

| Thomas Jefferson Partnership for Economic Development Regional Existing and Target Industry Analysis

Approach

This report for the Thomas Jefferson Partnership for Economic Development (TJPED) region provides an understanding of the industry groups currently present in the regional economy. Since at least 80 percent of economic growth within a region is typically generated by innovative existing industry, these groups must be understood and supported by economic developers.

In this study, existing industry groups have been analyzed in terms of growth, level of specialization in the local economy, degree of connectedness to the local economy and competitiveness. The region's strategic focus on balancing growth with maintaining the outstanding quality of life is also central to the analysis.

Potential target industry groups were screened to select sectors that have the strongest local rationale and best industry outlook. New and emerging industry, technology assets, workforce and locational strengths were considered in screening for select target sectors.

Target industry groups have been identified for the each locality and are presented in separate chapters for each locality in this report. Chart 1 on the following page summarizes the target industry groups for each locality.

This chapter of the report presents the regional target industry groups for the overall TJPED region. The targets for the region were selected with consideration to wide applicability throughout the region and to prioritization of limited resources for attraction or expansion efforts. Charlottesville and all counties and in the TJPED region can achieve economic benefits from the successful attraction and expansion of businesses of the regional targets as well as the targets specific to particular localities.

Chart 1
Thomas Jefferson Partnership for Economic Development Region
Target Business Clusters/Industry Groups
By Locality

	Albemarle	Charlottesville	Culpeper	Fluvanna	Greene	Louisa	Madison	Nelson	Orange
Bioscience & Medical Devices	.	.							
Business & Financial Services
Information Technology				
Defense & Security				
Health Services
Agribusiness, Food Processing & Tech
Transportation & Logistics				.		.			.
Chemicals & Plastics						.			
Forest & Wood Products				.		.		.	
Light Manufacturing*		
Arts, Design, Sports & Media	

* The type of Light Manufacturing differs by locality

Existing Business Clusters and Major Industry Groups

The economy of the Thomas Jefferson Partnership for Economic Development Region (TJPED) is comprised primarily of 16 major industry groups or clusters listed in Table 1. These industry groups are derived from work conducted by Purdue University's Center for Regional Development. The widely accepted methodology was funded by the U.S. Economic Development Administration and the Kelley School of Business. The industry groups constructed by the Center each share common or complementary markets, suppliers, and workforce skills. The groups provide a standardized means to identify areas of local concentration and specialization.

Regional and individual locality data for all other industries are provided in Appendix F.

Table 1
Thomas Jefferson Partnership for Economic Development Region
Major Business Clusters/Industry Groups
Ranked by Size

	2011 Jobs	Five- Year Change	Five- Year Change (%)	Average Earnings	Firms
Business & Financial Services	20,988	3,534	20%	\$49,711	1,485
Energy & Related Construction	10,798	(119)	-1%	\$71,024	699
Biomedical/Health Services	9,381	(549)	-6%	\$48,238	274
Arts, Entertainment, Recreation & Visitor Industries	8,629	514	6%	\$23,146	284
Information Technology & Telecommunications	7,272	334	5%	\$74,135	501
Defense & Security	7,082	507	8%	\$74,437	314
Agribusiness, Food Processing & Technology	6,434	697	12%	\$19,358	188
Advanced Materials	4,442	(267)	-6%	\$83,087	137
Education & Knowledge Creation	3,863	321	9%	\$42,243	157
Printing & Publishing	3,806	69	2%	\$52,656	219
Forest & Wood Products	3,310	(1,574)	-32%	\$37,391	240
Transportation & Logistics	3,126	(87)	-3%	\$42,325	158
Computer & Electronic Product Mfg.	1,477	(348)	-19%	\$99,189	23
Apparel & Textiles	1,253	(111)	-8%	\$38,298	90
Chemicals & Plastics	1,197	(348)	-23%	\$74,318	54
Fabricated Metal Product Mfg.	290	(104)	-26%	\$47,555	20

Seven of these industry groups added employment over the last five years, the largest number in the *Business & Financial Services* group, which added an additional 3,534 jobs, up 20 percent.

Of course, not all of the industry groups are present in each locality. Later chapters of this report provide detailed information on the major industry groups for each county and the City of Charlottesville. Chart 2 on the following page provides an overview of the major industry groups by locality.

Chart 2
Thomas Jefferson Partnership for Economic Development Region
Major Existing Business Clusters/Industry Groups
By Locality

	Albemarle	Charlottesville	Culpeper	Fluvanna	Greene	Louisa	Madison	Nelson	Orange
Business & Financial Services
Energy & Related Construction	
Health Services
Biomedical/ Medical Devices	.	.							
Arts, Ent./Rec. & Visitor Industries
Information Technology			
Defense & Security	.	.			.				
Agribusiness, Food Processing & Tech
Advanced Materials	.		.						
Education & Knowledge Creation					
Printing and Publishing
Forest & Wood Products
Transportation & Logistics
Computer & Electronic Mfg.	.								
Apparel & Textiles	.		.						
Chemicals and Plastics						.			
Fabricated Metal Product Mfg.									.

Business & Financial Services is the largest industry group in the region; employing 20,988 in 1,485 firms. Besides adding the most new jobs over the last five years, the group also experienced the second highest percentage increase among all groups, at 20 percent. Only the *Transportation Equipment Manufacturing* group, at 22 percent, grew at a higher pace. Average earnings in the *Business & Financial Services* group are \$49,711, which is 11 percent above the regional average of \$44,670, and 12 percent below the state average of \$56,533. Dominant subgroups in the TJPED region include: *Data Processing and Hosting*, *Portfolio Management*, *Payroll & Accounting Services*, *Administrative Management & General Management Consulting Services*, and *Scientific & Technical Consulting Services*. Although the group is populated by a many smaller firms, some examples of larger local firms in the group are the State Farm Operations Center, SNL Financial, and the CFA Institute.

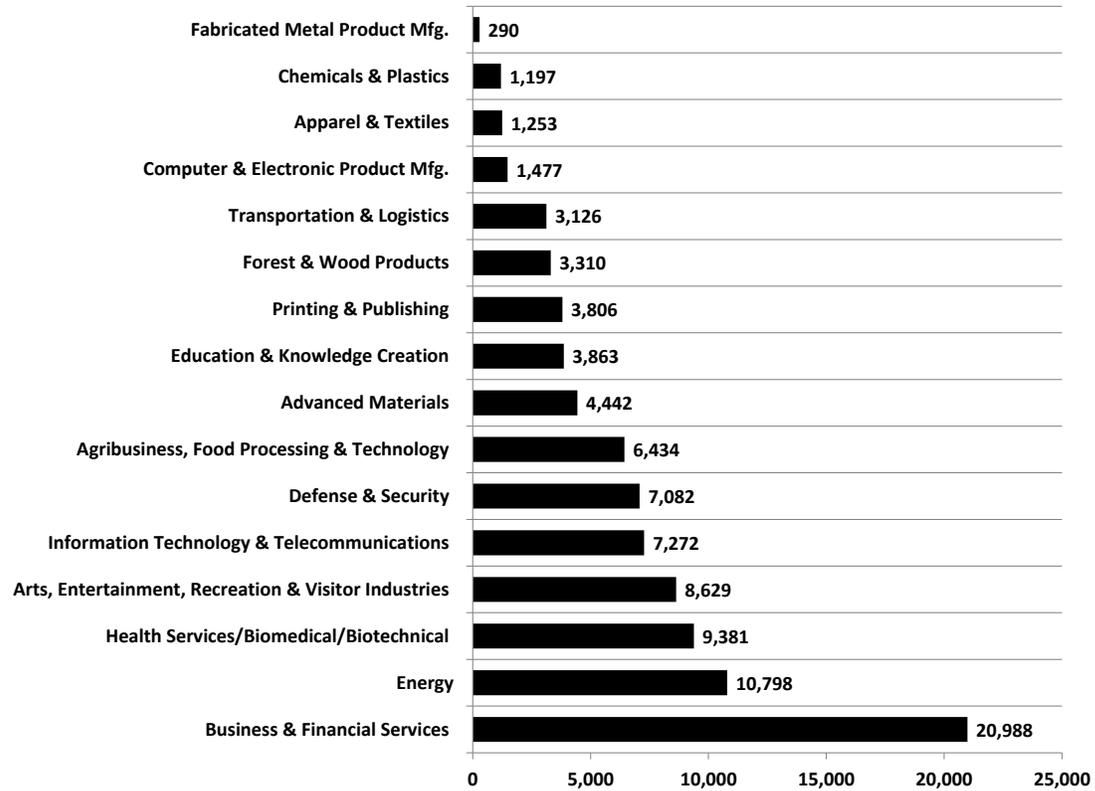
Energy & Related Construction is the second largest industry group in the region, comprising 699 local establishments and 10,798 employees. Over the last five years, the *Energy* industry group has declined slightly, down by 1 percent or 119 fewer jobs. The group includes a portion of firms directly involved in construction, such as *Heavy and Civil Engineering Construction*, which have been hit hard in the most recent recession. The dominant industry subgroups include *Nuclear & Fossil Fuel Electric Power Generation* and *Power & Communication Line & Related Structures*. Examples of local operations in the group include the North Anna Nuclear Generating Station, the Tenaska Virginia Generating Station, Central Virginia Electric Cooperative, and S&N Communications.

The *Biomedical/Health Services* industry group is the third largest group in the region, employing 9,381 workers in 274 establishments. The group declined by 549 jobs, down 6 percent over the last five years, excluding *Offices of Physicians*, but grew slightly overall when the growth in *Offices of Physicians* is included in the total.

The largest subgroup in this industry is *Health Services*. The *Health Services* subgroup is present in all localities in the region. This subgroup is comprised of a mix of *Medical and Surgical Hospitals* and *Nursing Care Facilities*.

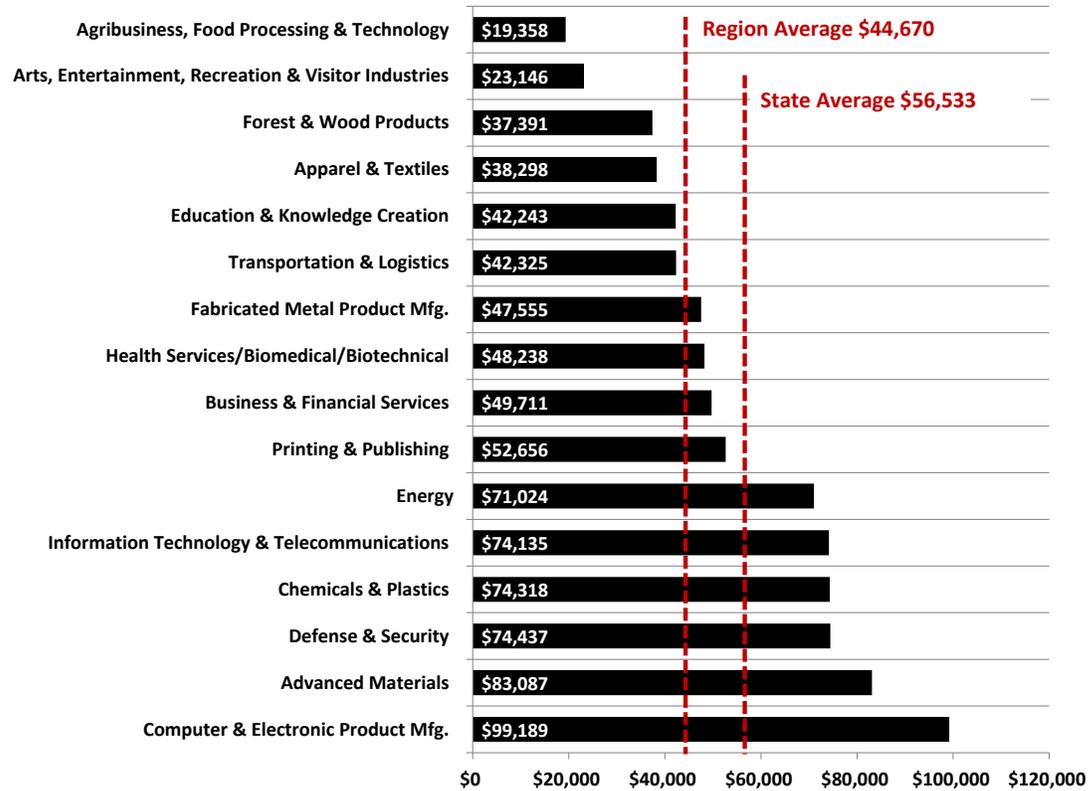
Biosciences/Medical Devices is the other major subgroup in this industry with the TJPED region. This subgroup is concentrated in the City of Charlottesville and Albemarle County where *Surgical & Medical Instrument Manufacturers* and *Research & Development in Life Sciences* typify the industry group. Examples of local operations in the group include the University of Virginia School of Medicine, Battelle Memorial Institute, and MicroAire Surgical Instruments.

Figure 1
Thomas Jefferson Partnership for Economic Development Region
Existing Business Clusters & Major Industry Groups
By Employment Size-2011



Source: Economic Modeling Specialist, Younger Associates

Figure 2
Thomas Jefferson Partnership for Economic Development Region
Existing Business Clusters & Major Industry Groups
By Average Annual Earnings-2011



Source: Economic Modeling Specialist, Younger Associates

Benchmarks	Jobs	Growth	Percent	Avg Earnings	Firms
TJPED Region	190,039	6,254	3.4%	\$44,670	9,977
Virginia	4,7 M	23,688	0.5%	\$56,533	
Nation	173 M	(895,331)	-0.5%	\$52,217	

Source: Economic Modeling Specialist, Younger Associates

Jobs Multiplier Effect

The jobs multipliers provided in Table 2 present a measure of the expected impact of job gains or losses in each industry group as they ripple through the county. The multiplier offers an indication of the connectedness of each group within the regional economy in terms of how many indirect jobs are created to support one job in an industry group. The *Business and Financial Services* group has the highest jobs multiplier of 10.37, which means 9.37 additional jobs are created across all industry groups in the TJPED region to support the economic activity generated by one direct job employed in the industry group.

The *Business & Financial Services* group jobs multiplier is significantly higher than any of the other industry groups. The *Energy & Related Construction* group has the second highest jobs multiplier at 7.35. High jobs multipliers indicate a strong business cluster where many of the support services and supply chain activities for the industry occur within the regional economy.

Table 2
Thomas Jefferson Partnership for Economic Development Region
Industry Specialization of Major Business Clusters/Industry Groups
Listed by Number of Jobs

	2011 Jobs	Five- Year Change (%)	Specialization (LQ)	Jobs Multiplier	Firms
Business & Financial Services	20,988	20%	0.92	10.37	1,485
Energy	10,798	-1%	1.09	7.35	699
Biomedical/Health Services	9,381	-6%	0.64	1.85	274
Arts, Entertainment, Recreation & Visitor Industries	8,629	6%	1.15	1.59	284
Information Technology & Telecommunications	7,272	5%	0.95	1.69	501
Defense & Security	7,082	8%	0.90	1.9	314
Agribusiness, Food Processing & Technology	6,434	12%	1.12	1.85	188
Advanced Materials	4,442	-6%	0.81	1.61	137
Education & Knowledge Creation	3,863	9%	0.90	2.84	157
Printing & Publishing	3,806	2%	1.18	2.76	219
Forest & Wood Products	3,310	-32%	1.21	2.04	240
Transportation & Logistics	3,126	-3%	0.56	1.44	158
Computer & Electronic Product Mfg.	1,477	-19%	1.18	1.77	23
Apparel & Textiles	1,253	-8%	0.88	1.26	90
Chemicals & Plastics	1,197	-23%	0.53	1.61	54
Fabricated Metal Product Mfg.	290	-26%	0.19	1.23	20

Source: Economic Modeling Specialist, Younger Associates

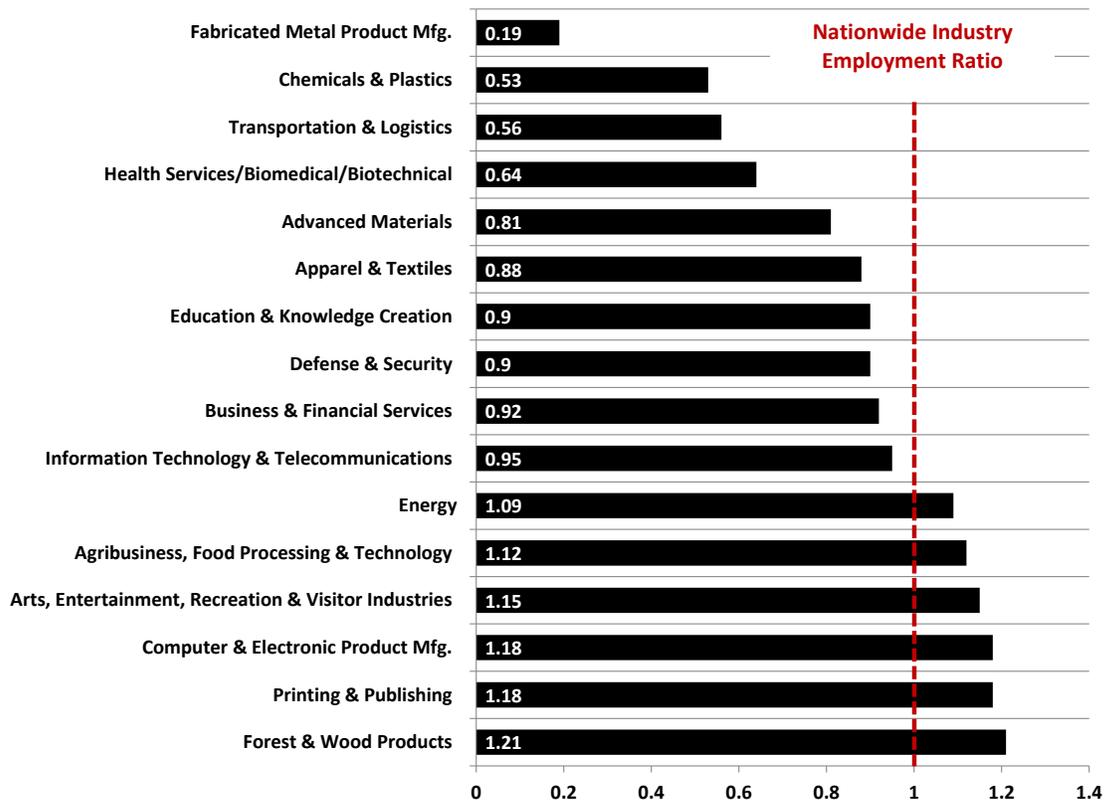
Industry Growth and Specialization

Also shown in Table 2 is the location quotient (LQ), which indicates the level of specialization in each industry group. The LQ compares the concentration of employment in an industry group in the county to the concentration of employment in that same group in the U.S. workforce, where the U.S. concentration is stated as 1. Shown in Table 2 are the LQ's for each major industry group in the TJPED region

Among the 16 major industry groups in the region, six demonstrate levels of specialization above the nation by having a location quotient above 1.0 (Figure 3 and Table 2). In general, the LQ's for all industry groups are relatively low when measured for the region as a whole. This indicates that the overall region lacks areas of strong specialization. However, individual locations within the region do have high LQ's for specific industry groups. These can be seen in the chapters of this report that focus on individual localities.

When looking at the TJPED regional economy, *Forest & Wood Products* has the highest degree of local specialization at 1.21. The second highest area of specialization is shared between *Printing & Publishing* and *Computer & Electronic Product Manufacturing*, both with location quotients of 1.18. Figure 3 provides a graphic comparison of the LQ's of the industry groups in the TJPED region.

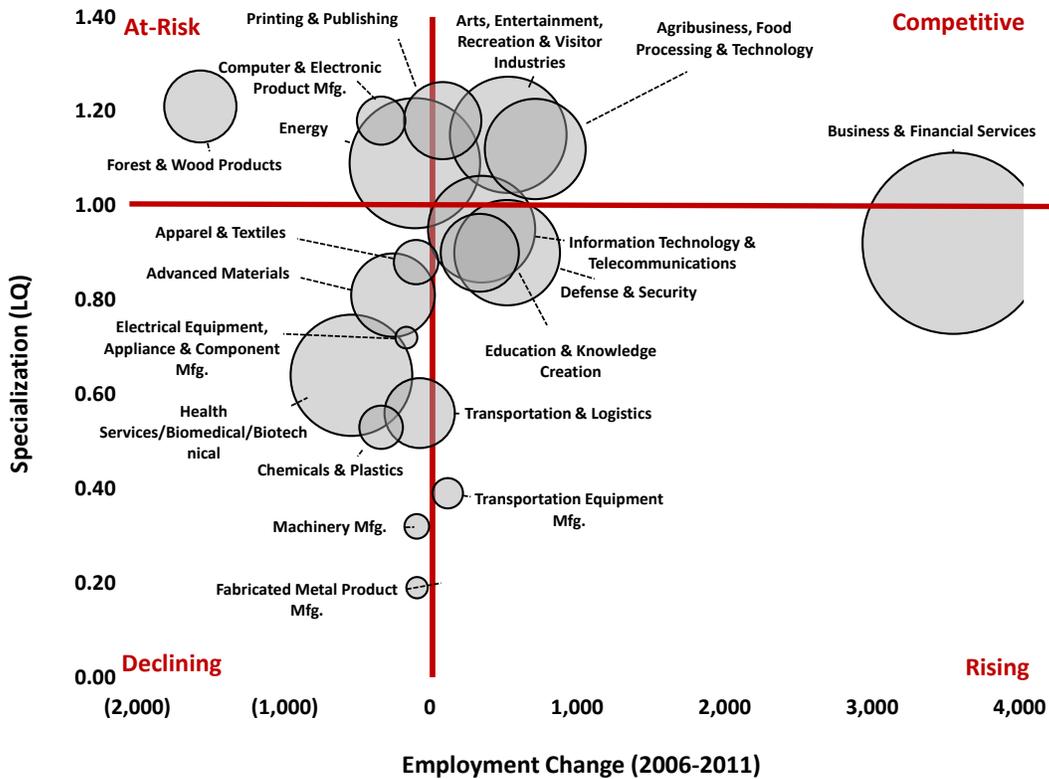
Figure 3
Thomas Jefferson Partnership for Economic Development Region
Existing Business Clusters & Major Industry Groups
By Location Quotients-2011



Source: Economic Modeling Specialist, Younger Associates

Figure 4 below compares the level of specialization and the local absolute growth of the major industry groups for the TJPED regional economy. Six groups fall within the “competitive quadrant” which indicates both a degree of local specialization and employment growth.

Figure 3
Thomas Jefferson Partnership for Economic Development Region
Major Business Clusters/Industry Groups



Size of bubble represents 2011 employment
 Source: Economic Modeling Specialist, Younger Associates

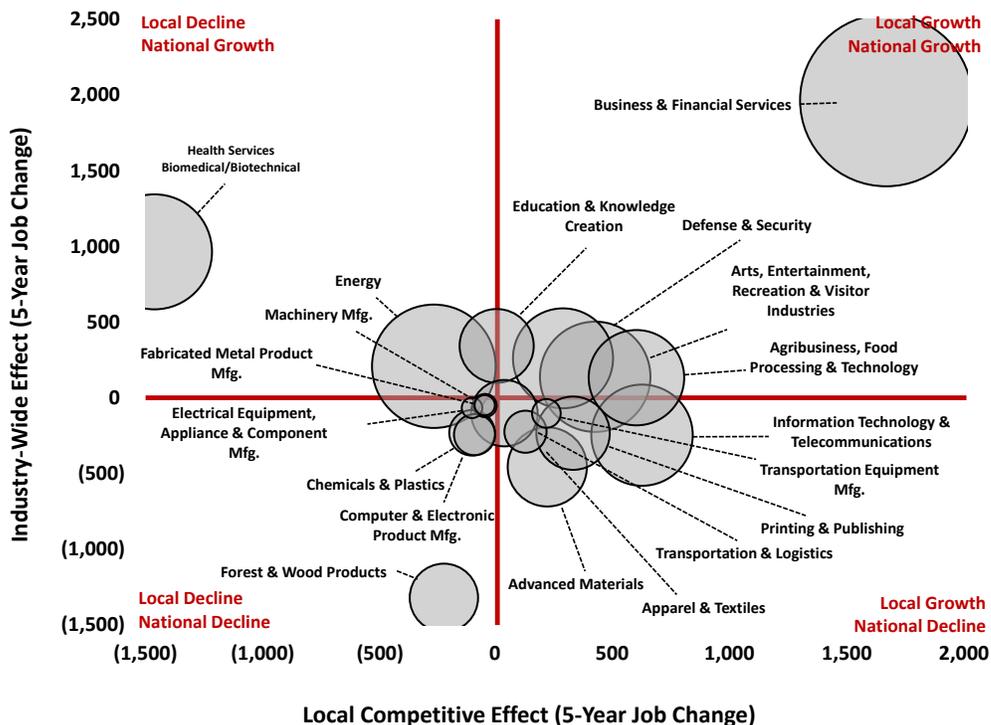
Relative Competitiveness

Measuring relative competitiveness among the 16 major industry groups in the region helps uncover unique local competitive advantages and industry-specific growth (Figure 5). A shift-share analysis was conducted to disaggregate local employment change over the last five years into three effects; national, industry-wide, and local competitive effect. The purpose of this analysis is to help reveal local industry growth that is due to local economic advantages. The local competitive effect is the employment change that is not explained by national or industry-wide trends, and may indicate unique local competitive advantages (or disadvantages). The analysis does not answer the underlying causes for the growth or decline.

Of the 16 major industry groups in the TJPED region, *Business & Financial Services* exhibited the strongest growth attributed to a local competitive effect. Although this industry group has a positive national and industry growth trend, growth within the TJPED region outpaced those trends. This is indicative of positive local competitive advantages for those firms within the region. The *Information Technology & Telecommunications* group had the second strongest local competitive effect, followed by the *Agribusiness, Food Processing & Technology* group. The *Biomedical/Health Services* group experienced greater job losses in the region than national and industry trends predicted.

Figure 5

Thomas Jefferson Partnership for Economic Development Region Five-Year Competitiveness Major Business Clusters/Industry Groups



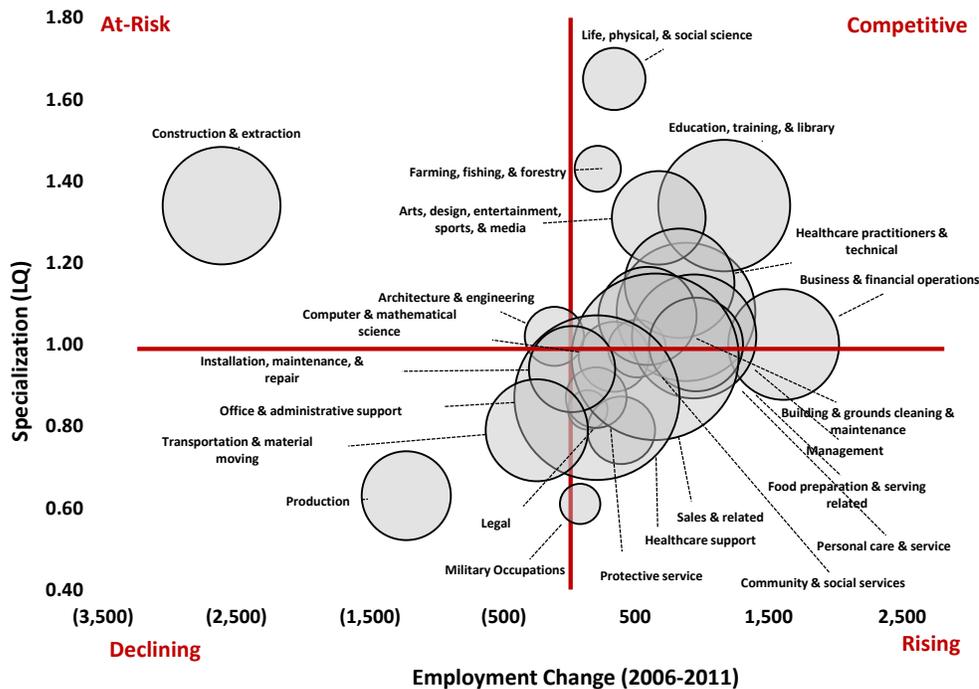
Size of bubble represents 2011 employment
Source: Economic Modeling Specialist, Younger Associates

Occupational Growth and Specialization

Recognizing the region’s local occupational strengths and current job trends is just as critical as understanding its industrial position. An examination of local employment by major occupational groups reflects the region’s occupational specialization in *Life, Physical, & Social Science*, and *Farming & Forestry* occupations (Figure 6 and Table 3). In addition to a high level specialization, both occupations groups have experienced growth over the last five years. As could reasonably be expected based on industry growth, the *Business & Financial Operations* occupation group had the largest net increase over the last five years, up 1,594 positions.

The area has several well-paying occupational groups. Five groups have average hourly wages above \$30: *Education, Training, & Library*; *Architecture & Engineering*; *Legal*; *Computer & Mathematical*; and *Healthcare Practitioners & Technical*. These groups exceed the region-wide average hourly wage by more than 60 percent and the overall state average by more than 40 percent. The region-wide overall average hourly wage per hour is \$18.49, while the state average is \$21.32.

Figure 4
Thomas Jefferson Partnership for Economic Development Region
Growth & Specialization
Major Occupational Groups



Size of bubble represents 2011 employment
 Source: Economic Modeling Specialist, Younger Associates

Table 3
Thomas Jefferson Partnership for Economic Development Region
Growth & Specialization
Major Occupational Groups
Ranked by Specialization

	2011 Jobs	Specialization LQ	Five Year Change	Average Hourly Wage
Life, physical, & social science	3,244	1.65	326	\$25.96
Farming & forestry	1,776	1.43	203	\$12.64
Education, training, & library	14,524	1.34	1,149	\$31.99
Construction & extraction	11,585	1.34	(2,613)	\$17.14
Arts, design, entertainment, sports, & media	7,321	1.31	659	\$15.08
Healthcare practitioners & technical	10,041	1.15	815	\$30.48
Management	16,029	1.08	863	\$22.56
Building & grounds cleaning & maintenance	8,044	1.07	575	\$10.43
Architecture & engineering	2,924	1.02	(122)	\$31.59
Food preparation & serving related	12,882	1.02	924	\$10.49
Business & financial operations	10,263	1.00	1,594	\$22.92
Personal care & service	7,357	1.00	938	\$11.13
Community & social services	2,782	0.99	497	\$17.25
Computer & mathematical science	4,109	0.97	323	\$30.58
Sales & related	23,283	0.97	632	\$13.36
Installation, maintenance, & repair	6,208	0.94	10	\$19.49
Protective service	3,081	0.87	191	\$17.25
Office & administrative support	22,743	0.87	196	\$14.70
Legal	1,313	0.84	128	\$30.61
Healthcare support	3,830	0.79	378	\$12.14
Transportation & material moving	8,723	0.79	(254)	\$14.59
Production	6,621	0.63	(1,231)	\$14.95
Military Occupations	1,356	0.61	71	\$22.92
Benchmarks				
TJPED Region	190,039		6,254	\$18.49
Virginia	4,7 mil		23,688	\$21.32
Nation	173 mil		(895,331)	\$19.94

Source: Economic Modeling Specialist, Younger Associates

New or Emerging Industries

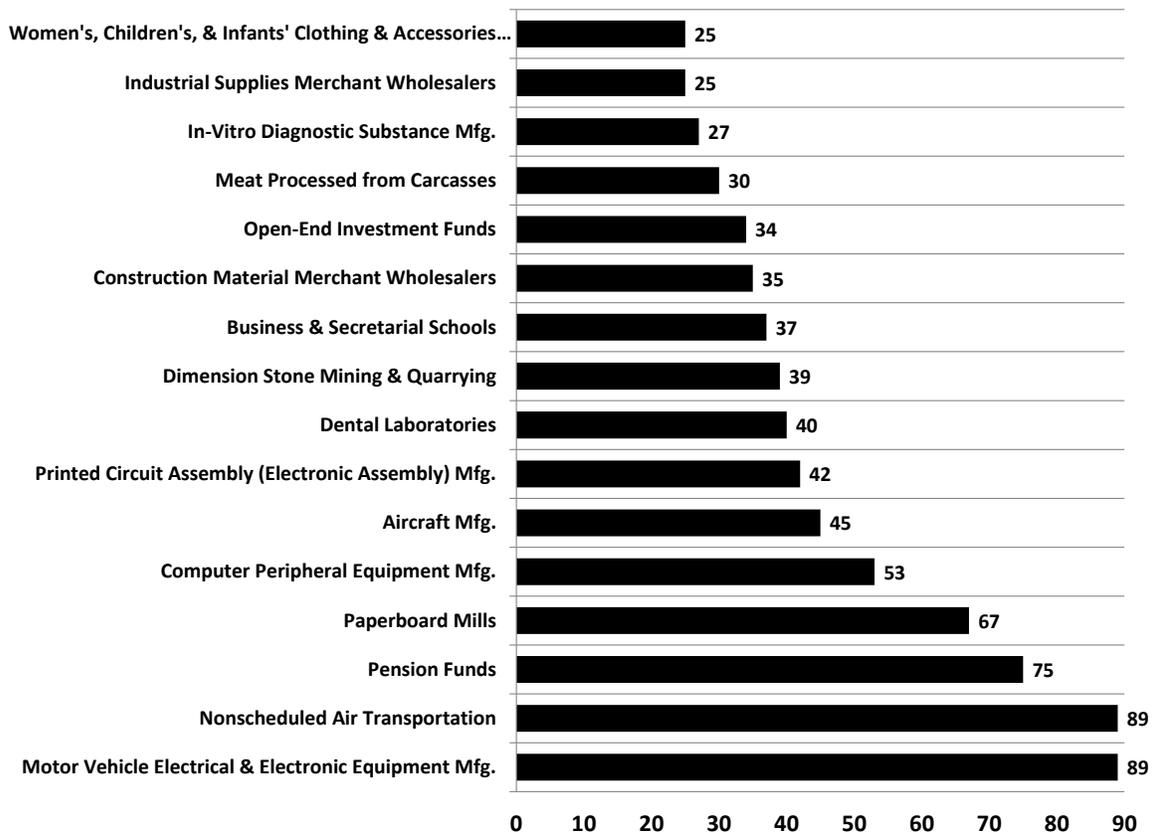
New or emerging industries are industry sectors that are new to the region within the last five years, or sectors that have recently experienced rapid employment growth. In some cases the industry may be represented by a single new or expanding firm. New or emerging industries may provide an early indication of changing conditions or reveal new opportunities.

Over the last five years, sixteen industries were new to the region, or had fewer than ten employees in 2006, and grew to employ 25 or more by 2011 (Figure 7 and Table 4). The largest absolute increases came in *Motor Vehicle Electrical & Electronic Equipment Mfg.* and *Nonscheduled Air Transportation*, both employing 89 in 2011. The new industries include five manufacturers, and three industries directly related to the *Business & Financial Services* industry group: *Pension Funds*, *Business & Secretarial Schools*, and *Open-End Investment Funds*.

As a group, new industries to the region are mostly very well paying, with an average annual wage of \$63,506. Only three of the industries have average wages below the region average. The two top paying new industries are *Open-End Investment Funds* (\$150,350) and *Printed Circuit Assembly (Electronic Assembly) Mfg.* (\$99,189).

Figure 7

*Thomas Jefferson Partnership for Economic Development Region
New Industries (or less than 10 jobs in 2006)
2006-2011 Employment Change*



Source: Economic Modeling Specialist, Younger Associates

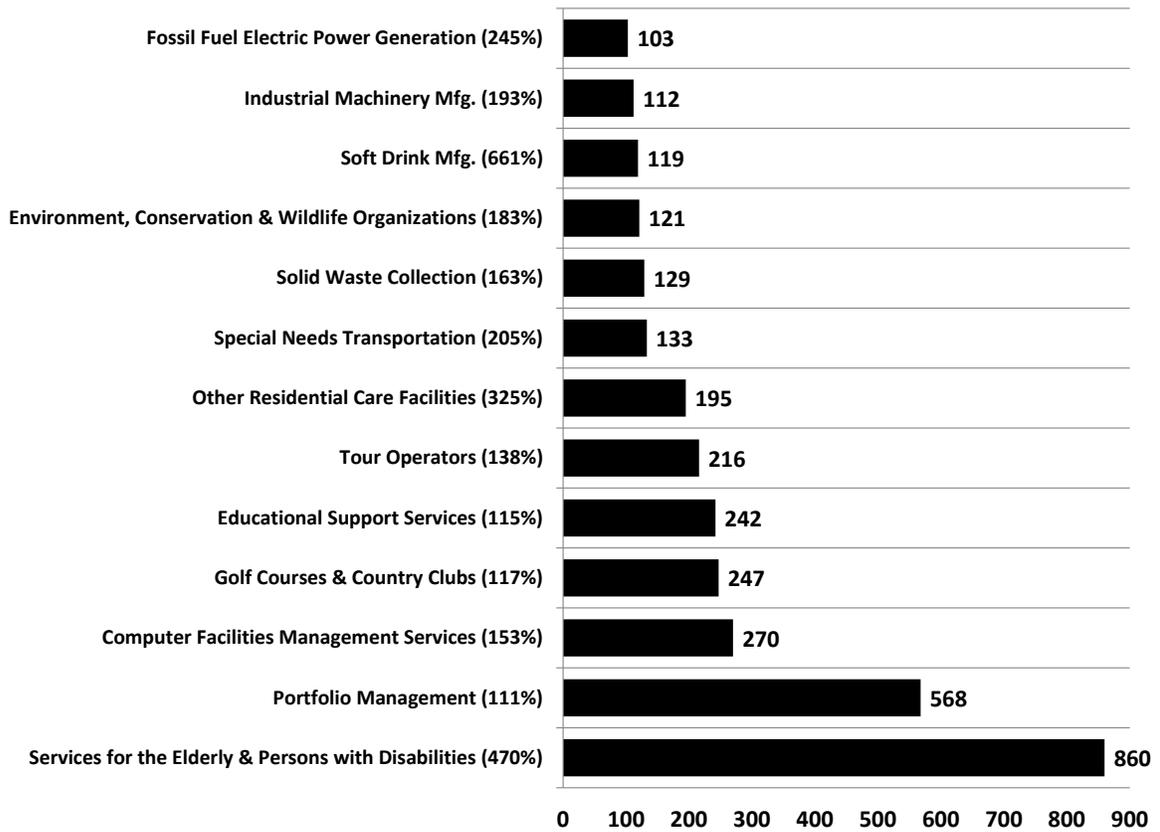
Table 4
Thomas Jefferson Partnership for Economic Development Region
New Industries (or fewer than 10 jobs in 2006)
2006-2011 Employment Change
Ranked by Change

	2006-2011 Change	Average Earnings
Motor Vehicle Electrical & Electronic Equipment Mfg.	89	\$46,836
Nonscheduled Air Transportation	89	\$60,655
Pension Funds	75	\$30,330
Paperboard Mills	67	\$63,536
Computer Peripheral Equipment Mfg.	53	\$59,998
Aircraft Mfg.	45	\$69,652
Printed Circuit Assembly (Electronic Assembly) Mfg.	42	\$99,189
Dental Laboratories	40	\$77,162
Dimension Stone Mining & Quarrying	39	\$62,651
Business & Secretarial Schools	37	\$48,251
Construction Material Merchant Wholesalers	35	\$61,263
Open-End Investment Funds	34	\$150,350
Meat Processed from Carcasses	30	\$30,657
In-Vitro Diagnostic Substance Mfg.	27	\$75,752
Industrial Supplies Merchant Wholesalers	25	\$49,626
Women's, Children's, & Infants' Clothing & Accessories Merchant Wholesalers	25	\$30,181

Source: Economic Modeling Specialist, Younger Associates

Thirteen industries in the region experienced rapid growth over the last five years, adding more than 100 jobs and expanding by more than 100 percent (Figure 8 and Table 5). The fastest growing industry subgroups are all within *Health Services. Services for the Elderly & Persons with Disabilities* had the largest absolute growth, up 860 jobs or 470 percent. Two other closely-related industries also experienced rapid growth; *Other Residential Care Facilities* (up 195 jobs or 325 percent) and *Special Needs Transportation* (up 133 jobs or 205 percent).

Figure 5
Thomas Jefferson Partnership for Economic Development Region
Rapid Growth Industries
(Net growth 100+ jobs and greater than 100%)
2006-2011 Employment Change



Source: Economic Modeling Specialist, Younger Associates

Table 5
Thomas Jefferson Partnership for Economic Development Region
Rapid Growth Industries
(Net growth 100+ jobs and greater than 100%)
2006-2011 Employment Change
Ranked by Change

	2006- 2011 Change	2011 Jobs	Average Earnings
Services for the Elderly & Persons with Disabilities (470%)	860	1,043	\$17,859
Portfolio Management (111%)	568	1,080	\$61,980
Computer Facilities Management Services (153%)	270	447	\$64,386
Golf Courses & Country Clubs (117%)	247	459	\$24,951
Educational Support Services (115%)	242	452	\$34,038
Tour Operators (138%)	216	373	\$42,432
Other Residential Care Facilities (325%)	195	255	\$37,280
Special Needs Transportation (205%)	133	198	\$46,389
Solid Waste Collection (163%)	129	208	\$34,447
Environment, Conservation & Wildlife Organizations (183%)	121	187	\$39,350
Soft Drink Mfg. (661%)	119	137	\$38,133
Industrial Machinery Mfg. (193%)	112	170	\$47,968
Fossil Fuel Electric Power Generation (245%)	103	145	\$107,216

Source: Economic Modeling Specialist, Younger Associates

As a group, wages in the rapidly growing industries are mixed, with eight of the thirteen below the region average. The highest average wages are in *Fossil Fuel Electric Power Generation* (\$107,216), *Computer Facilities Management Services* (\$64,386), and *Portfolio Management* (\$61,980).

Technology Assets

Technology Assets are organizations, companies, and facilities in a region that create knowledge or employ knowledge workers in significant numbers, so that they are sources of employment growth in a region. For this study lists of potential technology assets were identified by reviewing patents issued within the region, Small Business Innovation Research (SBIR) grants, Small Business Technology Transfer (STTR) programs, and large federal defense contract awards. Then, each asset was reviewed to classify it by location, industry sector and, number of employees. The complete list of assets identified for the region is in Appendix E.

The TJPED region has a significant number of technology assets when compared to other areas of the country of a similar population size. It is also notable that most of the TJPED region is rural, yet technology assets for are much more prevalent in the TJPED region than in other rural areas. Two factors influence this concentration of assets: the University of Virginia, and the region's location in close proximity to Washington, DC.

Virginia is among the top states for SBIR and STTR grants. While grant awards are not published for regional comparisons, it appears that companies the TJPED region get a proportionate share of the high number and value awarded in the state.

The University is clearly a regional asset. While most of the start-up companies that have emerged from the research performed at the University are located near campus in the City of Charlottesville or Albemarle County, the employment impact from the University is much broader. Also, education levels in the region are higher than the U.S. average because of the University, with a larger concentration of workers with graduate and post graduate degrees. Many companies in the region maintain research ties with various centers of the University.

The location of the region close to, but somewhat removed from Washington, DC has meant that an increasing number of federal facilities have located in the region since 2011. These agencies include the National Ground Intelligence Center, Defense Intelligence Agency, and the Library of Congress National Audio-Visual Center. Contractors who work with these agencies then co-locate in the region. This has prompted the growth in the information technology and defense-related sectors.

The presence of technology assets informed the selection of target industry sectors for the region. When the list of technology assets was compiled and reviewed it fully supported the selection of *Biosciences, Biomedical Devices* target for Albemarle County and the City of Charlottesville as well as the selection of the *Information Technology & Telecommunications* target industry groups for the entire region. The number of existing patents and the annual average rate of patents issued in the region related to these sectors can be a factor in attracting companies and start-ups to the region.

Information Technology was further supported as a target by the type of federal contractors and federal agencies that have chosen to locate in the TJPED region. Much of the Defense and Security operations in the region overlap with the Information Technology sector.

Optimal Target Markets

Optimal targets should both provide solid business rationale for firms looking to relocate or expand in the region, and provide residents with a strong reason to support their presence in the region.

Screening criteria for optimal targets include:

- High relative wages
- Support or strengthen existing industry groups/clusters
- Make use of the location's unique attributes
- Leverage local/national/global trends
- High relative jobs multiplier
- Utilize incumbent occupational skill-sets
- Match area's educational infrastructure and postsecondary completions
- Match the area's capacity and desire for growth and development
- Potential to employ underemployed and unemployed

Within each major target area matching the screening criteria, selected optimal target industries had to meet two additional conditions: positive projected employment growth over the next five years and industry-specific earnings greater than the overall local or state average.

Environmental suitability for the region was also a consideration in selecting target industry groups. None of the optimal targets would have a detrimental impact on the environment under typical circumstances for the industry group. Protection of natural resources, sustainability, and compatibility with the quality of life in the region were considerations.

Target Industry Group: Business & Financial Services

The TJPED region has demonstrated a clear competitive advantage in the *Business & Financial Services* industry group. The region presently supports 1,485 firms and 20,988 workers in this business activity. The group is the largest in the region and has experienced the highest absolute growth over the last five year, adding 3,535 jobs, up 20 percent.

The *Business & Financial Services* has by far the highest jobs multiplier of any industry group in the region (10.37). This projects the superior potential impact that adding jobs to the group will have on the entire region.

Business & Financial Services also exhibited the strongest growth attributed to a local competitive effect, indicating a positive unique local competitive advantage for those firms in the region. Targeting sectors within the *Business & Financial Services* industry group offers several strong business rationales for expansion and attraction:

- High relative wages; the target sectors have average earnings of \$81,867
- Strong projected growth rate; the target sectors have average forecasted five-year employment growth of 16 percent
- Close proximity to Washington DC metro growth and demand for target services
- Most localities provide prospects with lower relative wage labor force
- Potential retention of out-commuting workers

- Appeal of nonurban rural small town settings to some firms
- Appeal of proximity to a major university
- Match to the region’s portfolio of available sites and buildings; wide range of firm sizes with a mostly smaller operations footprint
- Existing cluster of similar firms operating in the area, indicating the presence of supporting skilled workers, institutions, and infrastructure
- Presence of a redundant fiber optics network in the region
- College and university graduates in fields that support the industry as shown in Table 6

Table 6
Relevant Degrees Awarded, Annual Number of Graduates

	University of Virginia Main Campus	Germonna Community College	Piedmont Virginia Community College
Accounting	107		
Accounting and Related Services, Other			4
Business Administration and Management, General	390		50
Business Administration, Management and Operations, Other		21	7
Business/Commerce, General	363		
Management Information Systems, General	78		
Computer and Information Sciences, General	58	14	6
Mathematics, General	68		
Economics, General	263		

Source: IPEDS

Table 7
Thomas Jefferson Partnership for Economic Development Region
Business & Financial Services
Select Optimal Targets

NAICS Code	Industry Title	Forecasted Five-Year Growth	National Average Earnings
Business & Financial Services			
Information			
518210	Data Processing, Hosting, and Related Services*	13%	\$80,651
Finance and Insurance			
523920	Portfolio Management	30%	\$80,277
524114	Direct Health and Medical Insurance Carriers	7%	\$86,200
525910	Open-End Investment Funds	19%	\$104,710
Professional, Scientific, and Technical Services			
541199	Specialized Legal Services	19%	\$63,766
541310	Architectural Services	6%	\$75,271
541330	Engineering Services	9%	\$93,317
541380	Testing Laboratories	2%	\$75,650
541511	Custom Computer Programming Services	14%	\$97,515
541512	Computer Systems Design Services	17%	\$95,909
541611	Administrative Management and General Management Consulting Services	23%	\$82,466
541618	Management Consulting Services	11%	\$80,245
541620	Environmental Consulting Services	18%	\$63,054
541690	Specialized Scientific and Technical Consulting Services	32%	\$67,101

*Also in *Information Technology & Telecommunications* select optimal targets
Source: Economic Modeling Specialist, Younger Associates

Target Outlook

Changes in technology, demographics, energy markets, and the regulatory landscape are some of the major forces driving growth and opening new opportunities in the select *Business & Financial Services* targets. Summary details for select optimal targets can be found in Table 10 at the end of this chapter.

Target Industry Group: Information Technology & Telecommunications

The Thomas Jefferson Partnership for Economic Development Region has demonstrated competitive advantages in the *Information Technology & Telecommunications* industry. The region presently supports 501 firms and 7,272 workers in this business activity. The group is the fifth largest in the region and has added 334 jobs over the last five years, up 5 percent.

At \$74,135, the *Information Technology & Telecommunications* has the fifth highest average earning of any industry group in the region, 66 percent above the regional average and 31 percent above the state. *Information Technology & Telecommunications* also exhibited the strong growth attributed to a local competitive effect, second only to *Business & Financial Services*; indicating a positive unique local competitive advantage for those firms in the region.

Targeting within sectors in the *Information Technology & Telecommunications* industry group offers several strong business rationales for expansion and attraction:

- High relative wages; the target sectors have national average earnings of \$96,074
- Strong projected growth rate; the target sectors have average forecasted five-year employment growth of 8 percent.
- Select targets are dominated by manufacturing, offering employment opportunities for lower skilled workers.
- Provides prospects with lower relative wage labor force.
- Potential retention of out-commuting workers.
- Appeal of proximity to a major university.
- Existing cluster of similar firms operating in the area, indicating the presence of supporting skilled workers, institutions, and infrastructure.
- Presence of a redundant fiber optics network in the region
- Local training support from the Daniel Technology Center at Germanna Community College and Piedmont Virginia Community College
- Desire by existing workforce for training in computer technologies
- Regional patent activity related to this industry group is high
- Existing patents licensed in the region are an asset for the growth and development of this sector
- Synergistic overlap with other exiting business clusters
- Complements defense intelligence industry subgroup, which also has a strong presence in the region
- Recent growth in computer facilities management services in the region
- College and university graduates in fields that support the industry are listed in Table 8.
- Overlaps with *Printing & Publishing* group, which has a strong specialized presence in the region. With an LQ of 1.18, *Printing & Publishing* is one of the most specialized groups in the regional economy. Integration with information technology can help transform this traditional industry group into a modern growth industry.

Table 8
Relevant Degrees Awarded, Annual Graduates

	University of Virginia	Piedmont Virginia Community College	Germonna Community College
Computer Engineering	38		
Systems Engineering	163		
Electrical and Electronics Engineering	70		
Engineering (physics, materials, general, other)	51	21	
Computer Information Sciences	58	6	14

Source: IPEDS

While there are a broad range of industry sectors within *Information Technology & Telecommunications* that are compatible targets for the TJPED region, select optimal targets have been identified that meet the criteria of this analysis. Those sectors are listed in Table 9 below and described in Table 11 at the end of this chapter.

Table 9
Thomas Jefferson Partnership for Economic Development Region
Information Technology & Telecommunications
Select Optimal Targets

NAICS Code	Industry Title	Forecasted Five-Year Growth	National Average Earnings
Information Technology & Telecommunications			
Computer and Electronic Product Manufacturing			
334290	Specialized Communications Equipment Manufacturing	15%	\$95,290
334417	Electronic Connector Manufacturing	5%	\$69,235
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	1%	\$87,643
334516	Analytical Laboratory Instrument Manufacturing	5%	\$111,647
Electrical Equipment, Appliance, and Component Manufacturing			
335314	Relay and Industrial Control Manufacturing	1%	\$98,070
Information			
518210	Data Processing, Hosting, and Related Services*	13%	\$80,651
519130	Internet Publishing and Broadcasting and Web Search Portals	16%	\$129,984

*Also in *Business & Financial Services* select optimal targets
Source: Economic Modeling Specialist, Younger Associates

Target Outlook

Changes in technology, energy markets, and the regulatory landscape are some of the major forces driving growth and opening new opportunities in the select *Information Technology & Telecommunications* targets. Summary outlook details for target industry sectors can be found in Table 11 at the end of this chapter.

Table 10
Thomas Jefferson Partnership for Economic Development Region
Select Optimal Target Descriptions
Business & Financial Services

NAICS Code	Industry Title	Description
518210	Data Processing, Hosting, and Related Services	This industry comprises establishments primarily engaged in providing infrastructure for hosting or data processing services. These establishments may provide specialized hosting activities, such as web hosting, streaming services or application hosting; provide application service provisioning; or may provide general time-share mainframe facilities to clients. Data processing establishments provide complete processing and specialized reports from data supplied by clients or provide automated data processing and data entry services.
523920	Portfolio Management	This industry comprises establishments primarily engaged in managing the portfolio assets (i.e., funds) of others on a fee or commission basis. Establishments in this industry have the authority to make investment decisions, and they derive fees based on the size and/or overall performance of the portfolio.
524114	Direct Health and Medical Insurance Carriers	This U.S. industry comprises establishments primarily engaged in initially underwriting (i.e., assuming the risk and assigning premiums) health and medical insurance policies. Group hospitalization plans and HMO establishments (except those providing health care services) that provide health and medical insurance policies without providing health care services are included in this industry.
525910	Open-End Investment Funds	This industry comprises legal entities (i.e., open-end investment funds) organized to pool assets that consist of securities or other financial instruments. Shares in these pools are offered to the public in an initial offering with additional shares offered continuously and perpetually and redeemed at a specific price determined by the net asset value.
541199	Specialized Legal Services	These establishments are primarily engaged in providing specialized legal or paralegal services.
541310	Architectural Services	This industry comprises establishments primarily engaged in planning and designing residential, institutional, leisure, commercial, and industrial buildings and structures by applying knowledge of design, construction procedures, zoning regulations, building codes, and building materials.
541330	Engineering Services	This industry comprises establishments primarily engaged in applying physical laws and principles of engineering in the design, development, and utilization of machines, materials, instruments, structures, processes, and systems. The assignments undertaken by these establishments may involve any of the following activities: provision of advice, preparation of feasibility studies, preparation of preliminary and final plans and designs, provision of technical services during the construction or installation phase, inspection and evaluation of engineering projects, and related services.

541380	Testing Laboratories	This industry comprises establishments primarily engaged in performing physical, chemical, and other analytical testing services, such as acoustics or vibration testing, assaying, biological testing (except medical and veterinary), calibration testing, electrical and electronic testing, geotechnical testing, mechanical testing, nondestructive testing, or thermal testing. The testing may occur in a laboratory or on-site.
541511	Custom Computer Programming Services	This U.S. industry comprises establishments primarily engaged in writing, modifying, testing, and supporting software to meet the needs of a particular customer.
541512	Computer Systems Design Services	This U.S. industry comprises establishments primarily engaged in planning and designing computer systems that integrate computer hardware, software, and communication technologies. The hardware and software components of the system may be provided by this establishment or company as part of integrated services or may be provided by third parties or vendors. These establishments often install the system and train and support users of the system.
541611	Administrative Management and General Management Consulting Services	This U.S. industry comprises establishments primarily engaged in providing operating advice and assistance to businesses and other organizations on administrative management issues, such as financial planning and budgeting, equity and asset management, records management, office planning, strategic and organizational planning, site selection, new business startup, and business process improvement. This industry also includes establishments of general management consultants that provide a full range of administrative; human resource; marketing; process, physical distribution, and logistics; or other management consulting services to clients.
541618	Management Consulting Services	This U.S. industry comprises establishments primarily engaged in providing general management consulting services. Establishments providing telecommunications or utilities management consulting services are included in this industry.
541620	Environmental Consulting Services	This industry comprises establishments primarily engaged in providing advice and assistance to businesses and other organizations on environmental issues, such as the control of environmental contamination from pollutants, toxic substances, and hazardous materials. These establishments identify problems (e.g., inspect buildings for hazardous materials), measure and evaluate risks, and recommend solutions. They employ a multi-disciplined staff of scientists, engineers, and other technicians with expertise in areas, such as air and water quality, asbestos contamination, remediation, and environmental law.
541690	Specialized Scientific and Technical Consulting Services	This industry comprises establishments primarily engaged in providing specialized advice and assistance to businesses and other organizations on scientific and technical issues.

Source: U.S. Census Bureau, Younger Associates

Table 11
Thomas Jefferson Partnership for Economic Development Region
Select Optimal Target Descriptions
Information Technology and Telecommunications

NAICS Code	Industry Title	Description
518210	Data Processing, Hosting, and Related Services	This industry comprises establishments primarily engaged in providing infrastructure for hosting or data processing services. These establishments may provide specialized hosting activities, such as web hosting, streaming services or application hosting; provide application service provisioning; or may provide general time-share mainframe facilities to clients. Data processing establishments provide complete processing and specialized reports from data supplied by clients or provide automated data processing and data entry services.
541511	Custom Computer Programming Services	This U.S. industry comprises establishments primarily engaged in writing, modifying, testing, and supporting software to meet the needs of a particular customer.
541512	Computer Systems Design Services	This U.S. industry comprises establishments primarily engaged in planning and designing computer systems that integrate computer hardware, software, and communication technologies. The hardware and software components of the system may be provided by this establishment or company as part of integrated services or may be provided by third parties or vendors. These establishments often install the system and train and support users of the system.
541690	Specialized Scientific and Technical Consulting Services	This industry comprises establishments primarily engaged in providing specialized advice and assistance to businesses and other organizations on scientific and technical issues.
334290	Specialized Communications Equipment Manufacturing	This industry comprises establishments primarily engaged in manufacturing communications equipment (except telephone apparatus, and radio and television broadcast, and wireless communications equipment).
334417	Electronic Connector Manufacturing	This U.S. industry comprises establishments primarily engaged in manufacturing electronic connectors, such as coaxial, cylindrical, rack and panel, pin and sleeve, printed circuit and fiber optic.
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	This U.S. industry comprises establishments primarily engaged in manufacturing instruments and related devices for measuring, displaying, indicating, recording, transmitting, and controlling industrial process variables. These instruments measure, display or control (monitor, analyze, and so forth) industrial process variables, such as temperature, humidity, pressure, vacuum, combustion, flow, level, viscosity, density, acidity, concentration, and rotation.
334516	Analytical Laboratory Instrument Manufacturing	This U.S. industry comprises establishments primarily engaged in manufacturing instruments and instrumentation systems for laboratory analysis of the chemical or physical composition or concentration of samples of solid, fluid, gaseous, or composite material.

NAICS Code	Industry Title	Description
335314	Relay and Industrial Control Manufacturing	This U.S. industry comprises establishments primarily engaged in manufacturing relays, motor starters and controllers, and other industrial controls and control accessories.
519130	Internet Publishing and Broadcasting and Web Search Portals	This industry comprises establishments primarily engaged in 1) publishing and/or broadcasting content on the Internet exclusively or 2) operating Web sites that use a search engine to generate and maintain extensive databases of Internet addresses and content in an easily searchable format (and known as Web search portals). The publishing and broadcasting establishments in this industry do not provide traditional (non-Internet) versions of the content that they publish or broadcast. They provide textual, audio, and/or video content of general or specific interest on the Internet exclusively.

Source: U.S. Census Bureau, Younger Associates

Table 12
Business & Financial Services
Target Driving Forces and Outlook

NAICS Code	Industry Title	Description
518210	Data Processing, Hosting, and Related Services	Customer relations and similar functions are expected to remain local, or even return to the United States, because they are key factors in keeping clients satisfied with the product; language barriers can sometimes diminish the effectiveness of customer service and support. Users will become more widespread geographically, the need for centralizing data and delivering it to users in many locations will also increase, boosting demand for software as a service (SaaS).
523920	Portfolio Management	This industry comprises establishments primarily engaged in managing the portfolio assets (i.e., funds) of others on a fee or commission basis. Establishments in this industry have the authority to make investment decisions, and they derive fees based on the size and/or overall performance of the portfolio.
525910	Open-End Investment Funds	The aging of the population in the United States and other developed economies is assisting the growth of mutual funds, pension funds and other collective investment schemes. As an increasing share of the population approaches retirement age, the value of assets in pension plans and other forms of retirement savings is expected to increase. The range of financial products available to retail and institutional investors will substantially increase. Investors' demand for above-market returns will drive this growth. Products that better manage risk and volatility in returns will likely grow in popularity as a lingering effect from the subprime crisis. As a result, consumers will increase their demand for portfolio managers that can achieve returns and diversification within this growing product mix. The continued outsourcing of reporting, data collection and trading platforms will lower industry costs over the next five years, allowing new firms to enter the market. By leveraging new technologies, market entrants can better adapt to changing consumer tastes and offer more personalized services to consumers. Small customer-centric firms will pick up market share from large firms and new customers. Significant opportunities will exist for firms that can create products for specific age and gender demographics. Women will represent a high growth segment as a result of entering the workforce and making household financial decisions. Retirees will also seek specialized services targeted at wealth preservation and managed spending, and they will form a high growth segment for established industry players who have relationships with them.
524114	Direct Health and Medical	The US population is aging, which is an important indicator of demand for health insurance coverage. Older individuals are more likely to use medical coverage than their younger healthier counterparts. Consequently, the aging population is expected to support

NAICS Code	Industry Title	Description
	Insurance Carriers	industry growth, as individuals look to lower their exposure to health-related costs. The industry is expected to expand due to the Obama administration's healthcare plan, which is estimated to provide coverage for about 32 million individuals. States will be offering up bids or expansions for this health insurance program. This is positive news for health and medical insurers, as they will be able to take part in an additional \$38.0 billion in Medicaid revenue.
541199	Specialized Legal Services	New regulations in the finance industry will create opportunities for law firms that specialize. Given the fines and reputations at stake, companies will not hesitate to spend large sums of money on appropriate cases. Economic growth will stimulate more activity in M&A and IPO markets, relieving the industry's dependence on countercyclical work. Legislative work will provide revenue for a small number of firms in the short term as new regulations are put into place. Some firms will pick up litigation work as victims of the economic crisis try to assign blame.
541310	Architectural Services	More sole proprietors will enter the industry; a general move toward offering more value-added services for clients is expected. Property developers are opting for consulting firms that have the capacity to offer a broad range of services, including pre-design, planning, interior design and engineering services. Clients will continue to seek out green building technology in order to build goodwill with the public and save money on energy costs. Consequently, an increasing number of firms will offer LEED-certified green building designs. More firms are expected to form strategic alliances to increase their involvement across the entirety of the building cycle. Architectural firms will increasingly offer clients a full range of services in order to compete with multi-disciplinary building design and construction firms.
541330	Engineering Services	The solid pace of industry expansion will be supported by the return of investment into electric-power infrastructure and communications markets, which experienced many delays over the past five years. Private fixed-capital expenditure is expected to increase, driving up demand for engineering design and process-management services on the planning and installation of industrial equipment. Such expenditure is also expected to raise demand for asset management services for the maintenance and operation of existing plants.
541380	Testing Laboratories	Growth in high-tech industries is expected to attract large R&D investment aimed at developing new products and improving existing products. Product development generally requires rigorous testing; therefore, growth in R&D activity positively affects demand for laboratory testing services. As product life cycles continue to shorten companies will seek to introduce new products to the marketplace as quickly as possible, increasing the need for testing services. For example, the development of advanced batteries, inexpensive fuel cells and microgenerators of electricity will lead to the development of more mobile electronic appliances in the future. The manufacturers must then rely on testing laboratories to perform trials, ensuring that electronic products uphold fire hazard standards. Many food companies are moving toward genetically modified (GM) foods. GM crop and livestock species were created to ward off diseases, and this trend is most prevalent in fruits, vegetables and meat products. The introduction of new GM food will create greater concern among the public because of its consumption risks. As a result, there will be more rigorous lab testing for GM and other agricultural products.
541511	Custom Computer Programming Services	This U.S. industry comprises establishments primarily engaged in writing, modifying, testing, and supporting software to meet the needs of a particular customer.
541512	Computer Systems Design Services	Consolidations are most likely to continue in the healthcare IT sector because of the government's recent push for multibillion-dollar healthcare reform. One aspect of the legislation focuses on more efficient and environmentally friendly ways to maintain hospital records. The proposal for an all-digital health record database gives IT consultants opportunities to create new systems and networks. IT consultants will be

NAICS Code	Industry Title	Description
		<p>needed to design the system architecture to store records kept in hospitals and the communication systems that allow all hospitals to obtain patients' record.</p> <p>Companies will continue to demand more efficient IT systems, as technological innovation improves service offerings. It is essential that systems are in place to effectively control costs within a company.</p> <p>Manufacturers will increasingly rely on IT consultants to design economical computer systems related to just-in-time supply management to reduce in-process inventory and any associated carrying costs.</p> <p>The increasing usage of smartphone devices in the workplace represents a potential area of growth for the IT consulting industry. Corporate employees are increasingly using their smartphones for company-related work, leaving companies susceptible to security breaches given the amount of sensitive data that is stored on smartphone devices. With smartphones in the workplace expected to become more common, maintaining and designing security systems for these mobile devices represents a growth segment for the industry.</p>
541611	Administrative Management and General Management Consulting Services	<p>This U.S. industry comprises establishments primarily engaged in providing operating advice and assistance to businesses and other organizations on administrative management issues, such as financial planning and budgeting, equity and asset management, records management, office planning, strategic and organizational planning, site selection, new business startup, and business process improvement. This industry also includes establishments of general management consultants that provide a full range of administrative; human resource; marketing; process, physical distribution, and logistics; or other management consulting services to clients.</p>
541618	Management Consulting Services	<p>Management consulting services will be crucial for companies transitioning and expanding in a changing economic environment.</p> <p>Corporations that weathered the recession, but delayed consulting expenditures, will put retained earnings to use by making strategic adjustments to business structure and strategy. This will manifest itself as an increase in the corporate strategy and organizational design arms of management consulting firms.</p> <p>Human resources consulting will be instrumental as firms incorporate new employees into existing healthcare and pension plans, and as they bring existing healthcare and pension plans into compliance with new legislation.</p> <p>Increasingly technological focus as information technology (IT) becomes more important to the effective operation of business. The likely offshoot of this is a growing overlap between management consulting firms and IT consulting firms.</p>
541620	Environmental Consulting Services	<p>The increased emphasis on environmental sustainability will lead to significant industry revenue growth. As the economy improves and construction picks up, consultants will be needed to conduct audits to ensure buildings and underlying land are environmentally safe. Companies in high-polluting industries such as energy and manufacturing will come under increased pressure to present themselves as environmentally friendly. The combination of stricter regulatory requirements and a growth in corporate pressure to appear green will continue to drive the industry.</p> <p>As construction activity picks up and new ground is broken, consultants will be needed to assess whether the new buildings meet specific environmental codes. Furthermore, developers are now increasingly interested in constructing sustainable buildings because their value is now perceived to be higher among potential buyers. As such, consultants will step in to provide advice and aid builders in achieving their sustainable goals.</p> <p>Profit will also rise as more corporations use the industry's services. As companies develop a keen interest in becoming sustainable and corporate profit stays high, consultants will be able to command a premium for their services. This trend will be underpinned by increasing consumer interest in products and companies that are perceived to be sustainable, prompting companies to invest more in creating "green" marketing messages.</p>
541690	Specialized Scientific and Technical	<p>The services of economic consultants will be in even greater demand as the economy improves – expanding firms will require the forecasting and modeling services these consultants provide to effectively time and plan business expansions.</p>

NAICS Code	Industry Title	Description
	Consulting Services	<p>Innovative and increasingly profitable operations in genomics and pharmaceuticals are likely to be a source of growth for consultants in this industry.</p> <p>The demand for energy consultants is likely to strengthen in response to the projected cyclical upswing in the electric power infrastructure market. Long-term growth trend in renewable energy industries will also create higher demand for energy consultants. Due to favorable governmental regulation and a focus on “green” energy; wind power, hydroelectric and other renewable energy industries will generate new growth opportunities, driving up demand for technical expertise provided by the consultants in these industries.</p> <p>As growth in certain client industries (e.g. energy, genomics, and pharmaceuticals) fuels demand for consultants with relevant expertise, academics in these fields will find it increasingly profitable to provide niche consulting services on a contract basis.</p>

Source: IBIS World, Younger Associates

Table 13
Information Technology & Telecommunications
Target Driving Forces and Outlook

NAICS Code	Industry Title	Description
518210	Data Processing, Hosting, and Related Services (also a Business & Financial Services target)	<p>Customer relations and similar functions are expected to remain local, or even return to the United States, because they are key factors in keeping clients satisfied with the product; language barriers can sometimes diminish the effectiveness of customer service and support.</p> <p>Users will become more widespread geographically, the need for centralizing data and delivering it to users in many locations will also increase, boosting demand for software as a service (SaaS).</p>
334290	Specialized Communications Equipment Manufacturing	<p>The perceived quality and serviceability of systems produced in the United States is anticipated to continue to warrant local production over the next five years.</p> <p>A housing construction upturn will promote demand for residential alarms and traffic and pedestrian signals.</p> <p>Nonresidential building construction activity has stimulated demand for alarm systems and closed-circuit monitoring systems.</p> <p>In the traffic-control segment, demand will rise on the heels of technological trends like the switch to light-emitting diode (LED) signals from incandescent bulbs, increasing interest in battery back-up systems to keep traffic signals operating during power outages, and a move to open-road (or nonstop) tolling systems.</p> <p>Intelligent transportation will also garner more attention in the coming years, relating to vehicles that can sense objects in their proximity, communicate with each other and with traffic-control infrastructure for a safer, more efficient and enjoyable transportation system.</p>
334417	Electronic Connector Manufacturing	<p>One potential growth market for semiconductors is consumer electronics, such as smartphones, digital cameras and automotive electronics. Sales of semiconductors used in certain consumer electronics (such as digital TVs, digital set-top boxes, DVD recorders, video game consoles and MP3 players) are projected to grow 10.0% or more per year. Semiconductor vendors with competitive product offerings in the consumer electronics sector will likely benefit from growth in this market.</p> <p>The use of electronics in the automotive industry (such as in safety, comfort and infotainment) is increasing due in part to substitution of mechanical devices. Use of electronics in other industrial sectors is also increasing as investments in</p>

		<p>automation grow.</p> <p>Another potential growth market is products that use light-emitting diodes (LEDs). Currently, the most significant market for LEDs is for illumination in mobile products, including liquid crystal displays, backlighting, keypad illumination and flash units for camera phones. The markets for LEDs are forecast to expand, permitting the technology's use as a replacement for traditional light bulbs and automotive headlamps. LEDs boast a much longer lifespan than conventional lighting technologies and greatly increased energy efficiency, which will be particularly attractive in an environment of rising energy costs.</p>
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	<p>This U.S. industry comprises establishments primarily engaged in manufacturing instruments and related devices for measuring, displaying, indicating, recording, transmitting, and controlling industrial process variables. These instruments measure, display or control (monitor, analyze, and so forth) industrial process variables, such as temperature, humidity, pressure, vacuum, combustion, flow, level, viscosity, density, acidity, concentration, and rotation.</p>
334516	Analytical Laboratory Instrument Manufacturing	<p>Operators will likely benefit from continued advances in navigational, measuring and control instrument technology, increased government and private equipment and machinery expenditures and higher industrial production.</p> <p>Downstream demand from the energy, health and biotechnology sectors and laboratory testing services demand will also positively affect firms, as these industries expand due to government initiatives and technology advancements. The healthcare reform legislation paves a clear path for generic biological drugs and provides tax breaks for smaller biotechnology operators, allowing these companies to purchase more products from this industry. As new products are developed within these sectors, industry products will be needed to test and measure equipment.</p> <p>US healthcare reform seeks to expand coverage to a broader range of patients. In part, the act accomplishes this expansion through a significant loosening of the eligibility criteria for enrollment in Medicaid. As a result, more people will have access to healthcare, boosting the number of physician visits and enhancing demand for medical services and some devices.</p> <p>Demand for medical devices and services is projected to continue growing in emerging markets due to their improving economies, rapidly increasing and aging populations and the prevalence of chronic disease.</p>
335314	Relay and Industrial Control Manufacturing	<p>Demand for efficient energy performance and increased electric current quality will drive the Electrical Equipment Manufacturing industry in the future.</p> <p>In June 2008, the Federal Energy Regulatory Commission (FERC) stated that there are "tremendous investment needs" for electricity generation, distribution and transmission between 2010 and 2030. In light of these needs, spending on power infrastructure is projected to grow at a strong pace due to aging infrastructure and other factors.</p> <p>Implementation of a new federal carbon policy would increase the cost and change the mix of new generation capacity, which would also help transmission investments.</p> <p>Energy-efficiency standards also will have a positive effect on demand for some types of electrical equipment. For example, the US Department of Energy initiated new regulations mandating air-conditioning and heat pump manufacturers can only produce components that meet a seasonal energy-efficiency ratio (SEER) rating of 13 or higher. The 2007 Energy Bill raised the industrial electric motor efficiency standards, which extends coverage to many motors not previously covered.</p> <p>Global warming concerns have stimulated investment in alternative power generation, including renewable energy.</p> <p>An expectation of high future energy costs and efforts to increase security of supply will positively influence spending.</p> <p>Demand for improved quality and reliability of electricity will be a key factor in determining future viability for the industry.</p> <p>Load growth in cities and suburbs, will drive system replacement and expansion.</p>

519130	Internet Publishing and Broadcasting and Web Search Portals	This industry should continue to grow rapidly as advertisers extend the trend of shifting resources toward the internet and as mobile internet service expands opportunities for consumption. New establishments opportunities are developing to take advantage of reallocations between advertiser-paid and subscription services.
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Source: IBIS World, Younger Associates

| Workforce Analysis

Thomas Jefferson Partnership for Economic Development Labor Supply Survey and Workforce Analysis

Study Approach

A labor supply survey was conducted among a statistically valid sample of the Thomas Jefferson Partnership for Economic Development (TJPED) region's population between the ages of 18-65. The study region consists of Albemarle County, the City of Charlottesville, Culpeper County, Fluvanna County, Greene County, Louisa County, Madison County, Nelson County and Orange County.

The survey was conducted in person through field interviews at locations throughout the region. With 1,184 responses, the number of surveys completed exceeded the target of 1,060 and provided enough primary data to achieve a confidence factor of 95 percent and a margin of error less than plus or minus three percent.

The large survey sample size allows for an accurate extrapolation of the actual number of people who are in the regional labor pool, the number of workers with particular skills, training needs and many other critical workforce factors. The survey was conducted by Younger Associates' experienced team of field research specialists. The survey intercept locations included regional shopping centers, public libraries, commuter stations and public service offices.

This process enabled our team to reach the entire demographic spectrum of age, income, education and occupation. The resulting sample is demographically representative of the regional population. Actual survey statistics are provided in Tables 1 and 2.

Table 1

Labor Supply Survey Reliability

1,184	Completed Surveys
95%	Confidence Level
±2.84%	Margin of Error

Table 2

Labor Supply Survey Response Stratification by Locality

County	Total population	Households	% of HH to Total	95% Confidence Level +3%	Target	Completed
Albemarle	98,970	38,157	30.3%	322	325	375
Charlottesville	43,475	17,778	14.1%	150	150	127
Culpepper	48,689	16,321	13.0%	138	140	152
Fluvanna	25,691	9,449	7.5%	80	80	98
Greene	18,403	6,780	5.4%	57	60	69
Louisa	33,153	12,944	10.3%	109	110	122
Madison	13,308	5,083	4.0%	43	45	51
Nelson	15,020	6,396	5.1%	54	55	65
Orange	33,481	12,895	10.3%	109	110	120
			100.0%	1,060	1,075	1,179
Other Regional					-	5
Total	330,190	125,803		1,060	1,075	1,184

Source: Claritas, Younger Associates Labor Supply Survey

In addition to the survey data, a comprehensive statistical workforce overview has been compiled for the TJPED region. This overview is based upon the latest data from the Department of Labor, Department of Education, Department of Commerce, and pertinent state and regional reporting agencies.

Combined information from the labor supply survey and the statistical overview is summarized in this chapter. Tabulated results from the survey are presented in total and by labor shed area in Appendix A of this report.

Workforce Analysis Findings

Thomas Jefferson Partnership for Economic Development Regional Population

The population of the Thomas Jefferson Partnership for Economic Development (TJPED) region grew at a rate more than double the U.S. growth rate between 2000 and 2010. The projected growth rate for the period 2010 to 2016, at 8.8 percent, is slightly lower than in past years, but still double the national population growth rate, as shown in Table 3.

Table 3

Population Growth 2000-2016

Year	2000	2010	2016
TJPED Region	272,311	328,190	357,168
% Growth		20.5%	8.8%
VA	7,078,515	8,001,024	8,420,247
% Growth		13.0%	5.2%
US	281,421,906	308,745,538	323,031,618
% Growth		9.7%	4.6%

Source: U.S. Census Bureau, Nielsen Claritas

Proximity to major metros, a highly desirable quality of life in a beautiful natural environment, rich cultural assets, and a major research university are among the top factors noted by people locating in the TJPED region. Culpeper County, in the northernmost part of the TJPED region, has experienced the highest growth rate, primarily from people moving out of the Washington, DC metro area. Many of the people relocating to Culpeper County have fresh skill sets and are prepared for the new economy emerging from the recession.

Nelson County, in the southernmost part of the region, experienced the lowest growth rate, which at 4% was less than half of the U.S. population growth rate between 2000 and 2010. This was due in part to the location further away from the DC metro area. It was also due in part to county policies and land planning, which protect the rural attributes. However, the rate of population growth in Nelson County is projected to double over the next five years, which would add approximately 1,200 residents.

The City of Charlottesville experienced population loss over the last decade, and that trend is predicted by demographers to continue. The small geographic confines of the city force some activities to move into the surrounding county or region in order to grow. As the urban core of the region, and a destination for national and international visitors, Charlottesville is a large factor in what attracts people to the region. However, many people prefer to reside in the more

rural areas outside the boundaries of the City. Table 4 below lists the growth rates for each locality in the TJPED region.

Table 4

Population by County, 2000-2016

Geography	2000 Population	2010 Population	% Growth	2016 Projection	% Growth
Albemarle County	79,236	98,970	24.9%	102,238	3.3%
Charlottesville	45,049	43,475	-3.5%	42,358	-2.6%
Culpeper County	34,262	46,689	36.3%	55,129	18.1%
Fluvanna County	20,047	25,691	28.2%	29,900	16.4%
Greene County	15,244	18,403	20.7%	20,183	9.7%
Louisa County	25,627	33,153	29.4%	37,710	13.7%
Madison County	12,520	13,308	6.3%	14,657	10.1%
Nelson County	14,445	15,020	4.0%	16,258	8.2%
Orange County	25,881	33,481	29.4%	38,735	15.7%

Source: U.S. Census Bureau, Nielsen Claritas

Overall, the TJPED region is able to attract talent and knowledge workers for growth industries. The entire region benefits from its proximity to other major metro areas in the Northeast and its reputation as a great place to live. This has allowed the rural counties in the TJPED region to grow while rural counties in most of the nation declined sharply during the past decade.

Detailed demographic profiles of the combined TJPED region and each of the individual localities are provided in Appendix D of this report.

Age of the TJPED Population

The median and average ages of the population in the TJPED region are higher than the state and national benchmarks. This is indicative of a statistically significant number of people who choose to move to the area to retire.

However, a 2011 study prepared for the Older Dominion Partnership found that residents of the Jefferson Area Board for Aging region (which coincides with the general area of TJPED) are less likely to retire at age 65 than in other areas of the state. In the Jefferson Board Area, 71% of the population over age 65 is retired versus 82% statewide in Virginia.

The high proportion of retirees in the more rural counties of the TJPED region can limit the number of available workers in the near future. Retention and recruitment of young workers for the region is necessary to support the existing business sectors and emerging business sectors. Fortunately, quality of life is an asset that can support the effort to attract and retain young workers in the TJPED region. Table 5 provides age statistics by locality.

Table 5

Average, Median Age by County, 2011

Region	Median Age	Average Age
Albemarle County	37.53	39.10
Charlottesville	31.17	36.60
Culpeper County	36.92	37.00
Fluvanna County	39.79	39.50
Greene County	38.34	37.80
Louisa County	41.90	40.40
Madison County	43.68	41.70
Nelson County	47.21	44.00
Orange County	41.50	40.80
Aggregate	38.35	39.10
State of Virginia	37.44	37.90
United States	36.95	37.80

Source: Nielsen Claritas

TJPED Income Levels

The average household income in the TJPED region exceeds the national average by 3.8 percent. The average household income for the state of Virginia is higher than in the TJPED region, due in large part to the very high wage and income areas in the Virginia suburbs of Washington, DC. Table 6 provides an income comparison.

Table 6

Average Household Income

TJPED Region	\$70,102
Virginia	\$78,549
United States	\$67,529

Source: Nielsen Claritas

Average household income varies by county and by age group in the region with the lowest income cohort being those above age 65, living in Louisa County. (See Table 7.) The average household income for this group is 17.2 percent below the national average.

The Nelson County over age 65 cohort has a similarly low average household income at 15.1 percent below the national average, followed by Charlottesville at 5.3 percent below.

Charlottesville has the lowest average household income among the 25 to 44 age cohort at 17.7 percent below the national average. A 2011 study, *A Declaration of Independence: Family Self Sufficiency in Charlottesville, Virginia*, presented to the Greater Charlottesville Area Development Corporation, provides a detailed profile of the low income households in Charlottesville. It does an excellent job of screening out the large segment of the population enrolled in college and providing more insight on low-income family households.

In Louisa and Greene Counties the youngest age cohort, age 25 to 44, has the highest average household income among the age cohorts in those counties. This could be an indicator of positive economic shifts in those counties.

Table 7***Median Household Income, by Age***

	25 to 44 years	45 to 64 years	65 years and over
Albemarle County	\$ 63,689	\$ 81,123	\$ 53,589
Charlottesville	\$ 47,045	\$ 50,902	\$ 32,120
Culpeper County	\$ 70,331	\$ 75,824	\$ 36,549
Fluvanna County	\$ 68,508	\$ 71,220	\$ 41,215
Greene County	\$ 58,905	\$ 56,846	\$ 33,632
Louisa County	\$ 61,099	\$ 56,962	\$ 28,085
Madison County	\$ 56,569	\$ 58,125	\$ 33,448
Nelson County	\$ 49,886	\$ 51,545	\$ 28,801
Orange County	\$ 60,537	\$ 66,069	\$ 42,155
Virginia	\$ 60,152	\$ 66,366	\$ 32,240
United States	\$ 57,132	\$ 63,398	\$ 33,906

Source: U.S. Census Bureau, American Community Survey 2005-2009 Estimates. Shown in 2010 Inflation-Adjusted Dollars

TJPED Wage Rates

The highest-wage industry group in the overall TJPED region is the *Financial Activities* group with wages 46 percent higher than the combined wages of all industries in the region. (See Table 8) *Professional and Business Services*, Government and Information are the next highest paying industry groups in the region. This information from the Virginia Employment Commission supports the findings of the Labor Supply Survey and the Targeting Analysis portions of this study.

Table 8

Wage by Industry Type, 2010

Industry Category	Number of Establishments	Annual Average Wage
All Industry	9,465	\$ 65,784
Construction	1,190	\$ 58,903
Education & Health Services	1,370	\$ 70,618
Financial Activities	808	\$ 96,047
Government	433	\$ 85,912
Information	178	\$ 84,866
Leisure & Hospitality	738	\$ 24,411
Manufacturing	300	\$ 77,893
Natural Resources & Mining	197	\$ 40,286
Other Services	1,029	\$ 50,454
Professional & Business Services	1,560	\$ 88,447
Retail Trade	1,062	\$ 36,739
Transportation, Warehousing & Utilities	154	\$ 69,242
Wholesale Trade	343	\$ 67,115

Source: Virginia Employment Commission

Comparative Unemployment

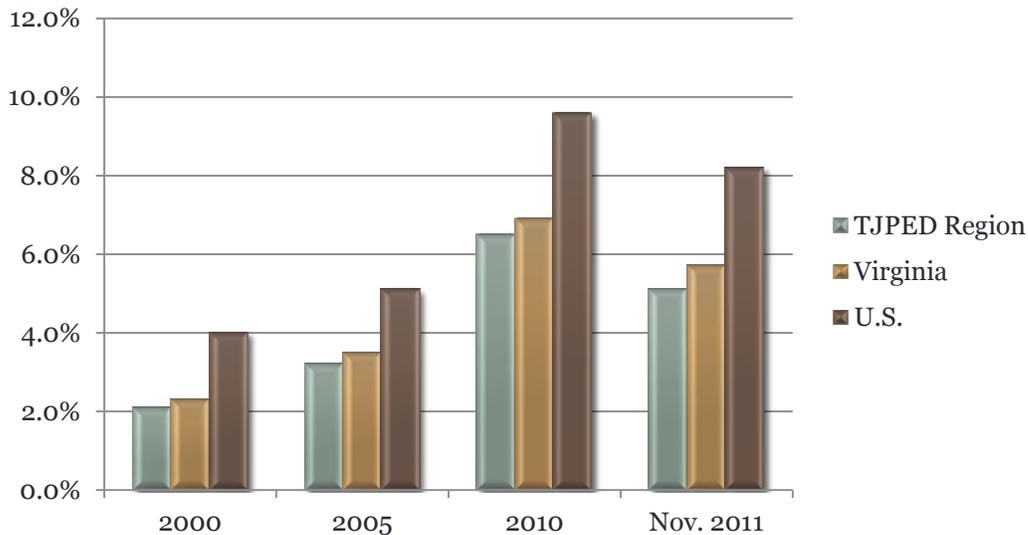
Overall, the economy in the TJPED region outperformed the state and the nation in employment before and during the recession. So far, as the economy recovers, the employment rate for the region is improving faster than the state and nation. Figure 1 compares unemployment rates for the region over time and Figure 2 provides recent unemployment rates by locality.

When a small labor market experiences unemployment rates of 5% or lower, businesses seeking a location may overlook that region in favor of larger markets or markets with a higher unemployment rate. Prospect businesses may perceive that they will find more applicants in larger or higher unemployment markets. Data from this analysis prepares TJPED to overcome this perception.

Of course, large pockets of unemployment remain in the TJPED region. This study provides a tool for identifying skill sets and attributes of the not-employed and underemployed. This will enable TJPED to compete with regions with much higher unemployment, which may initially seem more attractive to employers seeking workers.

Figure 1

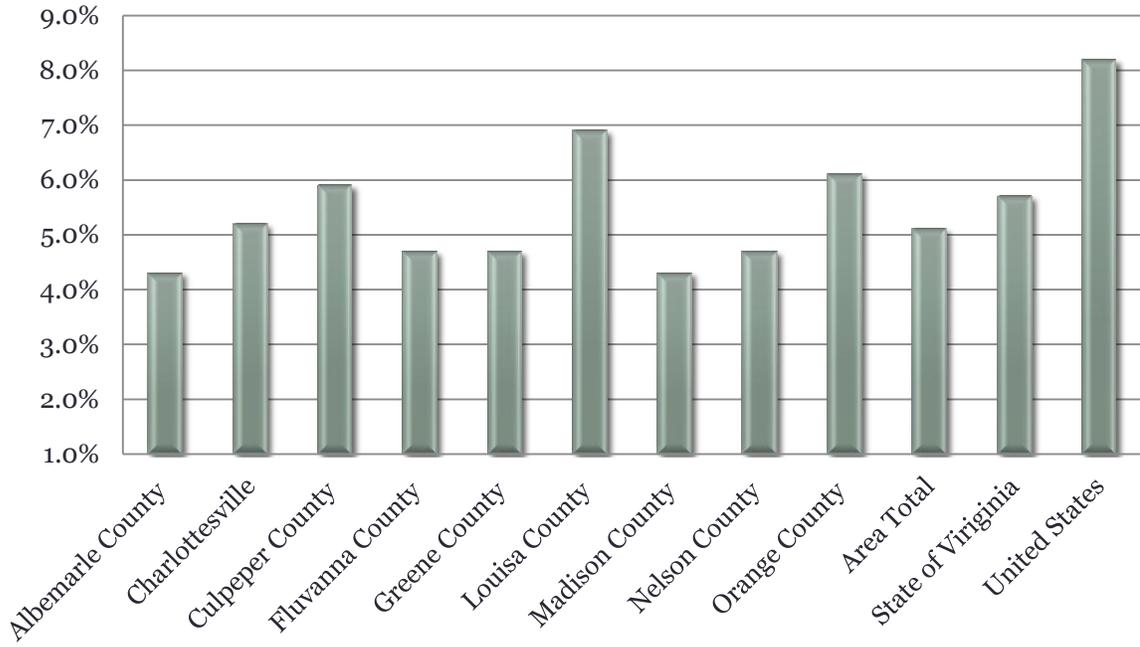
Unemployment Rates, 2000-2011



Source: LAUS Unit and Bureau of Labor Statistics, Virginia Employment Commission

Figure 2

Unemployment Rates by County, November 2011



Source: LAUS Unit and Bureau of Labor Statistics, Virginia Employment Commission

Educational Attainment Levels

The proportion of the TJPED workforce that has a high school equivalent or lower education level is slightly smaller than in the U.S. workforce as a whole. The TJPED region also has a smaller proportion of the workforce with some education beyond high school, but below the baccalaureate degree level than the national workforce (See Figure 3).

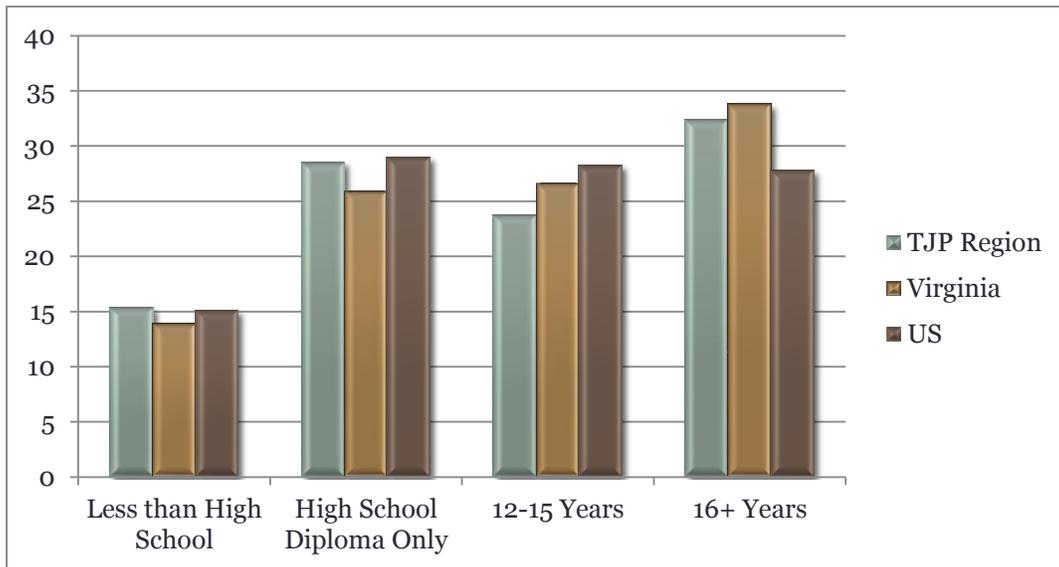
For the past decade, many traditional employers have sought this level of worker (some education beyond high schools, usually with some technical training), because they meet the minimum requirements to be successful in the work environment. Today's globally competitive manufacturing employers must be presented with evidence that enough workers are present in a region to fill large numbers of these jobs. These employers are termed "advanced manufacturers," because they rely on automation and statistical processes to remain competitive in the global economy.

The local network of community colleges, Germanna and Peidmont, is prepared to train more workers at this level. This study provides documentation that some workers at this level are available, but not in large numbers.

The prime asset for the TJPED regional workforce is the high proportion of workers with degrees and advanced degrees. The proportion of these workers is 17 percent higher than in the national workforce as a whole. This allows the TJPED region to pursue targets in the *Business and Financial Services* group, the Information Technology group and Biosciences, all groups that most other parts of the country cannot successfully pursue because they do not have an available skilled workforce.

Figure 3

Educational Attainment, 2011



Source: Nielsen Claritas

K-12 Public Education

Generally, good K-12 education is one of the factors contributing to the high quality of life rating for the region. Except for Charlottesville and Nelson County, high school graduation rates are higher than the state rate, which is significantly higher than the national rate.

Math proficiency is lower than it should be in a region preparing workers for financial and technical fields. Fluvanna, Madison, Nelson and Orange Counties, as well as Charlottesville, have high school math proficiency rates below the state average. A multi-year effort to raise levels of math and science proficiency, reported by local officials in interviews for this study, is being considered for Albemarle and Charlottesville schools. This effort should be vigorously pursued, with the type of long-term effort that is necessary to impact education levels.

Piedmont Virginia Community College reports that approximately 40 percent of local high school graduates require remedial reading and math when they enter the college. While this rate is not out of line with the national remedial needs of community college entrants, it is not sufficient for a region that wishes to target industry groups that are emerging in the new knowledge-based economy.

Appendix C of this study provides detailed data for each school system in the TJPED region. Key data is summarized in Table 9 below.

Table 9

Public School Data

District Name	Enrollment	Graduation Rate	% Adv Math	% Proficient Math	% Adv Science	% Proficient Science
Albemarle County	13,213	88%	58	31	43	49
Charlottesville	4,030	75%	26	30	38	45
Culpeper County	7,710	81%	62	29	34	58
Fluvanna County	3,773	83%	36	41	29	64
Greene County	2,887	84%	45	27	38	55
Louisa County	4,731	87%	10	39	40	58
Madison County	1,849	83%	35	47	17	53
Nelson County	1,966	72%	35	43	35	72
Orange County	5,237	80%		45		57
Virginia	1,267,063	80%	47	35	40	52
United States		74%		30		35

Source: Virginia Department of Education; National Center for Education Statistics, NAEP

Higher Education

The TJPED region is associated with higher education based upon the national reputation of the University of Virginia. The Technology Asset Inventory chapter of this report provides information on the research and intellectual property aspects of the University. The overall academic excellence of the University is equally important to the workforce of the region.

Together, the three higher education institutions in the TJPED region produce approximately 7,600 graduates per year. Appendix C of this report provides the number of graduate per degree or program of study.

The institutions produce a relatively high number of graduates in the science, technology, engineering and mathematics (STEM) fields. A larger number of graduates in these fields have been identified nationally as necessary to support the growth and competitiveness of companies in the new knowledge-based economy. Table 10 below summarizes key higher education data for the region.

Table 10

Higher Education

Study Area	Graduates	Institutions
Thomas Jefferson Partnership for Economic Development Region	7,578	3

Area Institutions
Germanna Community College
Piedmont Virginia Community College
University of Virginia

Source: National Center for Education Statistics, IPEDs

STEM Degrees	
Science	461
Technology	111
Engineering & Engineering Technology	579
Math	76

Higher education graduates are an important component of the potential labor pool. While no region is able to retain all the graduates from the higher education institutions located there, regions with a strong pipeline of graduates are more capable of meeting the needs of employers. Employers have the choice of recruiting graduates from outside the area or recruiting more directly from local institutions.

Employers interviewed for this study report that both Germanna Community College and Piedmont Virginia Community College collaborate well with them. Both colleges have programs that are directly responsive to the training and specialized skill needs of local employers.

Labor Supply Findings

Unemployment statistics understate, in intentional and unintentional ways, the number of people who do not have jobs. To be officially counted in the state and federal workforce statistics as unemployed, a person must have held a paying job, left that job through no fault of their own within the time period allowed for payment of unemployment benefits, registered with the local workforce investment network office, and stayed in touch with that office with proof that they are looking for a job.

Many people without jobs do not meet the criteria to be included in unemployment statistics. Recent high school and post-secondary graduates are not included. People returning to the workforce after extended absences, such as parents and caregivers ready to return to work, are not included. Other examples of potential workers who do not qualify as officially unemployed are people who have relocated into an area, people who never applied for unemployment benefits, most separating military and early retirees who want to return to some type of employment.

The labor supply survey conducted for the TJPED region identifies all these types of workers and provides a count of the total “not employed.” The not employed includes the officially unemployed, plus all other working-age people who could potentially be in the workforce. Younger Associates limited the age range of the survey to ages 18 to 65 and did not include recent high school graduates who are seeking any form of higher education.

The labor supply survey found 22.2% of the TJPED potential workforce to be not employed. When applied to the working age population this percentage translates to over 46,700 people in the TJPED region who are not employed as shown in Table 11.

Table 11

Workforce Status

Employment Status	Total Survey	TJPED Region
Employed	77.8%	163,884
Not Employed	22.2%	46,708
Total	100%	210,592

Source: Younger Associates Labor Supply Survey

Workforce Component: The Not Employed

Not everyone who is Not Employed is interested in finding a job or seeking immediate employment. The labor supply survey screened for those who are actually interested in finding employment. Because the age range was limited to those 18 to 65, and most recent high school graduates were not included, the percentage of the Not Employed seeking employment is high. In the TJPED region it was atypically high, with 46,379 reporting an interest in finding a job.

Workforce Component: The Underemployed

Another important component of the workforce is the pool of workers who are underemployed. The underemployed are defined by the Younger Associates analysis to be those who are: currently employed; have been previously successfully employed at a higher skill level job than the one they have now; and would prefer to hold a higher skill-level job. Another category of this worker pool would be workers who have recently and successfully completed training or certification for a higher skill-level job.

The labor supply survey found 16.8 percent of the TJPED region labor supply pool to be Underemployed. This translates to over 27,500 workers in the region who are Underemployed. Employers across the country frequently report that this is the most desirable pool of potential workers. This is because employers view these workers as being motivated to work and having a productive work ethic. Although they have not found a job that matches their skills and training potential, they remain in the workforce.

Workforce Component: Part-Time Employees

Among the people who are employed in the region, almost 21% are employed part-time as shown in Table 12. This includes those who prefer to be employed part-time and those who would prefer full-time work.

Table 12

Full-Time and Part-Time Employment

Employment Type	Total Survey	TJPED Region
Full-Time	79.2%	129,840
Part-Time	20.8%	34,044
Total	100%	163,884

Source: Younger Associates Labor Supply Survey

The labor supply survey found that over 40% of the people who are currently employed part-time would prefer to be employed full-time. In the TJPED region, this indicates that more than 13,700 people employed part-time would accept full-time work if it was available.

These workers are an important component of the labor supply because employers often prefer to hire workers who have proven their reliability through part-time work. These workers may also have gained workplace skills that may not be found among people who have never worked or who have been out of the workplace for a long time.

Hidden Potential Labor Supply

When the components of the labor supply pool are combined, the total Hidden Potential Labor Supply can be seen. Table 13 below shows all the components, including the number of annual graduates from the three higher education institutions in the TJPED region. In the TJPED region, employers have a potential labor pool of over 95,100 workers, many with past work experience and training that can be beneficial to employers in key industry groups.

Table 13

Potential Hidden Labor Supply

Employment Status	TJPED Region
Not employed, but interested in working	46,379
Underemployed	27,538
Residents employed part-time, who would prefer full-time employment	13,703
Recent post-secondary graduates	7,578
Total	95,198

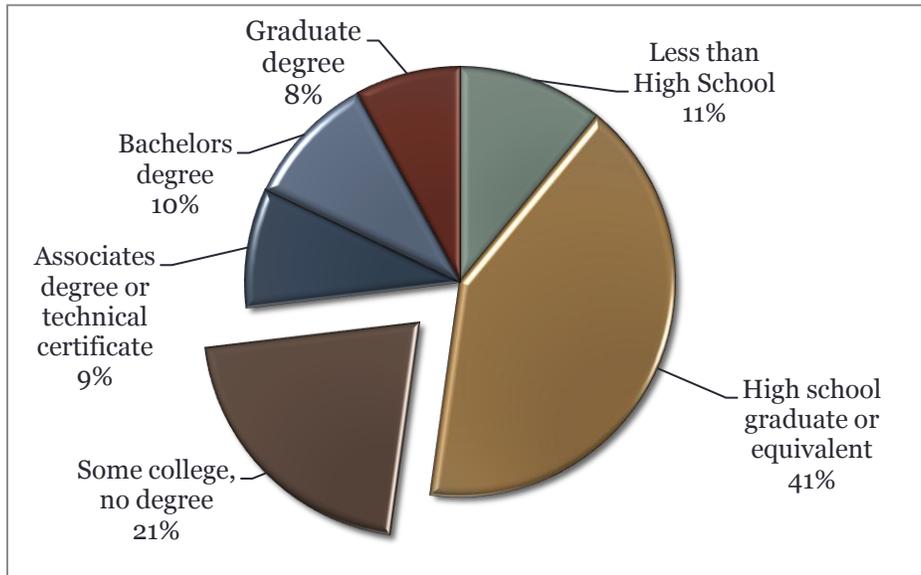
Source: Younger Associates Labor Supply Survey

Key Characteristics of the Underemployed and Not Employed, but Interested

Among the Not Employed, but Interested group, approximately half the group has some education beyond the high school equivalency level as shown in Figure 4. This is beneficial to the effort of connecting these potential workers to employers. In particular, the 21 percent of the Not Employed, but Interested labor supply component can potentially be provided with specific skill training that prepares them to be quickly productive for existing employers in the region, based upon their current education level.

Figure 4

Not Employed, but Interested Education Levels



Source: Younger Associates Labor Supply Survey

Table 14 below shows the extrapolated number of workers currently Not Employed, but Interested and Underemployed, by education level, in the TJPED region.

Table 14
Educational Attainment by Employment Status

	Not Employed, but Interested	Underemployed
Less than High School	4,969	672
High school graduate or equivalent	20,208	5,374
Some college, no degree	8,945	4,366
Associates degree or technical certificate	3,975	4,869
Bachelors degree	4,638	6,549
Graduate or Professional degree	3,644	5,709
Total	46,379	27,538

Source: Younger Associates Labor Supply Survey

Among the Not Employed, but Interested component, recent layoff or company closure is the top reason for lack of employment, as shown in Table 15.

Table 15

Top Reasons for Lack of Employment Among Not Employed, but Interested

	%	Not Employed, but Interested
Laid Off / Company Closure	31.9%	14,788
Other	21.0%	9,746
Retired	10.9%	5,041
Cannot find job with hours / schedule I need	10.1%	4,705
Lack of jobs in field	8.7%	4,033

Source: Younger Associates Labor Supply Survey

Many of the jobs skills reported by the Not Employed, but Interested are in areas hard hit by the recession, such as construction, retail, and food preparation, as shown in Table 16. These are also low skill groups that do not match the recommended target industry groups for the overall region well (Some county targets can utilized these skill groups.) However, some of skill groups such as office and administrative support, computer support, management, and transportation provide a good labor supply pool for the target industry groups.

Table 16

Not Employed, but Interested Most Frequently Reported Job Skills

Leading Occupational Skills	%	Not Employed, but Interested
Construction	8.8%	4,077
Office & Administrative Support	8.2%	3,822
Retail Sales & Service	7.7%	3,568
Food Preparation & Serving	7.1%	3,313
Financial	5.5%	2,548
Cleaning & Maintenance	4.9%	2,293
Computer/IS-Support/Tech	4.9%	2,293
Management-Entry Level	4.9%	2,293
Transportation & Material Moving	4.9%	2,293

Source: Younger Associates Labor Supply Survey

Among the Underemployed component, many workers report skills and past experience that would make them an attractive potential workforce for target industry sectors, specifically the *Business and Financial Services* industry group. As shown in Table 17, four of the seven most frequently reported employment skills groups would match that industry group.

Table 17

Underemployed Most Frequently Reported Job Skills

Leading Occupational Skills	%	Underemployed
Education-Professional	11.9%	3,291
Business/Professional Services	10.1%	2,771
Management-Middle	9.4%	2,598
Office & Administrative Support	5.0%	1,386
Special Trades	5.0%	1,386
Computer/IS-Support/Tech	3.8%	1,039
Protective Services	3.8%	1,039

Source: Younger Associates Labor Supply Survey

Training Needs

For educators and training providers, it is helpful to understand the types of training workers would prefer. This helps in planning training capacity, but is even more helpful in preparing to counsel workers to seek training in fields where the success of achieving long-term employment is high. Table 18 shows the most frequently reported training desires among the Not Employed, but Interested.

Table 18

Top Training Interests among Not Employed, but Interested

	%	Not Employed, but Interested
Computer - General	23.6%	7,768
Medical Related (except nursing)	9.4%	3,107
Nursing	5.7%	1,864
Special Trades	5.7%	1,864
Office/Clerical	4.7%	1,554

Source: Younger Associates Labor Supply Survey

While the types of training desired by the Not Employed, but Interested may generally apply to existing and target industry groups in the region, career counseling could help direct trainees to specific areas, which will support economic growth. For example, those seeking training in special trades (which can include electrical, HVAC, and maintenance) should be guided to the industrial special trades, rather than trades that support residential construction.

Evidence from workforce analyses completed in other areas have shown that people seeking general computer training may stop short of the skill level needed to meet current employer requirements. Specifically, trainees may seek to learn basic word processing and other basic functions, but do not reach the skill level to provide more analytical computer support for *Business and Financial Services* operations.

Other Characteristics of the Labor Supply

Among the employed, approximately 14 percent have a second job. Table 19 shows the most frequently reported types of second job. Almost half of those reporting a second job are self-employed in that second job.

Table 19
Second-Job Holder Occupations

Occupation	Total Survey	TJPED Region
Food Preparation & Serving	13.8%	3,175
Business/Professional Services	10.9%	2,507
Retail Sales & Service	10.9%	2,507
Leisure/Entertainment	8.7%	2,006
Cleaning & Maintenance	6.5%	1,504
Farming, Fishing & Forestry	5.8%	1,337
Social Services	5.8%	1,337
Transportation & Material Moving	5.8%	1,337
Education - Professional	4.3%	1,003
Childcare	3.6%	836

Source: Younger Associates Labor Supply Survey

The majority of the workforce in the TJPED region has never worked shifts. Only 18.4 percent has ever worked any shifts, which is a very low proportion compared to other locations in the U.S. Many companies that provide 24-hour services and support and operate advanced technology require shifts to maintain operational levels. This has not been a concern or operational issue with employers in the region to date.

While this chapter contains key highlights from the labor supply survey, Appendix A provides detailed profiles of the overall workforce and each key component of the Hidden Labor Supply. A workforce is always regional in nature and the overall TJPED regional workforce profiles offer the best insights on workforce availability and characteristics.

In addition to the overall regional profiles, a profile has been prepared for each county in the region based upon the potential labor shed area for the county. These profiles present the workforce characteristics for the potential labor shed area for each county. The labor shed area contains the group of counties from which an employer paying average industry wages could reasonably expect to attract workers. The labor shed areas are based upon survey results and historic commute patterns and supporting data is presented in Appendix B of this report.

Due to the small geographic area involved, the labor shed areas do not differ greatly. Charlottesville and Albemarle County have the same geographic labor shed area and are presented together in this one section of the report.

The survey data is tabulated and presented in an online tool so members of TJPED can create profiles of specific county groupings. This may be helpful when an employer or consultant requests data for a general area that differs from the labor shed area. The TJPED online workforce data tool can be accessed at <http://surveys.younger-associates.com/va/tjped/>.