



UMASS DONAHUE INSTITUTE



Knowledge Corridor Growth Business Study Report

Prepared for the Pioneer Valley Planning Commission:

by
UMass Donahue Institute
Economic and Public Policy Research

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Sponsors



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Purpose and Background

The Economic and Public Policy Research (EPPR) group at the UMass Donahue Institute conducted research on growth oriented companies in the Knowledge Corridor region of Connecticut and western Massachusetts. In this summary report, we will refer to the Connecticut portion as the Capital Region, which includes Hartford and Tolland counties. We will refer to the western Massachusetts portion as the Pioneer Valley, which includes Franklin, Hampden, and Hampshire County. The combined area will be called the Knowledge Corridor. The following analysis combines data from separate studies examining the Pioneer Valley and Capital Region. The Pioneer Valley portion focuses on 2005 to 2010 employment data and phone interviews conducted in the latter part of 2012 and the beginning of 2013. The Capital Region study used employment data from 2007 to 2012 and conducted phone interviews in the fall of 2014. The intention of both studies was to identify companies in the region at all growth levels, including high-growth firms, companies experiencing slower sustained growth over time, and those firms not growing but may have the potential for growth in the future. The research includes secondary data analysis and a phone survey of businesses in both the Capital Region and the Pioneer Valley. This work sought to improve the understanding of business needs and success factors of sustained growth-oriented companies within the region. The research focused on small- to medium-sized firms, defined as businesses with between 5 and 500 employees in the base year of analysis and still existed five years later.

The two studies were sponsored by a cross-section of foundations, planning, workforce training, higher education, private sector, economic development, and business support organizations in the region. The ultimate goal of the work was to use the research findings to support efforts in:

1. Driving the creation and growth of businesses in the region by developing a supportive financing and business assistance environment and by demonstrating/recognizing the success of existing businesses;
2. Increasing and sustaining job creation and retention; and
3. Enhancing the long term expansion and sustainability of the economic base in the region.

To support these objectives, this research was designed to help:

1. Identify growth oriented businesses and industries in the Knowledge Corridor, as well as understand their characteristics, determine what contributes to their success, and consider the challenges and constraints to continued growth;
2. Identify businesses that are not growing, in order to assist sponsors to better target businesses and industry sectors with the potential to grow if constraints are addressed;
3. Identify the types of business assistance that would address growth needs, such as technical assistance, financing options, navigation of the regulatory environment, and business networking; and
4. Enhance business assistance programs in the region to best target capital resources to growth oriented businesses, as well as for economic development benchmarking and planning.

Key Findings

This summary report of business growth in the Capital Region and the Pioneer Valley provides two key areas of understanding. First, the profile of small- to medium-sized businesses in the study group sheds light on the mix of establishments by industry, growth in jobs and sales, and location. Second, the completion of detailed business surveys provides a rich set of business feedback on the region's economic conditions in terms of success factors, barriers to growth, and areas for business and financial assistance. Key findings from this study include:

- Small businesses predominate our study group in the Knowledge Corridor. Seventy-one percent of firms in the Capital Region and 73 percent of firms in Pioneer Valley have fewer than 20 employees.
- The vast majority of firms in both regions are experiencing stable employment growth. Eighty-eight percent of Capital Region study firms had stable employment from 2007-2012, and 81 percent of Pioneer Valley study firms had stable employment from 2005-2010. Pioneer Valley had a higher concentration of declining firms (11 percent) compared to the Capital Region (6 percent).
- The most notable industry in terms of employment change is Manufacturing. Generally speaking, the distribution of growth firms by industry is fairly similar to the distribution of all firms by industry. The most notable exception to this is Manufacturing. While the Manufacturing industry in the Knowledge Corridor makes up 11 percent of all firms in our study universe, it makes up 18 percent of all growth firms. Interestingly, Manufacturing is disproportionately represented among declining firms as well, also making up 18 percent of all declining firms in the Knowledge Corridor.
- Small businesses in the region hold the key to firm growth and decline. There is a significant concentration of growing firms with between 10-49 employees in the Knowledge Corridor. Interestingly, there is a higher proportion of growing firms in the Pioneer Valley with 5-9 employees (24 percent compared to 17 percent) and a slightly higher proportion of growing firms in the Capital region with 50-99 employees (12 percent compared to 9 percent). Pioneer Valley has a slightly higher concentration of declining firms with 1-4 employees (35 percent) as opposed to the Capital Region (30 percent). It should be noted that based on our study focus, companies with 1-4 employees can only land in the declining class because a business only made the initial study group by having at least five employees in base year (2005 for the Pioneer Valley study and 2007 for the Capital Region study). Overall, these data indicate the largest employment change is occurring in smaller sized firms.
- Study firms in the Knowledge Corridor are optimistic about short-term employment growth. While only 7 percent of firms in our study area experienced job growth over the study period, 37 percent of surveyed firms in the Knowledge Corridor expected to grow employment in the next three years. This optimism was more pronounced in the Pioneer Valley. Forty percent of surveyed firms in the Pioneer Valley expected to increase employment in the next three years, compared to 34 percent of the Capital Region.
- The majority of surveyed firms in both regions expect sales growth in the next three years. Seventy percent of firms in the Knowledge Corridor expect their sales to grow over the next three years.
- A higher proportion of surveyed firms in the Pioneer Valley believe the region is an excellent or good location for business than compared to the Capital Region. Approximately two-thirds (66 percent) of surveyed firms in the Pioneer Valley felt the region was an excellent or good location for business success, compared to just 54 percent of firms surveyed in the Capital Region. On the other hand, 14 percent of the

surveyed firms in the Capital Region and 5 percent of the surveyed firms in Pioneer Valley believe their region is a poor location for business success.

- Advertising and marketing, market and customer research, and social media and website optimization were the top business assistance needs. Other top rated business assistance needs include networking with other businesses to share best practices and employee recruitment and training.
- A higher proportion of Pioneer Valley firms received financing help over the past year and anticipated needing financing over the next three years compared to Capital Region firms. Nearly two-thirds (67 percent) of surveyed firms in the Pioneer Valley received financing help over the last year, compared to 42 percent of surveyed firms in the Capital Region. Thirty-five percent of surveyed firms in the Pioneer Valley anticipate needing financing help in the next three years, compared to just 19 percent of survey firms in the Capital Region. It is interesting that in both cases, far more firms accessed financing in the last year than anticipate needing financing in the next three years. It is unclear why this is the case. It could be that most firms that need financing already received the capital they needed in the last year. That seems unlikely though. It could also mean that local firms may be overly optimistic about not needing extra capital to fund business expenses.

Methodology

The following summary report combines separate business growth studies conducted by EPPR for the Pioneer Valley and the Capital Region in Connecticut. More data results are available for each region in their respective reports.¹ Using proprietary time-series establishment-level data from the National Establishment Time Series (NETS) database, we examined and categorized business growth in the Capital Region of Connecticut between 2007 and 2012 and for Pioneer Valley region of Massachusetts between 2005 and 2010. The establishment data was used to develop a detailed profile of small- to medium-sized businesses across the Knowledge Corridor. A telephone survey was then conducted to obtain up-to-date data on many of these firms and get their perspective on success factors, challenges and opportunities for growth. The following section gives more detail on the methods used for both of the previous studies.

Defining the Study Group

This summary report combines material and analysis from two previous reports by EPPR; the Capital Region of Connecticut, consisting of Hartford and Tolland counties (April 2015), and Pioneer Valley region of Massachusetts, consisting of Hampden, Hampshire, and Franklin counties (April 2013). Both of these studies applied a similar methodological approach, which made it possible to compare both regions and analyze the Knowledge Corridor as a whole. Both studies focused on business size and key industrial sectors that study sponsors felt were most well-poised to reach out to with service offerings. These parameters were used to compile a list of businesses for each region out of the NETS database. The NETS data list was used to both analyze the key characteristics of local businesses, as well as serve as the basis for the telephone survey sampling.

The analysis focuses on regional business growth between 2007 and 2012 for the Capital Region and between 2005 and 2010 in the Pioneer Valley. In both cases, we used the latest year available in the NETS database. In consultation with the study sponsors, EPPR developed a framework for identifying relevant firms for each study and creating a set of growth tiers based on employment growth rates. The following criteria were used for the analysis:

- For the Capital Region, businesses located in either Hartford or Tolland county. For the Pioneer Valley, businesses located in Franklin, Hampden, or Hampshire county.
- Businesses with between 5 and 500 employees in the base year of analysis and remained in existence five years later. For the Pioneer Valley, this time period spanned between 2005 and 2010. For the Capital Region this time period spanned between 2007 and 2012.
- Both studies focused primarily on private for-profit commercial entities. Large non-profit institutions, public entities, and social services were excluded from the analysis. In some cases, only portions of larger industries were excluded from the study group, such as in educational services (NAICS 61) and health care and social assistance (NAICS 62), so as not to exclude for-profit commercial entities.

Table 1 shows the number of NETS records corresponding with the filters and exclusions used to compile each region's final study group. **Table 2** outlines the industries that were eliminated from the study group. The last two highlighted sectors were excluded from the Capital Region² study only.

¹ Copies of both reports can be found on the Regional Studies page of the MassBenchmarks website. Follow link to page: <http://www.massbenchmarks.org/publications/regional.htm>

² For simplicity, in data tables we will refer to the Connecticut or Capital Region as "CT", the Pioneer Valley as "PV" and the Knowledge Corridor as "KC" throughout the report.

Table 1: Knowledge Corridor Businesses - Parameters Used to Define Study Group of Firms

Study Group Parameters	Number of Firms-CT Study	Number of Firms-PV Study	Number of Firms-KC
NETS firms open in study year, with employment figures 5-years previous	48,641	26,156	74,797
NETS firms with less than 5 employees in base year excluded	35,452	17,850	53,302
NETS firms with 500 or greater employees in base year excluded	110	34	144
NETS firms excluded by selected NAICS code	2,325	1,714	4,039
Total firms included in Study Group, after filters and exclusions	10,754	6,558	17,312

Source: National Establishment Time Series (NETS) Database, Walls & Associates; UMDI Analysis

Note: Study year is 2012 for the CT Study and 2010 for the PV Study. The base year is 2007 for the CT Study and 2005 for the PV Study.

Table 2: NAICS exclusions of CT and PV Study Group Firms by Industry Sector

Description of Selected NAICS Industry Sectors Excluded:	Removed NAICS Sectors:	2012 NAICS Definitions:
All Utilities	22	Utilities
All Real Estate	531	Real Estate
Partial Removal of Educational Services (NAICS 61) (Kept specialized professional training programs)	6111	Elementary and Secondary Schools
	6112	Junior Colleges
	6113	Colleges, Universities and Professional Schools
Partial Removal of Health Care & Social Assistance (NAICS 62) (Kept daycare providers, nursing homes and private medical offices)	62141	Family Planning Centers
	62142	Outpatient Mental Health and Substance Abuse Centers
	621991	Blood and Organ Banks
	622	Hospitals
	6232	Residential Mental Retardation, Mental Health and Substance Abuse Facilities
	6241	Individual and Family Services
	6242	Community Food and Housing, other Emergency and Relief Services
All Religious, Grantmaking, Civic, Professional and Similar Organizations	813	Religious, Grantmaking, Civic, Professional and Similar Organizations
	814	Private Households
All Public Administration	92	Public Administration
All Postal Service	491110	Postal Service
All Libraries and Archives	51912	Libraries and Archives

Source: UMDI in consultation with study sponsors, U.S. Census Bureau North American Industry Classification System (NAICS)

Note: Grey highlighted cells are CT exclusions only.

CT and PV Analysis and Results: NETS Data

Overview

This research consisted of two primary activities: 1) an analysis of a proprietary, secondary business establishment database with historical trend information on firms in the Pioneer Valley and the Capital Region of the Knowledge Corridor (the “NETS data”); and 2) the implementation and analysis of a survey based on the initial business establishment study. The following section focuses on the analysis of study firms using the NETS data. See Methodology for more detail on data and study protocols.

NETS Data Analysis

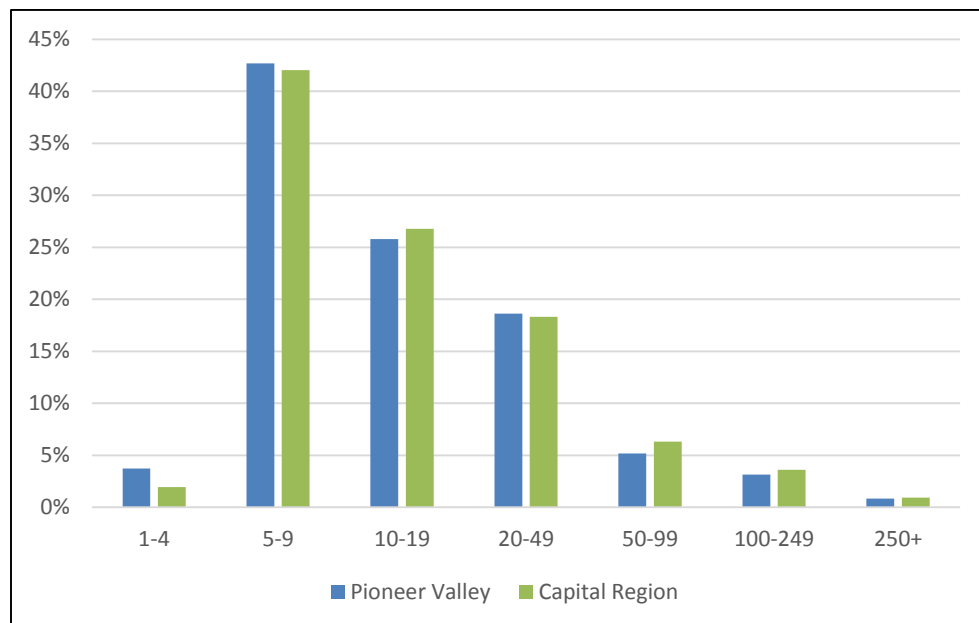
Profile of Pioneer Valley and Capital Region - Study Group Businesses

The following section breaks down the characteristics of firms in our study (hereafter referred to as “study firms”) by employment size, region, employment growth tier, sales growth tier, and industry sector.

Study Firms by Size

As displayed in **Figure 1**, the distribution of firms by employment size is fairly similar for both study areas. In both regions the vast majority of study firms are small, with around 90 percent of the businesses having less than 50 employees. Approximately 10 percent of all firms in both studies had more than 50 employees and only 1 percent of firms employed more than 250 workers.

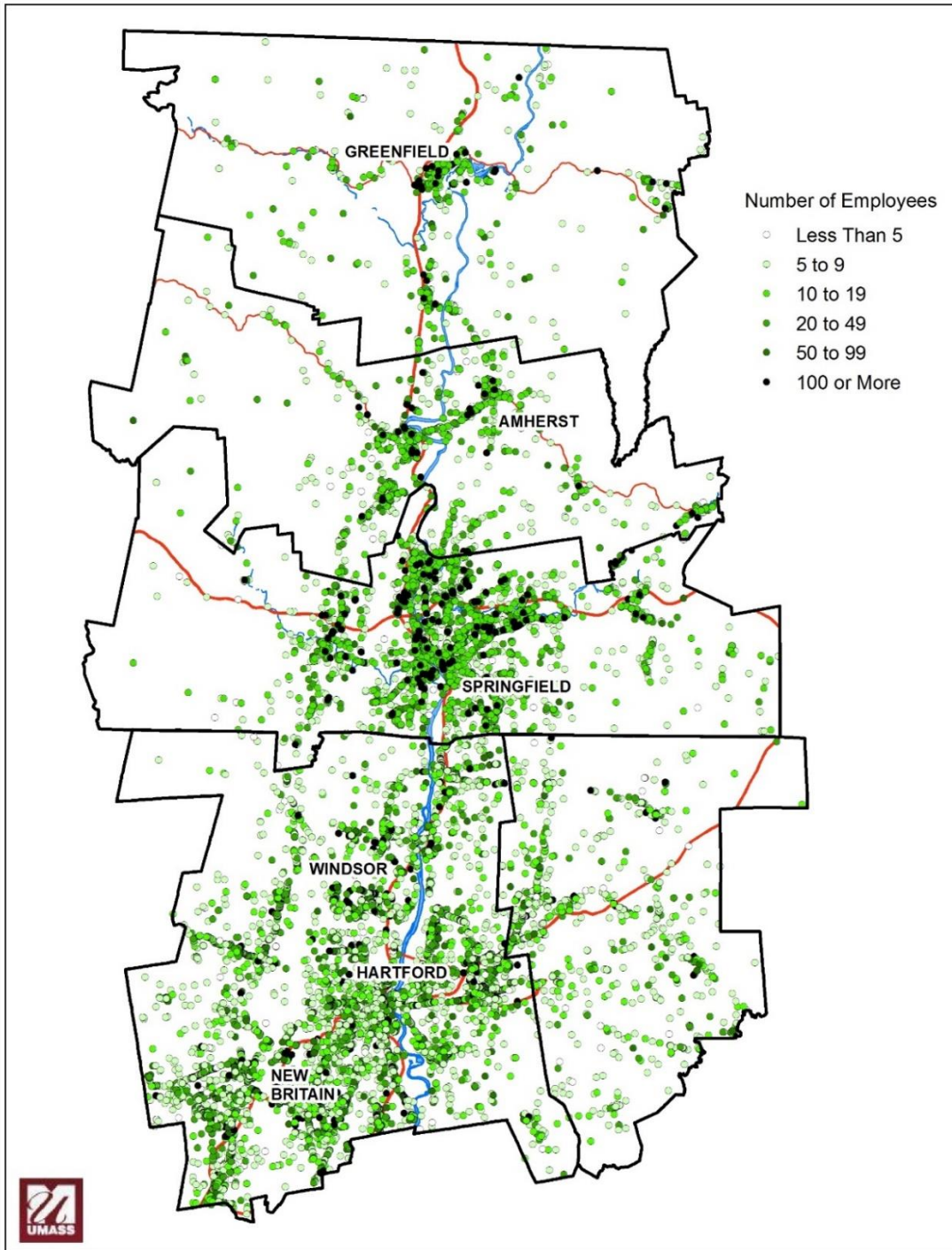
Figure 1: Percent Total Study Firms by Employment Size



Source: National Establishment Time Series (NETS) Database, Walls & Associates; UMDI Analysis

Figure 2 below shows the concentration of study firms across the Knowledge Corridor. Unsurprisingly, there are employment clusters around Springfield and Hartford, with smaller clusters of employment around cities such as Amherst, Windsor, and New Britain. Springfield has a particular concentration of larger employers, or firms with 100 employees or more.

Figure 2: Map of Study Firms by Employment Size, Capital Region (2012) and Pioneer Valley (2010)



Source: National Establishment Time Series (NETS) Database, Walls & Associates; Office of Geographic Information (MassGIS) produced by UMDI

Study Firms by Size and Growth Tier

Table 3 shows the distribution of growth tiers by establishment employment size. Each column is the percentage distribution of all growing firms, stable firms, and declining firms by size. The aggregate of each column in the table equals 100 percent. A good way of examining this table is to look at the percent of total firms by establishment size (the column to the far right). If the employment growth tiers were evenly distributed among the employment size ranges, then the percentages you see in the far right column for the “total” would be the same for each growth tier. For example, approximately 27 percent of all Capital Region firms in our study have between 10-19 employees. When looking at the percentage of businesses by growth tier with 10-19 employees in the Capital Region, any deviation from 27 percent would show a relative concentration or lack of concentration of those firms.

There is a significant concentration of growing firms with between 10-49 employees throughout the Knowledge Corridor, with the highest proportion of growth firms having between 5-9 employees. Interestingly, there are more growth firms in the Pioneer Valley with 5-9 employees than in the Capital Region (24 percent compared to 17 percent). There are slightly more growth firm in the Capital Region with 50-99 employees (12 percent compared to 9 percent). The Pioneer Valley has a slightly higher concentration of declining firms with 1-4 employees (35 percent) as compared to the Capital Region (30 percent). It should be noted that based on our study focus, companies with 1-4 employees can only land in the declining class because a business only made the initial study group by having at least five employees in base year (2005 for the Pioneer Valley study and 2007 for the Capital Region study). Overall, these data indicate the employment change is particularly focused in small sized firms.

Table 3: Percent of Study Firms by Size and Employment Growth Tier, for CT 2007-2012 and PV 2005-2010

Employment	Employment Growth Tier											
	Growing			Stable			Decline			Total		
	CT	PV	KC	CT	PV	KC	CT	PV	KC	CT	PV	KC
250+	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
100-249	8%	5%	7%	3%	3%	3%	3%	3%	3%	4%	3%	3%
50-99	12%	9%	11%	6%	5%	6%	5%	4%	5%	6%	5%	6%
20-49	31%	29%	30%	18%	19%	18%	16%	10%	13%	18%	19%	18%
10-19	30%	31%	30%	27%	26%	27%	20%	17%	18%	27%	26%	26%
5-9	17%	24%	20%	45%	46%	45%	24%	32%	28%	42%	43%	42%
1-4	0%	0%	0%	0%	0%	0%	30%	35%	33%	2%	4%	3%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: National Establishment Time Series (NETS) Database, Walls & Associates; UMDI Analysis

Study Firms by Employment and Sales Growth

Tables 4 and **5** below examine growth in sales by employment growth tiers. In both regions more firms report sales gains than employment gains. For the Capital Region, nearly 4,300 firms report growing in sales but only 633 report growing in employment. The Pioneer Valley shows a similar trend, where almost 3,000 firms report sales growth and only 561 report employment growth. In both regions the highest concentration of study firms have stable employment. However, in terms of sales, stable firms comprised a smaller concentration than growth and declining firms.

Table 4: CT Study Firms by Employment and Sales Growth Tier, 2007-2012

Number of Firms by Employment	Growth Tier	Number of Firms by Sales			Total
		Growing	Stable	Decline	
	Growing	529	20	84	633
	Stable	3,664	2,086	3,672	9,422
	Decline	87	30	582	699
	Total	4,280	2,136	4,338	10,754

Source: National Establishment Time Series (NETS) Database, Walls & Associates; UMDI Analysis

Table 5: PV Study Firms by Employment and Sales Growth Tier, 2005-2010

Number of Firms by Employment	Growth Tier	Number of Firms by Sales			Total
		Growing	Stable	Decline	
	Growing	518	13	30	561
	Stable	2,335	1,087	1,872	5,294
	Decline	76	36	591	703
	Total	2,929	1,136	2,493	6,558

Source: National Establishment Time Series (NETS) Database, Walls & Associates; UMDI Analysis

Study Firms by Industry and Employment Growth Tier

Table 6 displays growing study firms by industry sector. As **Table 6** shows, Manufacturing was overrepresented among growth firms in the Knowledge Corridor (18 percent of growing firms compared to 11 percent of all study firms). There appears to be an interesting regional difference in Construction between the Capital Region and the Pioneer Valley. Construction makes up a similar percentage of the study firms in the two regions (9 percent in the Capital Region, compared to 8 percent in the Pioneer Valley). However, as noted above, Construction firms in the Pioneer Valley make up 11 percent of growing firms in the region. In the Capital Region, the percentage of growth firms that are in Construction is similar to the overall distribution of Construction firms in the study universe.

Leisure and Hospitality is the most notable underrepresented industry among growth firms. Leisure and Hospitality firms make up 7 percent of all growth firms in the Knowledge Corridor, but 12 percent of the study universe.

Table 6: Growing Study Firms by Supersector Compared to Total Study Firms

Industry Supersector	CT Firms		PV Firms		KC Firms	
	Total Growing Firms*	Total Study Firms	Total Growing Firms*	Total Study Firms	Total Growing Firms*	Total Study Firms
Natural Resources and Mining	1%	1%	1%	1%	1%	1%
Construction	8%	9%	11%	8%	9%	9%
Manufacturing	20%	11%	16%	12%	18%	11%
Trade, Transportation and Utilities	23%	24%	28%	28%	25%	25%
Information	3%	2%	2%	2%	2%	2%
Financial Activities	6%	7%	7%	6%	6%	7%
Professional and Business Services	18%	17%	12%	13%	15%	15%
Education and Health Services	11%	13%	11%	12%	11%	13%
Leisure and Hospitality	6%	11%	8%	13%	7%	12%
Other Services	4%	6%	4%	6%	4%	6%
Total	100%	100%	100%	100%	100%	100%

Source: National Establishment Time Series (NETS) Database, Walls & Associates; UMDI Analysis

*Note: Includes all fast, moderate, and slow growth firms.

Table 7 compares the declining study firms by major industrial sector. The most notable trend in these data is the fact that Manufacturing firms are overrepresented among declining study firms. In the Knowledge Corridor, 18 percent of declining firms are in Manufacturing, compared to 11 percent of the study universe. Leisure and Hospitality firms in the Knowledge Corridor are underrepresented among declining firms. This indicates employment in Leisure and Hospitality is stable throughout the Knowledge Corridor region. Education and Health Services firms have a proportionately lower concentration of declining firms in Knowledge Corridor as well, when compared to the respective study universe. This industry also appears to be relatively stable in terms of employment.

Table 7: Declining Study Firms by Industry Supersector Compared to Total Study Firms

Industry Supersector	CT Firms		PV Firms		KC Firms	
	Decline Firms	Total Study Firms	Decline Firms	Total Study Firms	Decline Firms	Total Study Firms
Natural Resources and Mining	0%	1%	2%	1%	1%	1%
Construction	12%	9%	9%	8%	10%	9%
Manufacturing	18%	11%	18%	12%	18%	11%
Trade, Transportation and Utilities	24%	24%	26%	28%	25%	25%
Information	2%	2%	2%	2%	2%	2%
Financial Activities	9%	7%	6%	6%	8%	7%
Professional and Business Services	17%	17%	13%	13%	15%	15%
Education and Health Services	7%	13%	8%	12%	8%	13%
Leisure and Hospitality	7%	11%	9%	13%	8%	12%
Other Services	5%	6%	6%	6%	6%	6%
Total	100%	100%	100%	100%	100%	100%

Source: National Establishment Time Series (NETS) Database, Walls & Associates; UMDI Analysis

Analysis and Results: Business Survey

Overview

Using a sample of firms identified from the NETS data analysis, EPPR conducted phone surveys with select businesses in the Capital Region of Connecticut and Pioneer Valley of Massachusetts. The following section outlines the findings from the business surveys. Phone surveys for the Capital Region were conducted in late-September and early-October 2014. Phone surveys for the Pioneer Valley were conducted in December 2012 and January 2013. In total there were 185 businesses in Capital Region and 171 businesses in Pioneer Valley that completed surveys. Generally, the survey instruments were the same, though, the Capital Region survey was refined to reflect things learned during the Pioneer Valley survey, in particular improving the wording of some questions. See the Methodology section in the individual region reports for more detail on the methods, data, and survey design used to produce the findings below.

Both surveys attempted to oversample growth firms. **Table 8** below shows the comparison between growth firms in the overall study group to those that were surveyed in each respective region. In addition, study sponsors for the Capital Region requested that we oversample businesses in Manufacturing; Finance and Insurance; Professional, Scientific, and Technical Services; and Health Care and Social Assistance. Stable businesses still remained the largest surveyed group.

Table 8: Survey Targets and Respondents by Employment Growth Rate

Employment Growth Tier	CT Business Survey Firms	CT Total Study Firms	PV Business Survey Firms	PV Total Study Firms
Fast	6%	3%	9%	4%
Moderate	6%	1%	7%	2%
Slow	6%	2%	7%	3%
Stable	75%	88%	74%	81%
Decline	6%	6%	4%	11%
Total	100%	100%	100%	100%

Source: UMDI Connecticut Business Survey, 2014; UMDI Pioneer Valley Business Study, 2012; National Establishment Time Series (NETS) Database, Walls & Associates

Table 9 below shows that around half of the firms surveyed in the Knowledge Corridor indicated their primary market was local. A quarter of firms in the Knowledge Corridor indicated their primary market was regional (Northeast), with 13 percent stating their primary market was national, and 12 percent saying their primary market was international.

Table 9: Company's Primary Market Area

Market Area	CT Business Survey Firms		PV Business Survey Firms		KC Business Survey Firms	
	Number of Firms	Percent of Total	Number of Firms	Percent of Total	Number of Firms	Percent of Total
Local	96	52%	86	50%	182	51%
Regional (Northeast)	47	25%	38	22%	85	24%
National	22	12%	25	15%	47	13%
International	20	11%	22	13%	42	12%
Total	185	100%	171	100%	356	100%

Source: UMDI Connecticut Business Survey, 2014; UMDI Pioneer Valley Business Study, 2012; National Establishment Time Series (NETS) Database, Walls & Associates

Table 10 below shows firm employment expectations over the next three years. Interestingly, very few firms in the Knowledge Corridor (2 percent) predicted employment declines in the next three years. Most commonly, businesses predict they will stay the same (46 percent), with 37 percent expecting employment growth. More firms in Pioneer Valley predict an increase in expected employment growth in the next three years (40 percent compared to 34 percent). Overall, surveyed firms in the Pioneer Valley anticipate more growth or stability in short-term employment than surveyed firms in the Capital Region.

These survey data are noteworthy in part because the amount of actual employment growth in the NETS data was quite different than these expectations. NETS data in both regions showed that the vast majority of firms experienced stable employment, with a smaller subsection experiencing growth or decline. Survey results anticipating short-term employment growth may be demonstrating optimism among local business owners. It may also be because the Great Recession overlapped with parts of the data period used in the NETS analysis for both regions, a time period where employment growth was not be terribly common. It could also be an artifact of NETS data not capturing “real time” small employment changes.³

Table 10: Expected Employment Change in the Next Three Years

Expected Growth	CT Business Survey Firms		PV Business Survey Firms		KC Business Survey Firms	
	Number of Firms	Percent of Total	Number of Firms	Percent of Total	Number of Firms	Percent of Total
Increase	62	34%	69	40%	131	37%
Stay the same	81	44%	83	49%	164	46%
Decrease	5	3%	3	2%	8	2%
I don't know	37	20%	16	9%	53	15%
Total Firms	185	100%	171	100%	356	100%

Source: UMDI Connecticut Business Survey, 2014; UMDI Pioneer Valley Business Study, 2012; National Establishment Time Series (NETS) Database, Walls & Associates

³ The NETS dataset cautions that employment movements in the Dun & Bradstreet data (which the NETS data is based on) are more sluggish than other public measures of employment, like the quarterly Bureau of Labor Statistics data. For instance, a firm with 4 employees will report “4 employees” even if a worker just left if they are in the process of replacing the person, or will report “5 employees” only if they decide that the additional position is permanent. NETS jobs data therefore tend to move in a “ratchet manner” (i.e. no change for a few years, then a move from 5 to 10 or from 10 to 5). For more information see, *Understanding NETS Data*, Walls & Associates, p. 4.

Table 11 shows that many more firms expect sales growth over the next three years as compared to employment growth. Seventy percent of firms surveyed in the Knowledge Corridor expect their sales to grow over the next three years. Thirteen percent of firms surveyed in the Knowledge Corridor expect to have no sales growth over the next three years.

Overall, these data suggest that despite optimism around sales growth, firms may be reluctant to add to payroll in the short term. This is consistent with the employment and sales trends observed in the earlier NETS analysis, which showed that many more firms in both regions experienced higher sales growth than employment growth. Expected growth of sales is higher than expected growth of employment, but in both cases is higher than the actual growth observed in the NETS analysis.

Table 11: Sales Growth Expectations Over the Next Three Years

Sales Growth Expectations	CT Business Survey Firms		PV Business Survey Firms		KC Business Survey Firms	
	Number of Firms	Percent of Total	Number of Firms	Percent of Total	Number of Firms	Percent of Total
50% or more	6	3%	13	8%	19	5%
More than 25% but less than 50%	49	26%	29	17%	78	22%
Less than 25%	70	38%	83	49%	153	43%
I expect no sales growth	20	11%	25	15%	45	13%
I don't know	40	22%	21	12%	61	17%
Total	185	100%	171	100%	356	100%

Source: UMDI Connecticut Business Survey, 2014; UMDI Pioneer Valley Business Study, 2012; National Establishment Time Series (NETS) Database, Walls & Associates

Table 12 shows that 54 percent of responding businesses thought the Capital Region was either an excellent (12 percent) or good (42 percent) location for their business to succeed. A significantly larger proportion (66 percent) of surveyed Pioneer Valley firms indicated the area was either an excellent (21 percent) or good (45 percent) location for their business to succeed. In general, these data indicate there is more positivity among local firms towards the Pioneer Valley as a business location than the Capital Region.

Table 12: Region as a Good Location to Succeed

Region as a Location for Success	CT Business Survey Firms		PV Business Survey Firms	
	Number of Firms	Percent of Total	Number of Firms	Percent of Total
Excellent	23	12%	36	21%
Good	78	42%	77	45%
Fair	59	32%	45	26%
Poor	25	14%	8	5%
I don't know	0	0%	5	3%
Total	185	100%	171	100%

Source: UMDI Connecticut Business Survey, 2014; UMDI Pioneer Valley Business Study, 2012; National Establishment Time Series (NETS) Database, Walls & Associates

Next, firms were asked whether each of the following factors in **Table 13** was a major, minor, or not a barrier to business growth. Cost of doing business and the availability of skilled workers were ranked as the top two barriers to business growth for both regions. A larger proportion (55 percent) of businesses surveyed in Capital Region

identified the cost of doing business as a major factor compared to firms in the Pioneer Valley (50 percent). Market demand, permitting/regulations, and cash flow management all rated similarly as barriers to business growth in both the Capital Region and the Pioneer Valley.

The Capital Region survey included follow-up questions for the respondents that indicated business cost and/or the availability of skilled workers were barriers to growth. Sixty-seven percent indicated health care costs were a big problem, followed by taxes (63 percent) and energy costs (41 percent). Respondents that indicated that the availability of skilled workers is a barrier to growth generally felt that they had difficulty finding middle skill/technical candidates. This suggests that issues with finding skill workers is more related to associate level and technical positions than for college level and high skill positions.

Table 13: Barriers to Business Growth Ranked by “Major” Barrier

Barriers to Growth	CT Business Survey Firms			PV Business Survey Firms		
	Major	Minor	Not a Barrier	Major	Minor	Not a Barrier
Cost of Doing Business	55%	18%	27%	50%	31%	19%
Availability of Skilled Workers	36%	26%	38%	35%	35%	30%
Market Demand	31%	29%	39%	32%	23%	45%
Permitting/Regulations	25%	33%	42%	28%	32%	40%
Cash Flow Management	21%	36%	44%	23%	36%	42%

Source: UMDI Connecticut Business Survey, 2014; UMDI Pioneer Valley Business Study, 2012; National Establishment Time Series (NETS) Database, Walls & Associates

Table 14 below displays survey responses to a series of factors that could contribute to business success. Firms were asked whether each of the following factors was a major, minor, or not a factor contributing to business success. Management and leadership capability was the highest-ranked success factor in the Capital Region (57 percent). Market demand for products and services is the highest-ranked success factor in Pioneer Valley (60 percent) and ranked second among Capital Region firms (56 percent). One notable difference between the two on success factor was the role of access to suppliers and vendors. Forty percent of surveyed firms in the Pioneer Valley identified this as a major success factor, compared to only 32 percent of Capital Region firms. Another notable finding is that Capital Region firms are more likely to see government policies as a major factor to business success (38 percent) than Pioneer Valley firms (26 percent).

Table 14: Factors Contributing to Business Success, Ranked by “Major” Factor

Success Factor	CT Business Survey Firms (in ranking order)			PV Business Survey Firms (not in ranking order)		
	Major	Minor	Not a Factor	Major	Minor	Not a Factor
Management and Leadership Capability	57%	23%	20%	44%	33%	22%
Market Demand for Products or Services	56%	28%	17%	60%	22%	18%
Availability of Skilled Workers	51%	26%	23%	45%	38%	17%
Strength of Education and Workforce Development System	38%	32%	29%	n/a	n/a	n/a
Government Policies	38%	34%	28%	26%	36%	38%
Access to Suppliers and Vendors	32%	33%	35%	40%	33%	27%
Innovation, Product and/or Technology Improvements	30%	36%	34%	33%	42%	25%
Access to Financing	25%	30%	44%	30%	40%	30%
Access to Research and Development Collaborations	14%	31%	55%	15%	42%	43%

Source: UMDI Connecticut Business Survey, 2014; UMDI Pioneer Valley Business Study, 2012; National Establishment Time Series (NETS) Database, Walls & Associates

Table 15 below shows business assistance needs identified by survey respondents. Pioneer Valley’s top-rated type of business assistance needed is market and customer research (57 percent), whereas social media and website optimization was the top business assistance needed for Capital Region firms (50 percent). The next high ranking business assistance needs for the Capital Region were advertising and marketing (49 percent) and networking with other business sharing best practices (48 percent). For Pioneer Valley, the next top ranking business assistance needs were advertising and marketing (55 percent) and social media and website optimization (52 percent). Interestingly, business plan development and leadership or management training were ranked low in both regions. These responses are particularly striking given the fact that most firms responded that leadership and management capabilities were key factors in business success. Although, the higher-ranking assistance needs can be addressed during leadership/management training and business plan development. For instance, the top-ranked assistance needs for each region—social media and website optimization and market and customer research—can be a part of planning a business as well as training leaders and management to successfully operate a business. This could partially explain the difference in results between the key factors in business success and the top-rated types of business assistance needed.

For the Knowledge Corridor, the highest ranking type of business assistance needed is advertising and marketing (52 percent) with social media and website optimization and market and customer research ranking the second top business assistance needed (both 51 percent). Other types of business assistance needed in the Knowledge Corridor include networking with other businesses sharing best practices and employee recruitment and training (both 45 percent).

Table 15: Demand for various types of business assistance

Type of Business Assistance Needed	CT "Yes" Response		PV "Yes" Response		KC "Yes" Response	
	Number of Firms	Percent of Total	Number of Firms	Percent of Total	Number of Firms	Percent of Total
Social media and website optimization	93	50%	89	52%	182	51%
Advertising and marketing	91	49%	94	55%	185	52%
Networking with other businesses sharing best practices	89	48%	72	42%	161	45%
Market and customer research	85	46%	98	57%	183	51%
Employee recruitment and training	79	43%	80	47%	159	45%
Leadership or management training	67	36%	74	43%	141	40%
Business plan development	60	32%	54	33%	114	32%
New product or service development	57	31%	70	41%	127	36%
Operations, strategic, and succession planning	55	30%	74	43%	129	36%

Source: UMDI Connecticut Business Survey, 2014; UMDI Pioneer Valley Business Study, 2012; National Establishment Time Series (NETS) Database, Walls & Associates

The final questions in both regional surveys focused on financing. Financing questions can be challenging for businesses to respond to as they might be uncomfortable to answer; respondents may worry about indicating competitive disadvantages, or despite our efforts to reach decision-makers, the respondent may not have full knowledge of this aspect of the business. **Table 16** below shows that 42 percent of surveyed firms in the Capital Region and 67 percent of surveyed firms in Pioneer Valley indicated they have successfully accessed needed financing over the past year.⁴ It is striking the large difference between the percentage of firms in Pioneer Valley stating they received financing in the last year compared to Capital Region firms.

Table 16: Ability to access financing over the past year

Access to Finance	CT All Business Survey Firms		PV Business Survey Firms	
	Number of Firms	Percent of Total	Number of Firms	Percent of Total
Yes, able to get financing needed	77	42%	115	67%
No, not able to get financing needed/did not seek financing or credit	108	59%	56	33%
Total	185	100%	171	100%

Source: UMDI Connecticut Business Survey, 2014; UMDI Pioneer Valley Business Study, 2012; National Establishment Time Series (NETS) Database, Walls & Associates

Note: May not add to 100 percent due to rounding.

Table 17 below considers anticipated financing needs over the next three years. Nineteen percent of surveyed firms in the Capital Region and 35 percent of surveyed firms in Pioneer Valley anticipate needing financing in the next

⁴ The Capital Region study included the percentage difference between the respondents that answered "No, not able to get financing needed" and the "did not seek financing or credit". For consistency sake between the CT survey and the PV survey, the results for each of these answers were combined.

three years. Sixty-three percent of Capital Region firms and 48 percent of Pioneer Valley firms do not anticipate needing financing in the next three years.

Table 17: Financing Needs in the Next Three Years

Anticipation of Future Finance Needs	CT Business Survey Firms		PV Business Survey Firms	
	Number of Firms	Percent of Total	Number of Firms	Percent of Total
Yes, will need financing	36	19%	60	35%
No, will not need financing	116	63%	82	48%
I don't know	33	18%	29	17%
Total	185	100%	171	100%

Source: UMDI Connecticut Business Survey, 2014; UMDI Pioneer Valley Business Study, 2012; National Establishment Time Series (NETS) Database, Walls & Associates

Interestingly, 42 percent of surveyed firms in the Capital Region successfully secured financing in the last year, less than 20 percent think they will need financing in the next three years. A similar phenomenon occurred in Pioneer Valley as well, with 67 percent indicating successfully receiving financing and only 35 percent saying they anticipate needing financing in the next three years. It is unclear why these two numbers for each region are so different. It could be that most firms that needed financing already received the capital they needed in the last year. However, that seems unlikely. It could also mean that local firms may be optimistic (and perhaps overly so given the percentages that accessed capital in the previous year) about not needing extra capital to fund business expenses. This is a question that could use further future examination.

Summary of Key Findings

This combined study of business growth in the Capital Region and Pioneer Valley provides two key areas of understanding. First, the profile of small- to medium-sized businesses in both study groups sheds light on the mix of establishments by industry, growth in jobs and sales, and location. Second, the completion of both detailed business surveys provides a rich set of business feedback on the region's economic conditions in terms of success factors, barriers to growth, and areas for business and financial assistance. Combining both region's studies illustrates the important business trends in the Knowledge Corridor as a whole. Key findings from this study include:

- The Manufacturing industry stands in an interesting place with regards to firm growth and decline. The Manufacturing industry stood out among both growing and declining industries. There was a great deal of variation and volatility within the industry. Greater examination of the Manufacturing industry in the Knowledge Corridor may be in order to better understand the suite of issues facing these businesses and why there is less employment stability in this sector than all other sectors in the regional economy.
- The vast majority of firms in both regions are experiencing stable employment growth. Eighty-eight percent of Capital Region study firms had stable employment from 2007-2012, and 81 percent of Pioneer Valley study firms had stable employment from 2005-2010. The Pioneer Valley had a higher concentration of declining firms (11 percent) compared to the Capital Region (6 percent).
- Leisure and Hospitality as well as Education and Health Services firms appear to be relatively stable industries throughout the Knowledge Corridor. Both of these industries have lower concentrations among declining firms and growing firms when compared to the respective study universe. This may indicate stable employment in these industries in general.
- Sales and growth are not shown to be connected among growing firms in the Knowledge Corridor. In both regions more firms report sales gains than employment gains. For the Capital Region, nearly 4,300 firms report growing in sales but only 633 report growing in employment. Pioneer Valley shows a similar trend, where almost 3,000 firms report sales growth and only 561 report employment growth. In both regions the highest concentration of study firms have stable employment.
- There is inconsistency among firms that anticipate employment growth and the amount of firms that have observed growth. Thirty-seven percent of survey respondents in the Knowledge Corridor anticipate employment growth in the next three years. However, observed NETS data indicate only 7 percent of study firms grew over the five-year study period.
- A higher proportion of surveyed firms believe the region is an excellent or good location for business success in the Pioneer Valley than compared to the Capital Region. Approximately two-thirds (66 percent) of surveyed firms in the Pioneer Valley felt the region was an excellent or good location for business success, compared to just 54 percent of firms surveyed in the Capital Region. On the other hand, 14 percent of the surveyed firms in the Capital Region and 5 percent of the surveyed firms in Pioneer Valley believe their region is a poor location for business success.
- A higher proportion of Pioneer Valley firms received financing help over the past year and anticipated needing financing over the next three years compared to Capital Region firms. Nearly two-thirds (67 percent) of surveyed firms in the Pioneer Valley received financing help over the last year, compared to 42 percent of surveyed firms in the Capital Region. Thirty-five percent of surveyed firms in the Pioneer Valley anticipate needing financing help in the next three years, compared to just 19 percent of survey firms in the Capital Region. It is interesting that in both cases, far more firms accessed financing in the last year than anticipate needing

financing in the next three years. It is unclear why this is the case. It could be that most firms that need financing already received the capital they needed in the last year. That seems unlikely though. It could also mean that local firms may be overly optimistic about not needing extra capital to fund business expenses. Moreover, there is a clear regional difference in terms of accessing capital and expectations about needing capital in the future. Surveyed firms in the Pioneer Valley accessed financing more often than surveyed in the Capital Region and are more likely to expect to access financing in the near future.

- Leadership and management support are key issues for local firms. Aside from the commonly cited concerns about business costs and worker quality, local businesses cited leadership as an important factor in growth. In addition, there was high interest in business assistance around social media and website optimization, advertising and marketing, and business networking. There was also interest, to a lesser extent, in leadership and management and business plan development training. Together, these issues suggest that business leadership mentoring could be a useful tool in helping capitalize on the growth potential for small businesses in the region.

About the UMass Donahue Institute

The UMass Donahue Institute (UMDI) is the public service outreach and economic development unit of the University of Massachusetts President's Office. Established in 1971, the UMDI coordinates multi-campus initiatives that link UMass, other public and private higher education, and other external resources with the needs of government agencies, corporations, and nonprofit organizations. UMDI provides significant economic and public policy analysis, organizational development, training, education, financial management education, research, and evaluation to federal and state agencies, nonprofits, industry associations, and corporations. UMDI draws on its unique position within higher education to serve as a bridge between theory, innovation, and real-world applications.

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