those considered seriously – Panel A (pure geographic factors only); Panel B (pure + objective factors); Panel C (pure + objectives + subjective factors); calculated sign in parentheses Right-to-work law (1 = yes) (-) Moderated by size of market area (-) Moderated by desire to escape an existing "unproductive labor situation" (+) Percentage unionization of workforce (+) Moderated by number of shifts run (-) Moderated by predominant skills at plant (high value = low skills) (-) Weeks lost to work stoppages (-) Average hourly wage (-) Moderated by number of shifts run (+) Percentage of workforce completing high school (-) Vocational education enrollments per production worker (-) Building cost index (-) Moderated by degree of room for expansion (higher value - no room) (+) Energy costs (+) Corporate tax rate (maximum for state) (-) Moderated by sentiment for "low taxes" (-)

		Property tax revenues per dollar of personal income (+)
		Moderated by sentiment for "low taxes" (-)
		Workmen's compensation rates (-)
		State and local spending per dollar of personal income (-)
		Moderated by size of market area (-)
		Moderated by sentiment for " low taxes" (+)
		Unemployment compensation benefits (+)
		Moderated by type of production process (+)
		Mean January temperature (-)
		Population density (-)
		Moderated by whether marketing/sales on site (1 = yes) (+)

REFERENCE 133		
Shane, S. (1996). Explaining variation in rates of entrepreneurship in the United States: 1899-1988. Journal of Management, 22(5), 747-781.	OBJECTIVE/S	To examine rates of entrepreneurship over time (1899-1988) in the United States economy.
	METHODOLOGY	The research on entrepreneurship for the past thirty years was examined, and all the variables researchers have used to predict why people become entrepreneurs or why rates of entrepreneurship vary over time were catalogued. A search was then made for measures of these variables for the period 1899-1988. Time series regression analysis with a lagged endogenous variable was then used to explain variation in rates of entrepreneurship.
	DV/S	Rate of entrepreneurship in period (time) t. Created by dividing the number of businesses in existence by the U.S. population for year t. Three hypotheses were introduced: H1. Relationship between rate of technology change and entrepreneurship rate over time is positive and significant H2. Relationship between entrepreneurship rate at time t-1 and t is positive and significant H3. Relationship between interest rates and entrepreneurship over time is negative and significant.
	IV/S	(all IVs measured "in period t") 1) Rate of technological change

		2) Interest rate 3) Failure rate 4) Immigration rate 5) (a dummy variable for) Presidential election year 6) Need for achievement in U.S. society 7) Savings rate 8) Wage rate 9) Rate of education 10) Unemployment rate 11) GNP per capita 12) GNP growth rate 13) Risk taking propensity in American society 14) Tax rate 15) Ratio of Protestants to Catholics in American society 16) Percentage of the American population between ages of 25 and 34 17) Percentage of the American population between ages of 35 and 44.
	RESULTS	Seventeen different regression models are presented, one where all the variables are introduced (the overall model) and the rest of models with some type of combination of variables introduced and some omitted.

		All regression equations offer strong support for H1 and moderate support for H2 and H3. In the overall model, the following IVs are significant: At $p < 0.10$: IV 2 (negative), IV 13 (positive) and IV 16 (positive); At $p < 0.05$: IV 15 (positive); At $p < 0.01$: IVs 1 (positive) and 3 (positive)

REFERENCE 134		
Shapero, A. (1971). An action program for entrepreneurship: The design of action experiments to elicit technical company formation in the Ozarks region. Austin, TX: Multi-Disciplinary Research.	OBJECTIVE/S	The objective of the study is to develop a body of information concerning entrepreneurship as it might apply to new company formation in the Ozarks region, and to develop action programs aimed at encouraging the formation, growth, and survival of new technical companies in the Ozarks region.
	METHODOLOGY	The authors tried to develop a data-based and experimentally tried action program with reasonable likelihood of resulting in the formation of technical companies in the Ozarks region.
	DV/S	See research Objectives: "…aimed at encouraging the formation, growth, and survival of new technical companies in the Ozarks region."
	IV/S	Page 41 of the report presents a list of social / economic / demographic factors that are related to the location of technical companies ( ). Although the source of the data (and definitions) are not given, the significant (at the 0.05 level) results are given below and on the column to the right ↓ and □ Definitions -- Urban counties with population of less than 50,000 (a), 50,000-100,000 (b), 100,000-200,000 (c), more than 200,000 (d); Suburban counties with populations of 38,000-434,000 (e); Non-urban counties with population of less than 200,000 (f), 200,000-300,000 (g), more than 300,000 (h).

		1. Median age
		2. Total population: Significant with a, b, and e
		3. Population change (1950-60): Significant with b
		4. Median school years completed: Significant with b
		5. Employment in white collar jobs: Significant with a
		6. Median income: Significant with a, f, and h
		7. Income under $3,000 (%):Significant with a, f, and h
		8. Income over $10,000 (%):Significant with a and h
		9. Median gross monthly rent: Significant with a, g, and h
		10. Total bank deposits: Significant with a, e, and f
		11. Change in bank deposits, 1960-64
		12. Total general expenditures per capita
		13. General expenditures on education: Significant with a and e
		14. Federal government employment
		15. Value added by manufacture: Significant with c and e
		16. New capita expenditures; Significant

		with a 17. Total manufacturing estimate: Significant with a, c, e, and h 18. Total manufacturing estimate with 20+ employees: Significant with a, c, and e 19. Total manufacturing estimate with 20-99 employees: Significant with a, c, e, and h 20. Total manufacturing estimate with 100+ employees: Significant with c and e 21. Total service establishments: Significant with a, b, and e.
	RESULTS	N/A

REFERENCE 135		
Stafford, H. A. (1980). Principles of industrial facility location. Atlanta, GA: Conway Publications.	OBJECTIVE/S	The book is intended primarily for business people who face business location decisions – to overview present literature, to provide practical examples and consider future developments.
	METHODOLOGY	Techniques for analyzing data are presented, covering cost analysis, capital budgeting and linear programming operations research.
	DV/S	N/A
	IV/S	Included in this study is a discussion of the most critical factors to be considered in site selection. These include: Accessibility to markets and material suppliers Transportation facilities Availability of labor Utilities Business Services Taxes Local government regulations and in incentives Quality of life.
	RESULTS	N/A

REFERENCE 136		
Stangler, D., & Litan, R. E. (2009). Where will the jobs come from? Kansas City, MO: Kauffman Foundation.	OBJECTIVE/S	It examines net new job creation in terms of firm age rather than firm size using United States Census Bureau data from 2006-2007
	METHODOLOGY	Mostly descriptive – no complex statistical analysis
	DV/S	Net new job creation in the United States
	IV/S	Firm age
	RESULTS	The data shows that without startups, net job creation of the American economy would be generally negative. If one excludes startups, an analysis of 2007 Census data shows that young firms (defined as one to five years old) still account for roughly two-thirds of job creation, averaging nearly four new jobs per firm per year

REFERENCE 137		
Storey, D. J. (1989). Firm performance and size: Explanations from the small firm sectors. Small Business Economics, 1, 175-180.	OBJECTIVE/S	This paper presents an alternative view, by arguing that small firms are not simply "scaled-down" versions of large firms. Instead they have characteristics which are different in type from large firms. The paper recognizes that firm size may be viewed as a proxy for market characteristics, financial and/or structure and even location or technological sophistication. It is also keenly aware of the heterogeneity of small firms, yet it argues that there are nevertheless factors which are significantly more relevant to explaining the performance of small firms than large firms. The paper is in two main parts. The first reviews some of the empirical work which has related firm size to firm performance. The second part of the paper is concerned to begin to explore some of the reasons underlying these differences
	METHODOLOGY	Essay – theory literature review
	DV/S	N/A
	IV/S	N/A
	RESULTS	This paper has presented the case that small firms deserve greater attention from economists who, in the past, have been interested primarily in larger firms. Given mat the small firm sector is becoming of increasing importance in the creation of

		wealth and employment in most developed countries the paper begins to sketch out the factors which influence the motivations and aspirations of the owners of these businesses and explores their imputations for conventional economics In particular it discusses the role of multiple ownership of small businesses by entrepreneurs. It argues that this little researched topic requires more investigation by theorists to investigate the factors influencing entrepreneurs decisions on the appropriate portfolio of businesses to be owned

REFERENCE 138		
Sullivan, P., Halbrendt, C. C., & Buescher, M. (1991, June 8-10). Small business location considerations for agriculture and forestry sectors. Paper presented at the Proceedings of the International Council for Small Businesses 43rd World Conference, Singapore.	OBJECTIVE/S	To examine small- and medium-size businesses location decisions
	METHODOLOGY	Survey -- 1800 agriculture and forest product industry businesses were sent self-administrated questionnaires. A random sample of 1800 businesses was drawn from a population of businesses in the northeastern United States. A name list, stratified by sector, was purchased from Dun and Bradstreet. Industry sectors examined in this study were agricultural, forestry, and associated value-added sectors (SIC 01, 02, 07, 08, 20, 22, 23, 24, 25, 26, 27).
	DV/S	Responding firms were divided into five categories by size. These are the categories used by the National Federation of Independent Businesses. They are businesses with: Fewer than five employees (F5), Five to nine employees (5to9), 10 to 19 employees (10to19), 20 to 49 employees (10to49), and more than 50 employees (M50).
	IV/S	Interstate State Hwy Railroads

		Airport Harbor 3-phase Nat. Gas ISDN Water Wastewater Solid Waste Ponds Expansion Mgr./Prof Skilled Unskilled Mass Transit Labor Cost Tax Rate Local Sup. Local Cust. Job Training Bank Loans Dev. Assist. Crime rate Cost of living Environment Outdoor rec. Cultural events Retail Schools Health care Social services Family nearby
	RESULTS	Importance of Physical Infrastructure Indicators, by firm size (no further definitions given): F score: ** at 0.05 significant level *** at 0.01 significant level Interstate *** State Hwy ***

		Railroads ** Airport *** Harbor *** 3-phase ** Water ** Wastewater ** Importance of Economic Infrastructure Indicators, by firm size (no further definitions given): F score: ** at 0.05 significant level *** at 0.01 significant level Mgr./Prof *** Skilled *** Unskilled *** Mass Transit ** Labor Cost *** Local Cust. ** Bank Loans ** Importance of Quality of Life Indicators, by firm size (no further definitions given): F score: ** at 0.05 significant level *** at 0.01 significant level Crime rate ** Social services ** Average weight for each size firm, by category (Physical infrastructure, Economic Infrastructure, and Quality of Life): F score: ** at 0.05 significant level *** at 0.01 significant level

		1 to 4 *** 5 to 9 *** 10 to 19 *** 20 to 49 ** 50+

REFERENCE 139		
Sullivan, P., Sung, J., Halbrent, C. C., & Buescher, M. (1999). Use of information sources in locating decisions by SMEs. Paper presented at the 1999 International Council For Small Business Naples Conference Proceedings, Naples, IT.	OBJECTIVE/S	To investigate external sources of business location information for decision making and to examine how firm size is associated with location information source use.
	METHODOLOGY	Data collected through a mail survey (not provided by authors) of 1,800 randomly (and stratified by size) selected firms. With telephone follow-up procedures, response rate was 64%. ANOVA was used to evaluate the differences by firm size.
	DV/S	Source of business location information; business size categories are: 1. < 5 employees 2. 5 to 9 employees 3. 10 to 19 employees 4. 20 to 49 employees 5. > 50 employees
	IV/S	Amount of information the businesses used for searching for location, by firm size: 1. Radio and TV ads 2. Local newspaper 3. National newspaper 4. Regional trade publications 5. National trade publications 6. Local Chamber of Commerce

		7. State Chamber of Commerce 8. Regional economic development agencies ($p < 0.05$) 9. State economic development agencies ($p < 0.01$) 10. Real estate agent 11. Internet 12. Word-of-mouth ($p < 0.05$) 13. Vacation travel expense ($p < 0.10$).
	RESULTS	(please see also IV/S for some results) Firms with >= 20 employees used regional economic development agencies and state economic agencies more than other size firms Firms with 1 to 4 employees use word-of-mouth and vacation travel experience as information sources for searching business location The amount of information that business searching for location receive from various sources is related to firm size A variety of information sources will be used by small- and medium- size businesses in their search for location information

REFERENCE 140	OBJECTIVE/S	To estimate the effects of state attributes on plant location and investment expenditures for the forest products industry in the southern United States.
Sun, C., & Zhang, D. (2001). Forest resources, government policy, and investment location decisions of the forest products industry in the Southern United States. Forest Service, 47(2), 169-177.	METHODOLOGY	Conditional logit model (CLM) used to analyze new plant births and a time-series cross-section (TSCS) model to assess the total capital expenditure.
	DV/S	1. Number of new plants for each state 2. New Investment expenditures.
	IV/S	INC State per capita income POP State population density (persons/mi^2) INVT Forest Inventory (10^6 ft^3) PULP Pulpwood delivered price, s, pine ($/std. cord) ELEC Average cost of electric energy, industrial users ($/k-Wh) TAX Annual state tax revenue/grow state product ENVR Environmental stringency (index) WAGE Average wage rate per hour, production workers, all industry ($/hr) HIGH Percentage of persons 25 yr old and over who have completed high school education or more.

	RESULTS	CLM: - INC (5), POP (4), and INVT (3): Positive effect and significant - PULP, ELEC (2), TAX, and ENVR: Negative effect and significant TSCS: - INC (1), POP (3), and INVT (4): Positive effect and significant - PULP (2), ELEC, TAX, and ENVR (5): Negative effect and significant Note about numbers in parentheses: These are ranked by the magnitude of the elasticities.

REFERENCE 141		
Sutaria, V. (2001). The dynamics of new firm formation. Aldershot, UK: Ashgate Publishing Company.	OBJECTIVE/S	To explore the relationships that may exist between new firm formation and its localized context. Specifically, it explores regional factors for the Texas manufacturing sector for the 1976-91 period. Twenty-seven Texas metropolitan areas were used to account for the variation in new firm formation over time and space.
	METHODOLOGY	Fixed-effects regression models with region and time as dummy variables to control for region-specific and time-specific influences. The regression models were estimated using two different regression estimation techniques: robust regression and estimated weighted least squares. Cross-sectional and time-series analyses were employed to test for twelve hypotheses, one for each variable included in the model.
	DV/S	New firms starting in a given year as a share of total firms operating at the end of the previous year -- Entry rate (new firm formation rate) in region "r" for year "y," lag = 1, 2.
	IV/S	Time-series data (1976-1991): 1) Population Change 2) Per capita personal income change 3) Unemployment rate 4) Unemployment rate change 5) Earnings: shift to service 6) Mean establishment size 7) Exit rate 8) Entry rate 9) Local bank deposits

		10) Local government spending Cross-sectional data- Single-year variables: 11) Education 12) Interstate highways 13) Highway Intersecting branches.
	RESULTS	Lag-structure comparison: Zero, One, and Two year lag models: Model 1 (Lag-1): Variable (Var.) 4. (annual level) significant (Sig.) at 0.05 level; Var. 6. sig. at 0.01 level; Var. 7. sig. at 0.01 level; Var. 8. sig. at 0.05 level; and Var. 9. sig. at 0.10 level. Model 2 (Lag-2): Var. 3 sig. at 0.10 level; Var. 6. sig. at 0.01 level; and Var. 9. sig. at 0.01 level. Model 3 (Concurrent): Var. 6. sig. at 0.10 level; Var. 7. sig. at 0.01 level; and Var. 9. sig. at 0.10 level. Model 1: R-Squared: 0.50 F-Value: 13.60 (Sig. at 0.01 level) Model 2: R-Squared: 0.49 F-Value: 12.67 (Sig. at 0.01 level) Model 3: R-Squared: 0.47 F-Value: 12.41 (Sig. at 0.01 level)

REFERENCE 142	OBJECTIVE/S	
Sutaria, V., & Hicks, D. A. (2002). The determinants of new firm formation dynamics (No. ERSA 399). Dallas, TX: School of Social Sciences, The University of Texas at Dallas.		
	METHODOLOGY	
	DV/S	
	IV/S	
	RESULTS	

REFERENCE 143		
Sutaria, V., & Hicks, D. A. (2004). New firm formation: Dynamics and determinants. Annals of Regional Science, 38(2), 241-262.	OBJECTIVE/S	Explains variation in rates of new manufacturing firm formation across Texas metro-regions between 1976-1991.
	METHODOLOGY	Heteroskedasticity-correcting estimation procedures: fixed-effects regression modeling. Lags of 1 and 2 years and concurrent.
	DV/S	Annual rate of new firm formation.
	IV/S	1) Population change 2) Per capita personal income change 3) Unemployment rate 4) Unemployment rate change 5) Earnings: shift-to-services 6) Mean establishment size 7) Exit rate 8) Entry rate 9) Local bank deposits 10) Local government spending.
	RESULTS	Lag -1 IV 4 significant (sig) at 0.05 level IVs 6, 7 and 8 sig at 0.01 level IV 9 sig at 0.10 level

		Lag -2 IVs 2 and 3 sig at 0.10 level IVs 6 and 9 sig at 0.01 level Concurrent IV 2, 6 and 9 sig at 0.10 level IVs 7 sig at 0.01 level.

REFERENCE 144	OBJECTIVE/S	To develop a set of empirically based models to identify differences, in terms of predictor variables and their relative emphasis, in the plant location strategies of foreign and domestic manufacturers in the U.S. during 1973-1983. An equally important purpose of the study was to investigate, if and how locational strategies of domestic as well as foreign firms changed with time
Swamidass, P. M. (1989). A comparison of the plant locations strategies of foreign and domestic manufacturers in the U.S. Journal of International Business Studies, 21(2), 301-317.	METHODOLOGY	Regression models: one each for the two time periods 1973 to 1977, and 1977 to 1983. to study the changes in locational strategies over time. Additionally, in each of the two time periods, two separate models were developed; one each for domestic and foreign manufacturers
	DV/S	Net change in the number of manufacturing facilities in any given state during a specified period of time; the conditions that define the four models, labeled A, B, C, and D. Model A: Net change in number of domestic manufacturing establishments during 1973-1977 Model B: Net change in number of domestic manufacturing establishments during 1977-1983 Model C: Net change in number of foreign manufacturing establishments during 1973-1977 Model D: Net change in number of foreign

		manufacturing establishments during 1977-1983
	IV/S	Average industrial hourly wage (HW) Union membership (UM) Unemployment (UE) Number of manufacturing establishments in each state (EST) Net change in the number of all establishments in the state – used only in the two models for foreign firms (ALL)
	RESULTS	Model A – significant at 0.05 level: UM (-0.07) Model B – significant at 0.001 level: UM (-0.12) Model C – significant at 0.00001 level: UM (-0.09) Model D: -- significant at 0.00001 level: HW (-0.13) and ALL (-0.13)

REFERENCE 145		
Swanson, B. E., Cohen, R. A., & Swanson, E. P. (1979). Small towns and small towners: A framework for survival and growth. London: Sage Publications.	OBJECTIVE/S	The book provides a framework for analysis of small communities (less than 10,000 residents). The authors emphasize the values, social, political, economic life of small towns. The theoretical framework developed in the first few chapters are used during a descriptive analysis of Coalstream, a small town in Appalachia. The authors (book) do not carry out any original research – all conclusions are based on other authors' empirical researches.
	METHODOLOGY	The dynamics of Coalstream (or by proxy other small towns) are further understood by the development of discussion guides – created by the authors, these guides are more than a list of questions. These guides offer both the framework and answers useful to city managers or anyone wanting to "get a handle on" the theory of community dynamics and location analysis. Chapter 4 is titled "The Economy of the Small Town." It introduces the economic and location analysis of commercial and industrial firms.
	DV/S	Location of commercial and industrial firms.
	IV/S	1) Location and accessibility of raw material inputs 2) Labor – the competitiveness of labor costs and availability of labor (i.e., skilled versus unskilled, old versus young, and wage rates)

		3) Location of markets to which the final product is sold 4) Costs of transportation from raw material source to processing to final market 5) External economies – or the location of complementary businesses close by, bonuses of low taxes and few regulations, availability of particular amenities that people value.
	RESULTS	Many small communities can be categorized based into major community functions (reference). Namely: 1) Manufacturing towns: Predominantly one-industry towns 2) Retail towns: Communities frequently associated with agricultural areas 3) Diversified (multifunctional) communities: Tend to be more stable than other, more narrowly oriented communities 4) Wholesale centers: Occasionally it resembles the retail towns, but more often than not, it is a function rarely dominant in small towns, as the minimum size required for the wholesaling function is well out of the small town range 5) Transportation centers: Closely associated with extractive communities such as mining towns 6) Mining towns: See transportation centers, above 7) University towns: Known for the presence of youth and an educated, white-collar population. However, colleges are often tax exempt and thus place added tax burdens on

		local property owners 8) Resort and retirement towns: These are prime concerns in keeping small towns healthy. A number of other functions, such as manufacturing and/or resource extraction would detract the small towns’ attractiveness.

REFERENCE 146		
Tamasy, C. I., & Heron, R. L. (2008). The geography of firm formation in New Zealand. Tijdschrift voor Economische en Sociale Geografie 99(1), 37-52.	OBJECTIVE/S	To argue that specific characteristics of a region affect its capacity to generate new firms. It is focused on the meso (regional) level of entrepreneurship analysis. It analyses the spatial pattern of firm formation in New Zealand by territorial authorities for the period 2000-2005.
	METHODOLOGY	The paper uses data from Statistics New Zealand's business demographic statistics database (BDS) – only enterprises with over NZ$30,000 in sales are counted. Location Quotients (LQs) are calculated, with a view of comparing firm births activities in a particular region to those in New Zealand as a whole. Multivariate ordinary least squares regression analyses run by using three DVs. IVs are entered into the analysis stepwise and the regression model is, thus developed in stages.
	DV/S	Firm births (LQs 2000-2005) 1) All industries 2) Manufacturing 3) Business Services.
	IV/S	1) Concentration index: proxy for the structure of business population in a region as supply side factor (firms with 20 or more employees) 2) Firm size: measured as 2000 employment

		divided by the number of business in 2000 in a region 3) Population 4) Population growth rate: rate of increase between the two censuses, 1996 and 2001 5) Melting pot: percentage of the population that is foreign born (in 2001) 6) External migration index: the sums of all external migration inflows of individuals aged between 15 and 64 years for the period 1996 to 2000 as related to the population during the same time period 7) Human capital: population aged 15 years or above with a bachelor degree or higher 8) Total personal income (median) 9) Income growth rate: the rate of increase of personal income from 1996 to 2001 10) Unemployment rate 11) Work-life balance: the number of part-time entrepreneurs in the economy in 2001 divided by the total number of employers in 2001 (employers employ another person(s) 12) Communication: measured as the percentage of households with internet access 13) Specialization index: used to capture external economies of localization as demand side factors relevant for start-ups.
	RESULTS	Stepwise regression results at territorial authorities: All industries — significant at 5% level:

		population; significant at 1% level: concentration index, firm size, and population growth rate Manufacturing —significant at 1% level: firm size, population growth rate, and specialization index Business services: — significant at 5% level: income growth rate; significant at 1% level: population and population growth rate.

REFERENCE 147	OBJECTIVE/S	The analysis in this paper aims to contribute to the understanding of the processes that influence individual firm location decisions (mainly based on new investments or improvements in transportation facilities)
Targa, F., Clifton, K. J., & Mahmassani, H. S. (2006). Influence of transportation access on individual firm location decisions. Transportation Research Record, 1977(-1), 179-189.	METHODOLOGY	Ordinal Probit model – A firm-level econometric model is developed and estimated using primary data collected through a web-based business activity survey. In addition to firm-level data from the online survey, accessibility and agglomeration economies measures for each firm were generated based on their spatial location using geographic information systems. The analysis tests the hypothesis that the extent and character of transportation supply is associated with the propensity of a firm to relocate in the upcoming year. Specifically, we hypothesize that increases in the supply of transportation infrastructure increases the likelihood of a firm to stay in the current location. The econometric model and its parameter estimates provide a basis for predicting the potential impact of local economic development policies (i.e. firm retention strategies) based on new investments or improvements in transportation facilities
	DV/S	(y*) is a latent variable that captures the propensity of a given business to relocate to another address in the upcoming year. The dependent variable for the firm- level

		econometric model was obtained from responses to the following question: "How likely is it that you will relocate your business to another address in the upcoming year?" For modeling purposes, the responses were coded into four ordinal classes: 1 - Not at all likely, 2- Unlikely, 3- Neither unlikely nor likely, 4- Likely or Almost certain (combining those two response choices). This discrete ordinal variable is denoted by y. Its relation to the various explanatory variables is obtained through an ordinal Probit model, which relates the observed response y to the values of a latent variable y*, interpreted as the propensity to relocate, as explained later in the section. The latent variable y* is related to the characteristics of the firm as well as attributes of the area where the firm is located, including transportation access
	IV/S	MLOC is a binary indicator variable (0-1) indicating if the business have multiple locations INDCLASS are the set of binary indicator variables (0-1) identifying the industry class, where j = 1- Primary 2- Construction 3- Transportation-Communication-Utilities 4- Wholesale Trade 5- Retail Trade 6- FIRE (Finance, Insurance, Real Estate) 7- Services AREA is the amount of building space

		occupied by the business (in 1,000 ft2) YEARS is a binary indicator variable (0-1) indicating if the business has been in operation for less than 10 years NUMEMPL is a binary indicator variable (0-1) indicating if the number of employees in the business is less than 10 AIRPk are the set of binary indicator variables (0-1) identifying the most frequently used airport for business travel to and from the firm, where k = 1- Baltimore-Washington International Airport (BWI) 2- Dulles International Airport (Dulles) 3- Regan National (DCA) 4- Other SUPPLx(market) are the set of binary indicator variables (0-1) describing the primary market for supply chains of the firm, where x = 1- Local 2- Regional 3- Statewide 4- National 5- International FREQSHSy(from/to) are the set of binary indicator variables (0-1) describing the frequency that shipments are sent from or to the business location, where y = 1- Regularly 2- Occasionally 3- Almost never TRANSIT is a binary indicator variable (0-1) indicating if access to public transportation was an "important" or "very important" factor

		in the decision to locate the business in the current location; ECONDEV is a binary indicator variable (0-1) indicating if economic development incentives from the local jurisdiction level was an "important" or "very important" factor in the decision to locate the business in the current location; REGPLAN is a binary indicator variable (0-1) indicating if satisfaction with regional transportation plans was stated as "satisfied" or "very satisfied"; COUNTY is a binary indicator variable (0-1) indicating if perception of the county as an excellent place to locate a business was stated as "agree" or "strongly agree"; RA(Ai+A2) is a measure of road access density [primary highways with or without limited access (A1+A2)] measured in total road-miles per Km2 for concentric 1-mile buffer areas (from 1 to 5 miles, and cumulative up to 5 miles); RA(A3) is a measure of road access density [secondary and connecting roads (A3)] measured in total road-miles per Km2 for concentric 1-mile buffer areas (from 1 to 5 miles, and cumulative up to 5 miles); REGATz is a measure of regional access time measured in travel time (minutes) to the main airports or intermodal terminal facilities (quadratic terms are also considered), where z = 1 - Dulles 2- BW1 3- DCA 4- Port of Baltimore AGGL is an index of agglomeration economy

		effects, measured as the density of businesses of the same industry class of the particular firm (number of establishments per Km2 in the zip code area where the firm is located). In some cases AGGL(gen) is generic for all industry types combined, and corresponds to the total number of establishments per Km2 in the zip code area where the firm is located And… Road access variables (RA(A1+A2) and RA(A3)) are a set of roadway and highway accessibility variables measured in total road-miles per Km2. The density of each roadway classification was measured for consecutive concentric 1-mile buffer areas around each firm location (from 1 to 5 miles), and cumulatively up to 5 miles using geographic information systems. Road classification is based on their functional and geometric characteristics, as well as on their nominal capacity. This differentiation comes from the Census TIGER center- line data (22), which classifies each roadway category as follows: Primary Highway with Limited Access; Interstate highways and some toll highways are in this category (Al) and are distinguished by the presence of interchanges. These highways are accessed by way of ramps and have multiple lanes of traffic. The opposing traffic lanes are separated by a median strip. Primary Road without Limited Access; This category (A2) includes nationally and regionally important highways that do not necessarily have limited access. It consists mainly of US and State highways, but may also include some county highways that connect cities and larger towns. A road in this category may have intersections with other

		roads, be divided or undivided, and have multi-lane or single-lane characteristics. Secondary and Connecting Road; This category (A3) includes mostly state and county highways that connect smaller towns, subdivisions, and neighborhoods. The roads in this category generally are smaller than roads in category A2, must be hard-surface (concrete or asphalt), and are usually undivided with single-lane characteristics. These roads usually have a local name along with a route number and intersect many other roads and driveways. Although Al and A2 were considered separately in the initial analysis, the final model estimation uses a combined measure for primary highways with and without limited access (A1+A2) given the lack of statistically significant difference between the coefficient estimates when the two are used separately
	RESULTS	Coefficient Estimates for Ordered Probit Model of Business Relocation; ; * significant at 10%; ** significant at 5%: *** significant at 1%; P/N = Positive or Negative coefficient MLOC = ***P INDCLASSj = **N 1- primary 2- construction 3- transportation-communication-utilities 4- wholesale trade 5- retail trade 6- FIRE = **P 7- services AREA = ***N YEARS = **P NUMEMPL = **P

		AIRPk 1-BWI 2- Dulles 3-DCA = ***N 4- Other SUPPLx(market) 1- Local 2- Regional = ***P 3- Statewide 4- National 5- International TRANSIT = ***P ECONDEV = ***P REGPL AN = ***N COUNTY = *N RA(A1+A2) -4 miles- = **N RA(A3) -3 miles- = *N REGAT -Dulles REGAT -BW I = **N REGAT -DC A REGAT –Baltimore = *P

REFERENCE 148		
Taylor, M. A. (2002). Regional variation in new firm formation: An analysis of socio-economic factors. Unpublished Ph.D., University of Kentucky, Lexington, KY.	OBJECTIVE/S	Dissertation focuses on two distinct concepts — social capital and new firm formation (entrepreneurship). It analyzes economic development, in terms of new firm formation, at the county level, and incorporates specific economic factors. The dissertation also tests its model of new firm formation using data from Kentucky's 120 counties for the time period of 1985 to 1997 and supplementing this quantitative analysis with qualitative research concerning entrepreneurs and community leaders in Kentucky and neighboring states
	METHODOLOGY	The first analytic tool used in this dissertation is a panel data analysis of new firm formation in Kentucky between 1985 and 1997. The quantitative element consists of three separate analyses. The first analysis focuses on the economic variables identified in the Regional Economics. The second analysis incorporates social capital into the equation and looks at the main effects of both social capital and the economic variables. The third analysis integrates the concept of an interaction effect between social capital and the economic variables. Additionally, there is a qualitative component to my research. I reviewed research notes and interview tapes from a research project conducted by the Mountain Association for Community Economic Development (MACED) in Berea, Kentucky to promote new firm formation

	DV/S	New Firms = New firm formation, 1985-1997: the number of new business filings submitted to the Kentucky Secretary of State's office each year. These filings are notifications by entrepreneurs to the Secretary of State's office of the creation of new businesses
	IV/S	Social Capital Factors: Index composed of Organizations, Churches, Church Membership, Civic Churches, And Civic Church Membership Organizations = Number of membership organizations and clubs per labor force Organizations Payroll = Annual payroll of membership organizations per labor force Churches = Total number of churches per labor force Church Membership = Total number of church members per labor force Civic Churches = Total number of African Methodist Episcopal Zion; American Baptist, Disciples of Christ, Latter-Day Saints, Congregational Christian, Episcopal, Lutheran, Presbyterian, Unitarian, Church of Christ, Methodist, and Jewish denominations per labor force Civic Churches Membership = Number of church members in civically engaged denominations per labor force Demand Factors: Index composed of Population, Population change, Per capita income, and Per capita income change

		Population = Number of residents of a county Population Change = Annual change in number of residents Per Capita Income = Personal income including wages and salaries, proprietors' income, rental income, personal dividend income, personal interest income, and transfer payments, divided by the county population Per Capita Income Change = Annual change in per capita personal income divided by the county population Unemployment = Number of unemployed as a percent of the civilian labor force Unemployment-2 = Squared term of unemployment Small = Number of business establishments with fewer than 50 employees as a proportion of total number of establishments Specialization = Employment in ten sectors as a percentage of total employment squared, summed, and the square root taken of the sum Managers = Workers in managerial and professional specialties as a percent of the total labor force Finance Factors: Index composed of Banks and Deposits Banks = Number of commercial and savings bank offices per labor force

		Deposits = Amount of deposits per labor force in all commercial and mutual savings banks Owner Housing = Owner-occupied housing as a percentage of total housing Median Housing Value = Median value of what house and lot would sell for Urban Factors: Index composed of Population density and Metro/NonMetro Population Density = Population density, which is population per square mile Metro/NonMetro = metropolitan counties are either central counties of metropolitan areas with a population of one million population or more, fringe counties of metropolitan areas with a population of one million or more, counties in metropolitan areas of 250,000 to one million in population, or counties in metropolitan areas of less than 250,000 population. The metro/nonmetro status of counties is measured as a categorical variable with metro = 1 and nonmetro = 0
	RESULTS	Note: Three models are estimated using the variables described above. First, the Regional Economics model includes the economic variables identified by the Regional Economics School of entrepreneurship research. Second, the socioeconomic model includes the economic variables identified by the Regional Economics School along with social capital. Third, the interactive socioeconomic model includes social capital, the economic variables, and the interactions between social capital and the economic variables

		Regression results based on Regional Economics Model of New Firm Formation; *** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.10 level P/N = Positive or Negative coefficient Lagged Dependent Variable = ***P Unemployment = **N Unemployment-2 = ***P Specialization = ***P Urban = ***P Regression results from Socio-economic on Regional Economics Model of New Firm Formation (Main Effects); *** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.10 level P/N = Positive or Negative coefficient Lagged Dependent Variable = ***P Social Capital = *N Unemployment = **N Unemployment-2 = **P Specialization = ***P Finance = *P Urban = **P

		Regression results from Interactive Socio-economic Model of New Firm Formation; *** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.10 level P/N = Positive or Negative coefficient Lagged Dependent Variable = ***P Social Capital = *N Unemployment = ***N Unemployment-2 = ***P Specialization = ***P Social Capital * Managers = *P Finance = **P Urban = ***P Regression results from Revised Interactive Socio-economic Model of New Firm Formation (Demand and Managers excluded); *** Significant at 0.01 level ** Significant at 0.05 level * Significant at 0.10 level P/N = Positive or Negative coefficient Lagged Dependent Variable = ***P Unemployment = ***N Unemployment-2 = ***P Specialization = ***P

		Finance = **P Urban = ***P

REFERENCE 149	OBJECTIVE/S	
Thompson, E., Hammond, G., & Weiler, S. (2006). Amenities, local conditions, and fiscal determinants of factor growth in rural America (No. RWP 06-08). Kansas City, KS: The Federal Reserve Bank of Kansas City, Economic Research Department.		
	METHODOLOGY	
	DV/S	
	IV/S	
	RESULTS	

REFERENCE 150	OBJECTIVE/S	
Tombari, H. A. (1979). Economic and non-economic factors affecting plant location decisions. Entrepreneurship Theory and Practice, 3(4), 23-30.		
	METHODOLOGY	
	DV/S	
	IV/S	
	RESULTS	

REFERENCE 151		
U.S. Small Business Administration. (2002). The influence of R&D expenditures on new firm formation and economic growth (No. SBAHQ-00-M-0491). Maplewood, NJ: BJK Associates.	OBJECTIVE/S	To determine whether university R&D activity affects the local rate of new firm formations and economic growth. Two major hypotheses: H1. Labor Market Area (LMA)'s new firm formation rates will be positively related to a) university research and development expenditures and b) human capital H2. LMA economic growth rates will be positively related to a) new firm formation rates, b) university research and development expenditures and c) human capital.
	METHODOLOGY	Time-series, cross-sectional data analysis.
	DV/S	Firm births, from 1990 – 1999.
	IV/S	1) University R&D expenditures (proxy for R&D activity) 2) Total Small Business Innovation Research (SBIR) and Small Business Technology Transfer Research (STTR) grants 3) Employment level 4) Rate of change in employment 5) Human-capital – college education (Labor skill) 6) Human Capital – high school education

		7) Population 8) Population change 9) Establishments, number of 10) Establishment density, per population 11) Establishment size (number of employees per number of establishments) 12) Unemployment rate.
	RESULTS	H1. University R&D expenditures (IV 1) statistically significant on firm births related to the strongest relationship is a two-year lag. Other statistically significant findings are those of: SBIR and STTR grants (IV 2), college degrees (IVs 5 and 6), population (IV 7), change in population (IV 8), establishment density (IV 10), establishment size (IV 11), and unemployment level (IVs 3, 4 and 12). H2. Firm birth rates have a positive impact upon local economic growth. Other significant variables were those of: high school education (IV 6), college degrees (IV 5), population (IV 7), population change (IV 8), establishment density (IV 10) -this last one was negative in H2.

REFERENCE 152	OBJECTIVE/S	This paper identifies and examines location factors that are considered important by manufacturing firms -- To contribute to a better understanding of the needs of foreign multinational investors in the U.S. relative to domestic counterparts. Research Questions: (1) What are the important location-specific attributes that affect the manufacturing location decision? (2) How do domestic and foreign firms compare regarding important location factors? Specifically, how do U.S., Japanese and German firms compare? And have these dimensions changed in recent years?
Ulgado, F. M. (1996). Location characteristics of manufacturing investments in the U.S.: A comparison of American and foreign-based firms. Management International Review, 36(1), 7-26.		
	METHODOLOGY	A nationwide mail survey was used with the population of interest defined as all manufacturing investors in the United States. Manufacturing investors were considered foreign if they met the following requirements: (1) 10 percent or more of firm ownership was non-U.S. (based on U.S. Department of Commerce criteria). (2) the firm was involved in a manufacturing industry, producing value-added physical products. Companies in service and non-value added extractive industries were excluded. (3) the firm had at least one operational facility in the U.S. indicating that a location decision

		had been made in the past (Note: divided into: USA (United States), JPN (Japan), GER (German), and Other; Chemical, Rubber and Plastics, Metal products, Industrial Machinery and Electronics industries
	DV/S	N/A
	IV/S	N/A
	RESULTS	Complex results given in lengthy tables – please see research article for more details; only summary of main results given here: Top Ten (out of 58 attributes) Location Attributes Rated on Importance, across the entire manufacturing sample: (1) Availability of utilities (2) Availability of suitable plant sites (3) Space for expansion (4) Attitudes of local government (5) Labor productivity (5) Local salary and wage levels (7) Local labor attitudes (8) Transportation services availability (9) Cost of utilities (10) Labor turnover rate Location Attributes Rated on Importance Means (rank) – Difference from American firms is: *** statistically significant at the 0.001 level ** statistically significant at the 0.01 level * statistically significant at the 0.05 level; JPN (J), GER (G), and Other (O) Local and Labor Attitudes: Level of Unionization = *G, *O

		Labor Turnover Rate = *G Attitudes of Local Government Officials = ***J, *G Attitudes of Local Citizens = ***J Availability of Unskilled Labor = **G, *O Community Environment: Size of Community = *O Education Facilities = ***J Housing Facilities = ***J Police and Fire Protection = **J Climate = ***J Suitability to Expatriates and Families = ***J Facilities for Children = ***J Social Environment for Spouses = ***J Hotel Accommodations = ***J Crime Level = ***J Incentives: State Financial Assistance = **G, ***O Local Financial Assistance = ***O State Tax Breaks = *J, **G, ***O Local Tax Breaks = *J, ***O Employee Training = *J Free Trade or Enterprise Zones = *G Site Improvements = *O Site Selection Assistance = *J Land and Transportation Services: Cost of Suitable Land = *J, **G, **O Space for Expansion = **O Construction Costs = **J, **O Availability of Transportation Services = *J, *G, *O Transportation Costs = *G

		International Concerns: Availability of Seaports = **G, *O Trade Facilities = *J, *O Nearness to Third Country Operations = *J Nearness to Export Markets Outside U.S. = **G Synergy Logistics: Nearness to Other Parent-owned Plants = *G, *O Nearness to Partner-owned Plants = *J Input Logistics: Nearness to Suppliers = ***J Nearness to Raw Materials/ Input Sources = *J, *G Capital Concerns: Cost of Capital = ***J Availability of Capital = ***J Skilled Human Resource Availability: Availability of Managerial Personnel = *J Availability of Skilled and Technical Labor = *O Tax Rates: Local Tax Rates = **J, *G, **O State Tax Rates = ***J, **G, ***O Location Attributes Rated on Importance

		Means (rank); (a) significantly different from Chemicals (b) significantly different from Rubber & Plastics (c) significantly different from Metal Products (d) significantly different from Industrial Machinery; C = Chem., R = RBR, M = Metal, I = Inds. Mach., and E = Electr.; statistical significance indicates $p < 0.05$ Local and Labor Attitudes: Labor Turnover Rate = aC, aI Local Labor Laws = cM, cI Local Labor Attitudes = aC, bR, abcM, cI, cE Local Salary and Wage Levels = aC, bR, abcM, abcI, cE Availability of Unskilled Labor = bR, cM, bcdI, dE Unemployment Insurance Rates = cM, cI Availability of Utilities = aC, aR, adI, dE Community Environment: Housing Facilities = aM, aE Police and Fire Protection = aC, bR, abcM, cI Incentives: Employee Training = aC, abR, bM, bI Free Trade or Enterprise Zones = aC, aR, aM, aE

		Land and Transportation Services: Availability of Suitable Plant Sites = aC, abR, bcM, cI, cE Space for Expansion = aC, acM, cE International Concerns: Availability of Seaports = cM, cI Nearness to Third Country Operations = aC, abR, acM, abcdI, bcdE Nearness to Export Markets Outside U.S. = aC, acM, adI, cdE Synergy Logistics: Nearness to Other Parent-owned Plants = aC, abR, bM, bE Nearness to Other Partner-owned Plants = aC, bR, abcM, cdI, bdE Nearness to Plants of Same Nationality = aC, abR, bcM, bdI, acdE Nearness to Companies in Same Industry = aC, acM, adI, cdE Input Logistics: Nearness to Suppliers = bR, bE Nearness to Raw Materials/ Input Sources = aC, bR, abM, Capital Concerns: Cost of Capital = bR, bM, bI Market Logistics: Nearness to Major Buyers = bR, bcM, cI Skilled Human Resource Availability: Availability of Managerial Personnel = bR,

		bcM, cE Availability of Skilled and Technical Labor = aC, aM, aI

REFERENCE 153	OBJECTIVE/S	To review some mainstream historical contributions to the theory of entrepreneurship, which started halfway through the eighteenth century.
van Praag, C. M. (2005). Some classical views on entrepreneurship Successful entrepreneurship: Confronting economic theory with empirical practice. Cheltenham, UK.	METHODOLOGY	Literature review.
	DV/S	N/A
	IV/S	N/A
	RESULTS	Theories discussed: Earliest thought on entrepreneurship Classical thought on entrepreneurship Neoclassical thought on entrepreneurship Entrepreneurship and Schumpeter Entrepreneurship and Knight A neo-Australian thought on entrepreneurship.

REFERENCE 154		
van Stel, A. J., & Suddle, K. (2006). The impact of new firm formation on regional development in the Netherlands (No. WP2006-4, Working Papers Series). Cranfield, UK: Bettany Centre for Entrepreneurial Performance and Economics, Cranfield University School of Management.	OBJECTIVE/S	Examines the relationship between new firm formation and regional employment change in the Netherlands, using regional database for the period 1988 and 2002.
	METHODOLOGY	Focus on the lag structure of the impact, and on the differences between sectors and degree of urbanization. For panel data analysis: model uses within-type of analysis (over time) while the other types of analyses call for a between-type of analysis (between regions).
	DV/S	1. Employment impact of new-firm start-ups 2. Impact of new firms on regional development by sector 3. Impact of new firms on regional development by degree of urbanization.
	IV/S	New firm formation with time lags from zero to eight years.
	RESULTS	- Maximum effect of new businesses on regional development is reached after about six years - Overall employment impact of new firm start-ups is positive but small in Netherlands - Employment impact of new firms is strongest in manufacturing industries - Employment impact of new firms is stronger in areas with a higher degree of

REFERENCE 155		
van Stel, A. J., & Suddle, K. (2006). New firm formation and regional development in the Netherlands. Medium Econometrische Toepassingen, 14(1), 13-17.	OBJECTIVE/S	To examine the relationship between new firm formation and regional employment change in the Netherlands – A condensed version of the study done and examined in REFERENCE 336.
	METHODOLOGY	See above note.
	DV/S	See above note.
	IV/S	See above note.
	RESULTS	See above note.

REFERENCE 156		
Varga, A. (1997). Regional economic effects of university research: A survey (No. October 1997). Morgantown, WV: Regional Research Institute, West Virginia University.	OBJECTIVE/S	Evaluating previous research on the topics of: 1. The study of a university's impact on the location choice of high technology facilities 2. The Investigation of university impact on the spatial distribution of high technology production 3. The analysis of the spatial pattern of industrial research and development activities 4. The modeling of local knowledge transfers emanating from academic institutions.
	METHODOLOGY	Literature review.
	DV/S	N/A
	IV/S	N/A
	RESULTS	The university effect on the location choice of high technology facilities depends on certain area characteristics – strong evidence of local academic technology transfers.

REFERENCE 157		
Veciana, J. M., Aponte, M., & Urbano, D. (2002). Institutions and support programmes for entrepreneurship: A two countries comparison. Paper presented at the International Council for Small Business, 47th World Conference.	OBJECTIVE/S	The main purpose of this study is to compare the formal institutional context affecting entrepreneurship in two countries Catalonia and Puerto Rico. The research focuses both on the supply side (institutions and support programmes) and on the demand side (entrepreneurship). The specific objectives are the following: l) To identify and describe the most relevant institutions and support programmes available to new firms in two countries. 2) To compare the levels of awareness and utilization of the programmes by Catalan and Puertorican entrepreneurs and their evaluation of these programmes. 3) To analyze the possible gap between the supply and demand of support in order to determine how support for new firms can, and should, be improved in Catalonia and in Puerto Rico
	METHODOLOGY	The combination of methodologies called triangulation is used in this study. We combine both quantitative and qualitative methods, as well as primary and secondary data. For the study of the supply of support programmes, different sources of secondary data were used, such as information pamphlets, institutions' internal statistics and documents, web-sites, press releases as well as specialized journal articles. Also, in the

		case of Catalonia personal interviews were carried out with responsible agents of the business creation department in the most important institutions As for the analysis of the demand for assistance, 60 and 50 structured personal interviews were carried out with current entrepreneurs5 from Catalonia and Puerto Rico, respectively. Also, 307 structured telephonic surveys were carried out with nascent entrepreneurs who contacted CIDEM (Centre de Innovacion y Desarrollo Empresarial- Centre for Innovation and Business Development) between the years 1997 and 1999, in search of information regarding enterprise creation
	DV/S	Unclear
	IV/S	Unclear
	RESULTS	The main conclusions of the research are as follows: 1 - There is an over-diversification of institutions as well as services and programmes offering support to business creation in both Catalonia and Puerto Rico. This diversification and the lack of co-ordination between them leads to the duplication and overlap of the supply of business creation support programmes. 2 - The sample of current entrepreneurs from Puerto Rico have the best knowledge of the support programmes offered (90%). On the other hand, the sample of nascent Catalan entrepreneurs made greatest use of these measures (59.6%). 3 - According to both Catalan samples of entrepreneurs, non-economic support programmes are more valuated than

		economic ones, but the Puertorican sample values higher the economic assistance programmes. 4 - While the Puertorican sample of entrepreneurs holds a globally positive opinion of the existing support measures, a high proportion of the entrepreneurs from the Catalan samples have an opposite view. Catalan entrepreneurs feel that the existing measures do not satisfy well their needs and that these measures are insufficiently known. 5 - Consequently, it can be deduced that the services supplied by institutions do not fit the demand for assistance on the part of new entrepreneurs. The public institutions offering support measures in Catalonia are too dependent upon the political cycle, leading to policies, programmes and services that place more emphasis on political interests rather than efficiency and effectiveness. As for the Puertorican case, the institutions are slowed down by the heavy bureaucratic structure involved. Another observed problem stems from the attitude of the staff of many support institutions; their attitude and behaviour often restrain this process creating a demotivation, instead of being a stimulus and motivation factor for the new entrepreneurs

REFERENCE 158	OBJECTIVE/S	Determinants of new venture creation across industries and locations for 103 Italian provinces among 1997 and 2003.
Verheul, I., Carree, M. A., & Santarelli, E. (2007). Regional opportunities and policy initiatives for new venture creation (No. ERS-2007-092-ORG- ERIM Report Series Research in Management). Rotterdam, NL: Erasmus Research Institute of Management (ERIM).	METHODOLOGY	Regional panel data analysis with fixed effects.
	DV/S	Gross rates of “entry,” with and without “exits.”
	IV/S	1) Number of patents 2) Province growth rate, economic based 3) Ratio of tourists to the labor force 4) Large or small cities (a dummy variable) 5) Presence of industrial districts (clusters) 6) Wage level (costs) 7) Value added per capita (labor skill) 8) Number of laws enacted in the previous four years to promote new firm formation.
	RESULTS	Wage costs limit entry in manufacturing (IV 6) Presence of industrial districts achieve higher start-up rates (IV 5) Commercial sectors are attracted to larger cities and higher economic progress (IV 4) Hotels and restaurants thrive in areas with higher number of tourists (IV 3)

		Number of laws introduced had no effect on the number of new start-ups (IV 8) Productive labor is attractive for firms and thus statistically significant (IV 7) No effect of patent activity on entry was found (IV 1) Significant and positive effects of province growth rate on entry (IV 2).

REFERENCE 159	OBJECTIVE/S	To explore the factors influencing new firm formation in Taiwan, from 1986-2001
Wang, S.-W. (2006). Determinants of new firm formation in Taiwan. Small Business Economics, 27, 313-321.	METHODOLOGY	Uses both cross-sectional and time-series data and fixed effect model
	DV/S	The number of new firms established, represented by the number of new for-profit enterprises established in nine major industry sectors: DV1: Mining and quarrying, DV2: Manufacturing, DV3: Water, electricity, and gas DV4: Construction DV5: Wholesaling, retailing, and restaurant DV6: Transportation, warehousing, and communications DV7: Finance, insurance, and real state DV8: Business services DV9: Social and personal services
	IV/S	IV1: GDP Share = the level of demand in the industry in question, represented by the real GDP share of the industry IV2: Real wage = the salary level in the

		industry in question, represented by employees' average monthly salary IV3: Employment = the number of people employed IV4: Real interest rate = the real interest rate, represented by the Central Bank's discount rate (deflated by the GDP deflator) IV5: Unemployment rate = the unemployment rate IV6: GDP growth rate = the health of the economy, represented by the economic growth rate
	RESULTS	Regression results by industry; significant at 5% level: DV1: IV2, IV3, and IV4 DV2: IV1, IV2, IV3, IV4, and IV5 DV3: IV1, IV2, IV3, IV4, IV5, and IV6 DV4: IV2, IV3, IV4, and IV6 DV5: IV1, IV2, IV4, and IV5 DV6: IV1, IV2, IV3, IV4, IV5, and IV6 DV7: IV2, IV3, IV4, and IV5 DV8: IV1, IV2, IV3, IV4, IV5, and IV6 DV9: IV1, IV4, and IV6

REFERENCE 160		
Wassmer, R. W., & Anderson, J. E. (2001). Bidding for business: New evidence on the effect of locally offered economic development incentives in a metropolitan area. Economic Development Quarterly, 15(2), 132-148.	OBJECTIVE/S	
	METHODOLOGY	
	DV/S	
	IV/S	
	RESULTS	

REFERENCE 161	OBJECTIVE/S	Seeking the answer to the following questions: What role does the Research Park play for the business location decision-making of enterprises? Is there an advantage of being located in the Research Park at the University of Illinois at Urbana-Champaign (RPUIUC) instead of choosing a site outside the park? Which are the features of the RPUIUC that are perceived as being important by the enterprises when they made their decision to locate there?
Weber-Bleyle, M. (2003). The research park at UIUC: Impacting the business location decision-making of enterprises (No. Neurus-Project, Fall 2003). Urbana-Champaign, IL: University of Illinois at UC, Department of Urban and Regional Planning.	METHODOLOGY	quantitative and a qualitative inquiry by using a questionnaire and personal interviews with experts: Chicoine, David: vice President for Technology and Economic Development; Dobell, Dan: Business Director for the Research Park; Fox, Peter: Developer of the Research Park Fritz, Mike: Director of the Office of Technology Management; Knight, Bruce: City of Champaign, Planning Department; Parks, John: Director of the Research Park at

		UIUC; Pickard, Scott: Enterprise Works Manager; Tyler, Elizabeth: Director of the City of Urbana Community Development Services Department
	DV/S	N/A
	IV/S	N/A
	RESULTS	How important did you consider the role of the Research Park to gain a better access to the following advantages? (rounded percentages of “important” and “unimportant” – values between were are omitted due to space consideration – the reader is encouraged to refer to article for full data): Access to skilled workforce = (50, 7) Access to faculty consulting = (29, 29) Access and listing in the University Faculty/Staff Directory = (7, 29) Courses and training for employees = (7, 14) Student internships = (43, 14) Spatial proximity to campus and other R&D related Firms = (64, 0) Interactions with other on-park firms = (29, 29) Business-Planning Assistance = (7, 43) Access to university facilities and research equipment = (57, 7) Reduced costs = (43, 14) Existence of incubator facilities = (36, 7)

		Expectation that number of on-park firms will grow = (14, 29) Sport facilities of the University = (0, 43) Prestige of being located in the Research Park = (21, 29) Highest ranked features (rounded percentages of “very important” and “Cumulated values for very important and important”): Spatial proximity to campus / firms = (64, 86) Access to III facilities / equipment = (57, 86) Access to skilled workforce = (50, 79) Access to faculty consulting = (0, 64) Student internships = (0, 64) Reduced costs = (0, 64) Lowest ranked features (rounded percentages of “very important,” “Cumulated values for very important and important,” and “unimportant”): Interaction with other on-park firms = (29, 36, 29) Business planning assistance = (7, 21, 43) Sport facilities of University = (0, 0, 43) In your opinion, how important are these links for your business today? (rounded percentages of “important” and “unimportant” – values between were are omitted due to space consideration – the reader is encouraged to refer to article for full data):

		Personal contact with university academic staff = (57, 7) Access to university equipment = (29, 14) Engagement of university academic staff for consultancy = (29, 21) Access to university department research = (14, 7) Recruitment of recent graduates/more experienced scientists = (50, 14) Establishment of research contract = (21, 14) Attendance at seminars and conferences = (14, 29) Formally organized training of firm's personnel in university = (7, 43) Analysis and testing in university department = (21, 7) Student's involvement in projects = (29, 14) Establishment of joint research with UIUC = (21, 14) Attendance at general education/training programs at UIUC = (7, 29) Interaction with other firms in the Research Park = (21, 14)

REFERENCE 162		
Wendt, P. F. (1972). Deciding on location for a small business. Journal of Small Business Management, 10(1), 1-4.	OBJECTIVE/S	To describe some of the factors influencing business locational decisions
	METHODOLOGY	Literature review based on business cases
	DV/S	N/A
	IV/S	N/A
	RESULTS	The factors influencing business locational decisions are usually grouped into three categories: 1. Cost Factors—land, labor, material, and transportation 2. Demand Factors—extent of the market, location of competitors, sales potential 3. Intangible Factors—preferences for particular environment, security, other personal and family considerations Commercial and industrial land represents one of the few remaining segments of the real estate market in which the; forces of competition among owners and users establish prices and rents. In the jargon of the urban land economist, each site will command a rent or a price which reflects its productivity to the profits of the highest bidder. It is usually expected that, through the forces of competition, reach business will locate on the site for which it is best adapted.

		Shopping Center Locations: The decision to select a downtown location versus one in a shopping center often presents major problems. The downtown location may provide higher present pedestrian count and sales volume, although outlying shopping areas promise the highest future potential. The large retailers or service establishments can hedge against both eventualities by retaining downtown locations and opening branches in the suburbs, an option not often open to the small businessman. Further, the customer drawing power of the large retail store is such that favorable lease terms can be exacted from shopping center owners. Thus the small businessman often finds that he is required to pay substantially higher rents per square foot for shopping center space than is paid by key tenants. The offsetting locational advantages, of course, are the assurance of adequate parking, protection against competition in his lease terms, and the opportunity to capitalize upon the combined drawing power and advertising of a substantial number of merchants in complementary lines. The decision to locate in a shopping center does not solve all problems. Competition among different shopping centers is keen, and zoning changes, new transportation routes, and problems of management and obsolescence can alter the locational advantages, for any specific shopping center. Risk of Over- Improvement: A major source of error in business location decisions is over-investment on a given site. This problem may arise from several causes: 1. Construction of improvements beyond

		needed capacity 2. Over-runs on building costs as a result of underestimation 3. Excessive financing costs in the form of high interest rates or too rapid loan payment schedules Profits as a Decision Model: It can be assumed that the small businessman is primarily interested in maximizing his after-tax profits as a percentage of his invested capital, subject to any special allowance for intangible factors. This can be represented as the difference between the demand factor as it reflects potential sales and costs, including both capital outlays and operating costs, with an adjustment allowance made for the entrepreneur's personal preferences for a particular location or site In Summary: It can be argued that the success of many small business firms can be expressed in one word: LOCATION. Viewed in the broadest sense, this is often essentially a real estate investment problem. Assuming that profit maximization is a prime objective of most small businessmen, the use of a cash-flow decision model has been suggested as a means of measuring the relative demand and cost advantages of alternative locations. The use of such models permits the business man to make adjustments for intangible factors affecting his final decision. Although this approach is unlikely to provide precise estimates of future profitability, it can provide a meaningful framework for comparing the advantages of alternative locational decisions

REFERENCE 163	OBJECTIVE/S	
Westhead, P. (1988). New manufacturing firms and new firm founders in Wales, 1979-1985. Cranfield; Bedford, UK: Cranfield Entrepreneurship Research Centre, Cranfield School of Management, Cranfield University.		
	METHODOLOGY	
	DV/S	
	IV/S	
	RESULTS	

REFERENCE 164	OBJECTIVE/S	
Wheeler, L. A. (2006). The potential effect of eliminating the state corporate income tax on economic activity. State Tax Notes, March 6(DOC 2006-2020), 705-717.		
	METHODOLOGY	
	DV/S	
	IV/S	
	RESULTS	

REFERENCE 165		
Woodward, D. P. (1992). Locational determinants of Japanese manufacturing start-ups in the United States. Southern Economic Journal, 58(3), 690-708.	OBJECTIVE/S	To analyze Japanese-affiliated manufacturing investments in the United States, based on micro data representing individual location choices for 1980-90
	METHODOLOGY	Conditional logit model – best suitable for estimating location probabilities. The model can be used to investigate both the odds of locating in a state (region) or county (local area). The assumption is that Japanese firms, like all firms, seek branch locations with the highest expected profits
	DV/S	New plant data for 1980 through mid-1989 were used to form the dependent variables in this study. The sample encompasses 540 new manufacturing plants, with an average size of about 150 workers. Each plant forms a separate observation comprised of J choices (states or counties), with 1 assigned to the chosen location and 0 otherwise. In the state regressions, each observation is conditional on attributes of the selected state and the attributes of all other states in the choice set.8 In the county regressions, the estimates are calculated independently of state (or regional) influences. For each observation (plant location), the choice set includes the county where the investment occurred and a random sample of nine alternative counties in the same state
	IV/S	State Variables: MARKET = In (gravity adjusted state personal income)

		UNIONIZATION RATE = Proportion of workforce unionized
		UNEMPLOYMENT BENEFITS = ln (average unemployment benefits per covered worker)
		CLIMATE = ln (average annual number of heating degree days)
		CORPORATE PROFIT TAX RATE = ln (average annual number of heating degree days)
		DOMESTIC UNITARY TAX = 1 = domestic unitary tax; 0 = no tax
		WORLDWIDE UNITARY TAX = 1 = worldwide unitary tax; 0 = no tax
		STATE EFFORT = ln (index of state industrial programs)
		JAPANESE OFFICE = 1 = state Japanese office; 0 = no Japanese office
		LAND AREA = ln (state land area excluding federal land)
		County Variables MANUFACTURING AGGLOMERATION = ln (manufacturing establishments)
		POPULATION DENSITY = ln (population per square mile)
		INTERSTATE CONNECTION = 1 = interstate connection; 0 = no interstate connection
		WAGE RATE = ln (manufacturing hourly wage rate)
		PRODUCTIVITY = ln (value-added per manufacturing hour)

		EDUCATIONAL ATTAINMENT = ln (median year of school completed—population over 25) BLACK DENSITY = black proportion of total population POVERTY RATE = proportion of persons below the poverty line NON-POOR BLACK DENSITY = blacks above the poverty line as proportion of the total population UNEMPLOYMENT RATE = average unemployment rate (proportion) PROPERTY TAXES PER CAPITA = ln (total property taxes divided by the population) LAND AREA = ln (land area in square miles)
	RESULTS	State Regression Results: Specification (1) = before regional dummies are included Specification (2) = after regional dummies are included *** significant at 1% level ** significant at 5% level MARKET = (1***) (2***) UNIONIZATION RATE = (2***) CLIMATE = (1**) DOMESTIC UNITARY TAX = (1***) (2**) WORLDWIDE UNITARY TAX = (1***) (2**) JAPANESE OFFICE = (1***) (2***)

		LAND AREA = (1***) (2***) PACIFIC = (2***) EAST NORTH CENTRAL = (2**) EAST SOUTH CENTRAL = (2**) And County Regression Results: Specification (1) = All Counties, all variables except POVERTY RATE and NON-POOR BLACK DENSITY Specification (2) = All Counties, all variables except BLACK DENSITY Specification (3) = Auto Alley Only, all variables except BLACK DENSITY Specification (4) = Non-Auto Alley, all variables except BLACK DENSITY *** significant at 1% level ** significant at 5% level MANUFACTURING AGGLOMERATION = (1***) (2***) (3**) (4***) POPULATION DENSITY = (1***) (2***) (4***) INTERSTATE CONNECTION = (1***) (2***) (3***) EDUCATIONAL ATTAINMENT = (1***) BLACK DENSITY = (1***) POVERTY RATE = (2***) (4***) UNEMPLOYMENT RATE = (1***) (2***) (3***)

		LAND AREA = (1***) (2***) (3***) (4***)

REFERENCE 166	OBJECTIVE/S	To develop a conceptual model – performing entrepreneurship in a region is function of the region's availability of strategic resources, ease of combining resources, ease of founding the firm, and security of doing business
Xue, J. (2007). Three essays on entrepreneurship: Theory, measurement, and environment. Unpublished Doctor of Philosophy, University of Missouri-Columbia, Columbia, MO.	METHODOLOGY	OLS regression model
	DV/S	Performing (technology) entrepreneurship in a region
	IV/S	Generally: Availability of strategic resources (ASR) Ease of recombining resources (ERR) Ease of founding the firm (EFF) Security of doing business (SEC) Specifically: PATENT_1 = Number of utility patents per capita, 32 classes, 2000-2004 average SBIR_1 = Number of Small Business Rewards per capita, 2000-2004 average VC_1 = Amount of venture capital, mil./per capita, 2000-2004 average NTE_1 = Number of high-tech establishments (10 NAICS), 2002 NOS_0 = Number of S&E doctorate holders per capita, 1997 RD_0 = Federal R&D investment in millions per capita, 1995-1999 average

		ACU_0 = Number of universities (with federal R&D) per million population, during 1995-1999 ACF_0 = Number of firms (> 1000 employees) per capita (based on 10 NAICS codes), during 1995-1999 BICB_0 = Number of business incubators per million population, before 2000 NCO_0 = Number of technology consultants (NAICS 5416) per capita, 1997 NOL_0 = Number of intellectual property lawyers per million population, 1998 FI-I_0 = A measure of the size of government (the smaller the size the higher the score on FI_I), 1995-1999 average FI-II_0 = Taking and discriminatory Taxation (less takings and discriminatory taxation means higher the score on F-II), 1995-1999 average FI-III_0 = Labor market freedom (less restriction on labor market indicates higher score on F-III), 1995-1999 average
	RESULTS	Model 1 – Untransformed with all variables: *** sig at 0.01 level; ** sig at 0.05 level RD_0 ** ACF_0 *** Model 2 – Log-transformed (ln_PEI_1) with all variables: *** sig at 0.01 level; ** sig at 0.05 level RD_0 ** ACF_0 ***

		FI_I ** Model 3 – Log-transformed (ln_PEI_1) and reduced: *** sig at 0.01 level; ** sig at 0.05 level RD_0 ** ACF_0 *** NOL_0 ** FI_I ***

REFERENCE 167		
Yang, C., Smith, C., Gatfield, T., & Harker, M. (2003, September 12-13). An empirical examination of the decision-making process of 'key industries' locating to Brisbane, Australia. Paper presented at the Clusters, Industrial Districts and Firms: The Challenge of Globalization, Modena, IT.	OBJECTIVE/S	Critically examines the implications of the new economy for location decision-making
	METHODOLOGY	In depth interviews – of twenty senior executives from firms in the industries of I1) Information technology, I2) Electronic/telecommunications, I3) Biotechnology, I4) Creative/multimedia, I5) Aviation, and I6) All industries combined
	DV/S	N/A
	IV/S	N/A
	RESULTS	Top ten most important location factors to key industries; industry number(ranking): Business premises cost: I6(1), I1(2), I2(1), I3(1), I4(1), I5(1) Availability of Telecom. Infrastructure: I6(2), I1(1), I2(2), I3(6), I4(6) Ability to cater to business client: I6(3), I1(3), I2(5), I4(4) Proximity to CBD: I6(4), I1(8), I2(3), I4(2) Proximity to Client: I6(5), I1(9), I2(4), I4(3), I5(10) Business premises special infrastructure: I6(6), I1(7), I3(2), I4(8), I5(2)

		Provision of a suitable lifestyle for employee: I6(7), I1(4), I3(7), I4(5) Availability of area for business expansion: I6(8), I1(6), I3(5), I4(7), I5(8) Ability to retain staff: I6(9), I1(5), I2(8), I3(10), I5(7) Access to transportation infrastructure: I6(10), I2(7) Accessibility to public transport: I1(10), I4(9) Proximity to where the key decision maker' live: I2(5) Ability to attract staff: I2(9), I4(10), I5(6) Access to shops and cafes: I2(10) Pool of local scientific talent Collaboration with local research and education institutions: I3(3) Proximity to R&D collaborators: I3(4) Cost of Living: I3(8) Government support (in general): I3(9) Government inducement: IV5(3) Labor cost: V5(4) Collaboration with local industries: V5(5) Collaboration with regional industries: V5(9) And… Top ten most important location information

		sources of key industries; industry number(ranking): Directly collected from market: I6(1), I1(1), I2(2), I3(2), I4(1), I5(1) Real estate agents: I6(2), I1(2), I2(1), I3(3), I4(2), I5(6) Industry partner: I6(3), I1(3), I2(3), I3(1), I4(3), I5(3) Government agents: I6(4), I1(5), I2(4), I3(4), I4(4), I5(2) Professional consulting company: I6(5), I1(4), I2(5), I3(5), I4(5), I5(4) Industry conference or trade fair: I6(6), I1(7), I2(6), I3(6), I4(6), I5(7) Internet: I6(7), I1(6), I2(7), I3(7), I4(7), I5(5) And… Other results based on: 1) Important information sources for local, interstate, and overseas firms 2) Important information sources for different size of firms 3) Top fiver personal who have been involved in the location decision-making process of key industries 4) Top five personnel who have been involved in location decision-making process in different size of firm 5) Top five personnel who have been involved in location decision-making process of

		local, intestate, and overseas firms

REFERENCE 168		
Yang, J., & Lee, H. (1997). An AHP decision model for facility location selection. Facilities, 15(9/10), 241-254.	OBJECTIVE/S	Presents an AHP (analytical hierarchy process) decision model for facility location selection from the view of organizations which contemplate locations of a new facility or a relocation of existing facilities
	METHODOLOGY	Literature review and the AHP model – The model provides a framework to assist managers in analyzing various location factors, evaluating location site alternatives, and making final location selections. The primary principle of the AHP model is to match decision- makers' preferences with location site characteristics. The model requires that a number of potential sites have been proposed. Alternatives are then evaluated and compared under both quantitative and qualitative factors to allow managers to incorporate managerial experience and judgment in the solution process. Uses an example problem to illustrate the solution process
	DV/S	N/A
	IV/S	N/A
	RESULTS	A general ranking of location factors – (1) Access to markets/distribution centres: Cost of serving markets Trends in sales by areas Ability to penetrate local market by plant presence

		(2) Access to supplies/resources Transportation costs Trends in supplier by area (3) Community/government access Ambience/cost of living Co-operation with established local industry Community pride Housing/churches Schools and colleges (4) Competitive considerations Location of competitors Likely reaction to the new site (5) Environmental factors Community attitude State/local governmental regulations (6) Labour Prevailing wage rates Extent and militancy of unions in the area Productivity Availability Skill levels available (7) Taxes and financing State income tax/local property and income taxes Unemployment and compensation premiums Tax incentive concessions Industrial pollution control revenue bonds (8) Transportation Trucking service Rail service Air freight service (9) Utilities services Quality and price of water and sewerage Availability and price of electric and natural gas Quality of police, fire, medical services

		A general ranking of location factors – (A) Pivotal Worker productivity Receptivity to business and industry Market access Skills/technical/professional workers Transportation access (B) Vital Living amenities Market growth potential Preference of company executive Industrial building available Water supply Unskilled/semi-skilled workers (C) Important Proximity to services Energy supplies Attitude towards business and industry taxes Energy costs Raw materials/supplies accessibility Waste water facilities (D) Secondary Cost of property and construction Personal income tax structure Attitudes on environmental control Financial health of region Financial incentives Proximity to other company facilities