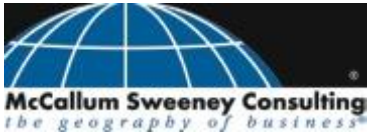
PROSPERITY FOR GREATER CHARLOTTE

Jobs, Workforce & Education Alignment Strategy for the Greater Charlotte Region

Project Supporters

Project Consulting Team



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Introduction

Introduction to the Project

Creation of the **Prosperity for Greater Charlotte** Comprehensive Economic Development Strategy recognizes today's reality that economic dependencies and competencies require cross sector and jurisdictional collaboration, acknowledging that the Greater Charlotte region is a complex system with various subsystems. Based on this overarching and interconnected existence, this project updates the Centralina Economic Development Commission EDD CEDS with a comprehensive economic development planning approach that also analyzes and incorporates the systems and strategies that support the goal of the Greater Charlotte Region as a globally competitive, vibrant and resilient bi-state region of communities.

The primary three organizations that comprise this regional economic zone of influence are the US EDA Economic Development Districts of the Centralina Economic Development Commission in North Carolina and Catawba Regional Council of Governments in South Carolina, and, in cooperation with both North Carolina and South Carolina Departments of Commerce, the bi-state coverage of the Charlotte Regional Partnership.

This project provides the five year update to the 2007 Centralina Comprehensive Economic Development Strategy (CEDS) No Boundaries report and provides supporting research and data to the Catawba Regional Council of Government for their CEDS update in compliance with the requirements of the U.S. Department of Commerce Economic Development Administration, (EDA). The project is funded in part by the U.S. Department of Commerce, Economic Development Administration and "CONNECT Our Future", a $4.9 million HUD Sustainable Communities Regional Planning Grant through a federal HUD-DOT-EPA Partnership for Sustainable Communities coalition. The CEDS Update findings, regional strategies and related county community assessments will provide input and deliver crucial economic foundation and data to the "CONNECT Our Future" planning process and ultimate outcomes.

WHY THIS PLAN?

This plan is premised on transcending traditional jurisdictional boundaries and barriers in a collaborative paradigm to assemble the most accurate and place based reality for the economic strategies and future of the entire Greater Charlotte Region.

Successful economic development today requires a plan to be in place. In fact, site selectors and companies now look to a region's plans as an indicator of where a community plans to be, how it plans to get there, and which institutions are accepting responsibility. Regions with cohesive and realistic plans will grow in a more organized fashion and better leverage the assets in each of the component counties or jurisdictions that comprise the area of economic influence.

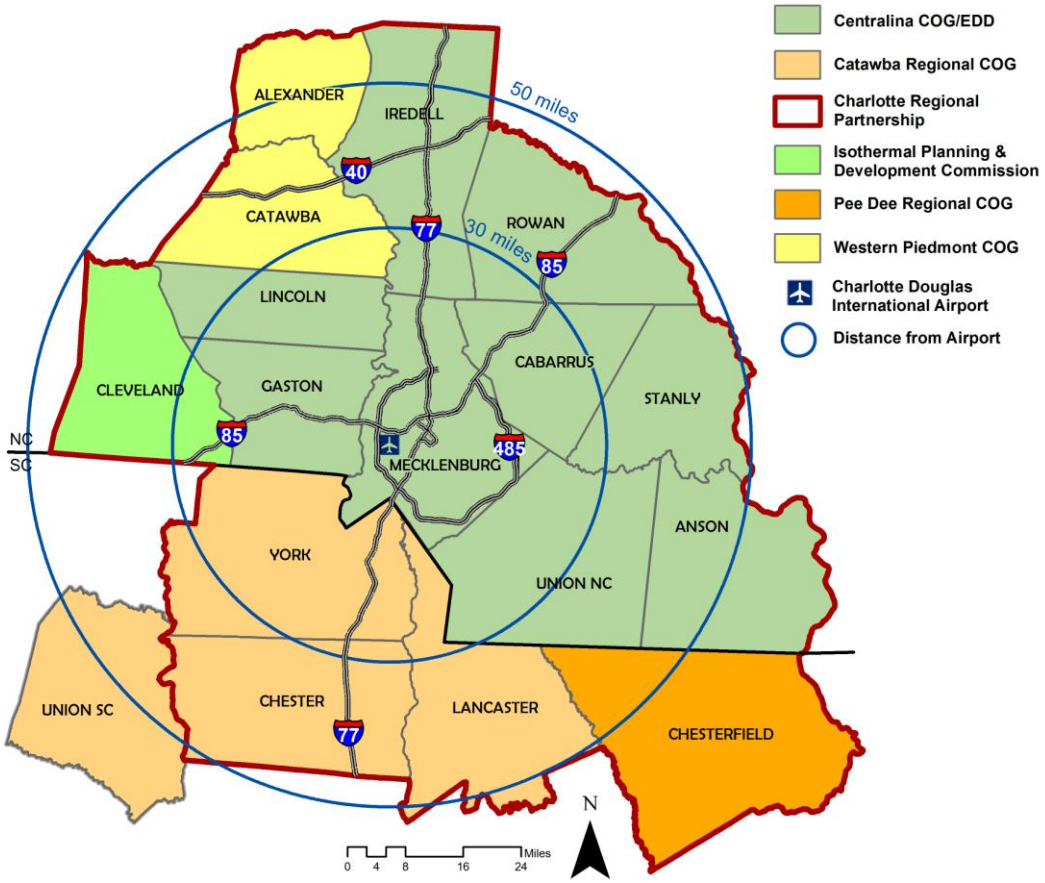
Rutherford Street in Wadesboro.

The **Prosperity for Greater Charlotte** project and the HUD "CONNECT Our Future" Economic Development Group collaboratively partners the Centralina Council of Governments, Catawba Regional Council of Governments, Centralina Economic Development Commission, and the Charlotte Regional Partnership in an innovative, integrated approach that is essential to support the region's future growth and prosperity.

The Centralina EDD Comprehensive Economic Development Strategy outlines an approach to coordinate growth and prosperity that builds on the region's strengths, prioritizes key regional industry clusters, and emphasizes collaboration. A key component of this strategic planning process is to help the regional economy boost its job growth rate by linking the region's workforce skills and strengths, education assets, and infrastructure to the needs of high-growth and emerging industries. The strategy will support and guide priorities for economic development in the region in order to create jobs, build community, and strengthen the local economy.

The use of "Greater Charlotte Region" in the language of this report is reflective of the larger collaborative analysis by the Centralina EDD and the additional inter-relational and centralized impacts of the 50 mile regional zone. However, all report findings and priorities with goals, objectives, and tactics are specifically endorsed and adopted only for the EDA-approved nine-county jurisdiction of the Centralina Economic Development Commission (EDD). This report in no way replaces or supplants adjacent EDD CEDS jurisdiction plans that share partial coverage within the economic zone of influence defined and analyzed for this report.

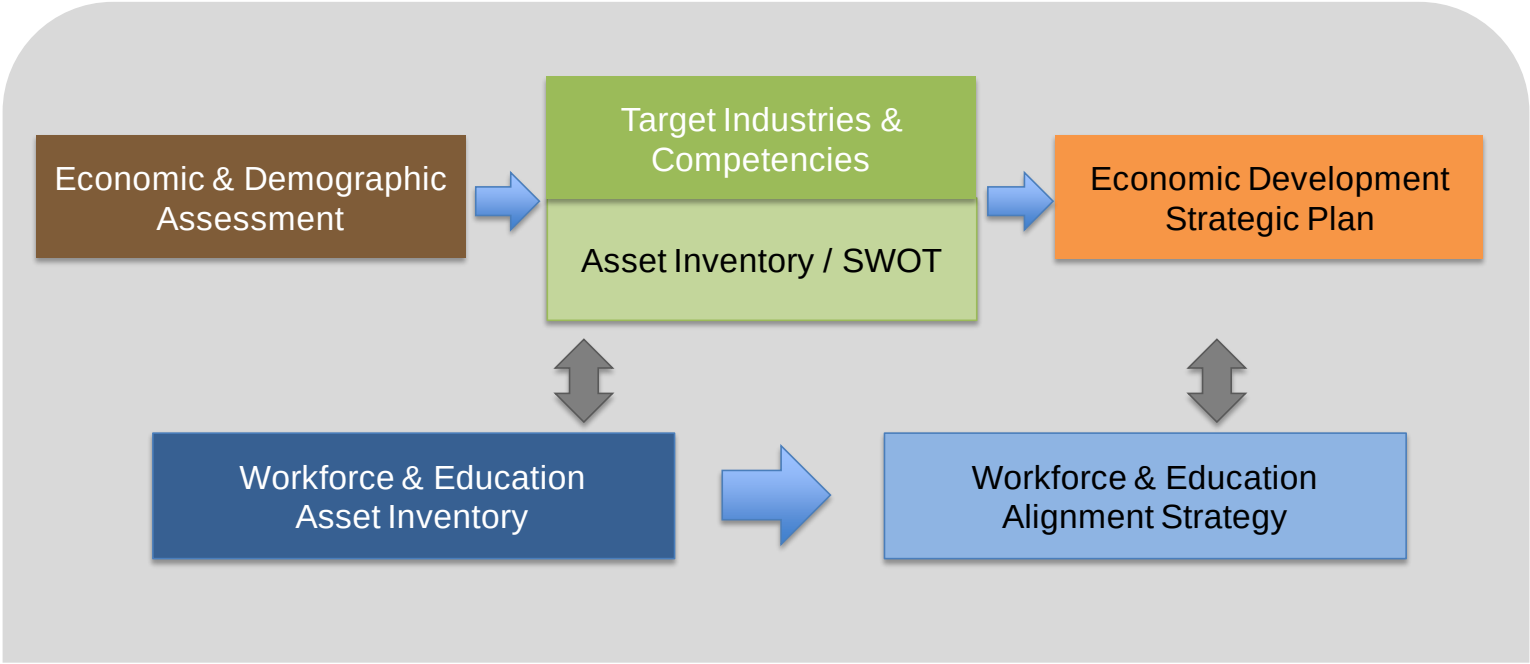
Greater Charlotte Region



In anticipation of dynamic economics that will drive future global competitiveness, our innovative strategic plan design dictated inclusion of seventeen counties in the global competency analysis, parallel with the Charlotte USA footprint. This collaborative community network shown on the map illustrates the fifty-mile radius economic zone that constitutes the Greater Charlotte 21st Century Global Region.

The diagram below shows the components and process of the Centralina Comprehensive Economic Development Strategy (CEDS):

Process Diagram
Comprehensive Economic Development Strategy



The first phase of the Centralina Comprehensive Economic Development Strategy has two primary components: the *Economic & Demographic Assessment* and the *Asset Inventory / SWOT*.

The *Economic & Demographic Assessment* examined historical growth trends in the Greater Charlotte Region and the individual counties. Economic datasets presented and discussed include overall jobs, employment by industry, unemployment, shift-share analysis of regional industries, payroll, average salaries, and gross regional product. Demographic data presented includes overall population trends, age distribution, and incomes.

The second component, *Asset Inventory / SWOT*, inventories and evaluates key economic development assets in the Greater Charlotte Region. The report identifies assets in several categories: Workforce & Education, Entrepreneurship & Innovation, Infrastructure, Business Climate, and Quality of Life. For each of these topics, the report includes a SWOT (Strengths, Weaknesses, Opportunities, & Threats) assessment summarizing the key takeaways for the Centralina Comprehensive Economic Development Strategy.

Charlotte Motor Speedway

Alongside these components, the project team will complete a *Workforce & Education Asset Inventory*. This report inventories all college and K-12 educational programs; identifies existing workforce skills and competencies; and examines national and global workforce skill trends. This inventory provides an essential perspective for understanding regional strengths and industry objectives.

The second phase of the project builds on the previous reports, identifying and validating target industry clusters for the Greater Charlotte Region. The *Target Industries & Competencies* component includes a cluster analysis of regional industries, examining growth trends, location quotients, and employment bubble charts. The project team evaluated potential target industries by filtering candidates through numerous criteria, including the regional asset fit, national industry trends, and match to regional economic development goals. The *Target Industries & Competencies* analysis culminates in a list of target industry recommendations and profiles for each industry.

The project culminates in three strategic plans: the *Centralina Comprehensive Economic Development Strategy* and the integrally linked Greater Charlotte region *Jobs, Workforce & Education Alignment Strategy* with the additionally supported, but independently completed, *Catawba Region Comprehensive Economic Development Strategy* of the Catawba Regional Council of Governments.

NC Research Campus, Kannapolis

The economic plan defines priorities and goals, objectives, and tactics to enhance the 9-county Centralina EDD region's overall business environment and maximize target cluster development. The workforce recommendations will be customized to match the 17-county region's target industries and competencies, specifically identifying future workforce skills needs for each target sub-cluster and planning to bridge gaps in the existing regional education and training pipeline to ensure each target is matched with a steady supply of qualified workers.

CEDS Centralina Economic Development District Committee

The CEDC EDD Committee is comprised of the Centralina Economic Development Commission Board (shown below) who has initiated and facilitated the project with support of an expanded CEDS Advisory Council (shown on next page).

Centralina Economic Development Commission (CEDC)

Chairman
George Dunlap
Mecklenburg County BOC

Vice-Chairman
Bill Thunberg
Alexander Zachary Jewelers

Treasurer/Secretary
Joel Randolph
Randolph & Son Builders

President/Ex-Officio
Mike Manis, CED Director
Centralina Council of Governments

Ex-Officio
Jim Prosser, Executive Director
Centralina Council of Governments

Local Government Representatives

Anson County
Jarvis Woodburn, Commissioner

City of Charlotte
LaWana Mayfield, Council Member

Gaston County
Joe Carpenter, Commissioner

Iredell County
Tracy Jackson, Deputy Manager

Lincoln County
George Arena, Commissioners

Town of Mooresville
Miles Atkins, Mayor

Rowan County
Jeanie Moore, Rowan-Cabarrus Community College
Robert Van Geons, Salisbury-Rowan Economic Development Commission

Stanly County
Tony Dennis, Commissioner
Paul Stratos, Stanly County Economic Development Commission

Business & Industry Representatives

Thomas R. Anderson, Mountain Island Fitness

Chuck Boyle, Boyle Consulting Engineers, PLLC

Chris Carney, NC Legislature

Mark Brady, First Trust Bank, Mooresville

Robby Carney, Mooresville-South Iredell Economic Development Corporation

Astrid Chirinos, Latin American Chamber of Commerce-Charlotte

Tim Gause, Duke Energy

Manuel Rey, Fifth Third Bank

Dan Ramirez, Nova Engineering

Fred Sparger, Retired South Piedmont Community College

CEDS Advisory Council (expanded members to EDD committee)

In addition to the CEDC EDD Committee, an additional group of regional community leaders contributed their added passion and expertise to the formation of a CEDS Advisory Council that led, advised and facilitated project activities throughout the duration of the CEDS update project:

Bill Anderson, Executive Director, Meck Ed

Jimmy Chancey, Director, Career & Technical Education, Charlotte-Mecklenburg Schools

Vanessa Goeschl, VP, Marketing & Research, Charlotte Regional Partnership

Stuart Hair, Existing Industry Coordinator, North Carolina Department of Commerce

Donny Hicks, Executive Director, Gaston County Economic Development Corporation

Brad Howard, Chairman, Mooresville-South Iredell Economic Developer Council

Jack Keiser, Director of Planning, City of Gastonia

Jonathan Marshall, Deputy County Manager, Cabarrus County

Samantha Moose, Existing Industry Services, Cabarrus Economic Development Corporation

Steve Partridge, Executive Director, Charlotte Works

Michael Realon, Career Development Coordinator, Olympic Community of Schools

Mary Vickers-Koch, Dean, Corporate & Continuing Education, Central Piedmont Community College

Paul Wetenhall, President, Ventureprise

Anna Lu Wilson, VP of Business Services, Cabarrus Economic Development Corporation

Richard Zollinger, VP for Learning, Central Piedmont Community College

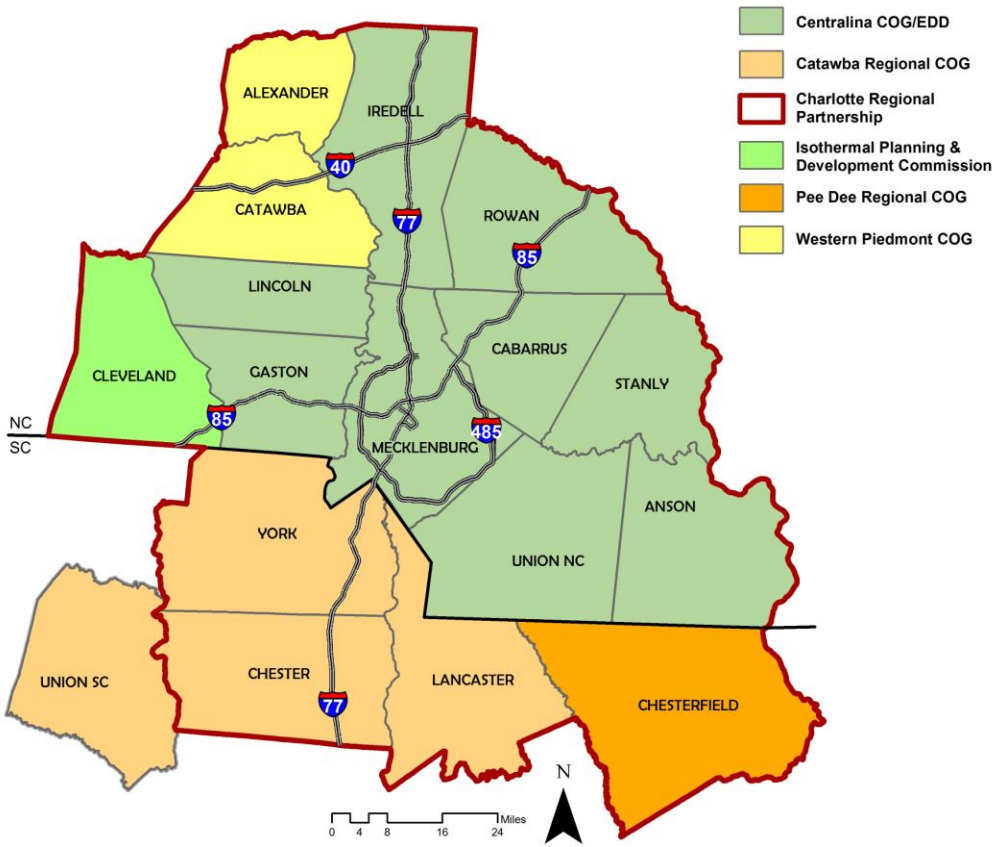
Geographic Area of Focus

For the purposes of this project, an established economic zone of influence was incorporated that is greater than the Centralina EDD\CEDS that covers nine NC counties centered on Charlotte, North Carolina. The Greater Charlotte Region encompasses 17 counties in North Carolina and South Carolina and multiple regional economic development organizations:

- Centralina Council of Governments (NC),
- Catawba Regional Council of Governments (SC)
- Charlotte Regional Partnership (Charlotte USA)
- Western Piedmont Council of Governments (NC)
- Isothermal Planning & Development Commission (NC)
- Pee Dee Regional Council of Government (SC)

The nationally and globally embraced "Charlotte USA" footprint recognizes the economic and demographic influences of the Combined Metropolitan Statistical Area (CBSA) of "Charlotte-Gastonia-Salisbury, NC" 13 regional counties and the additional 4 counties contiguous to this geographic US Census zone. This project examines the composite Greater Charlotte Region and also provides breakout sub-reports of trends in each individual county.

Greater Charlotte Region



The Greater Charlotte Region is comprised of the following counties:

North Carolina

- Alexander County
- Anson County
- Cabarrus County
- Catawba County
- Cleveland County
- Gaston County
- Iredell County
- Lincoln County
- Mecklenburg County
- Rowan County
- Stanly County
- Union County

South Carolina

- Chester County
- Chesterfield County
- Lancaster County
- Union County
- York County

Introduction to the Workforce Component of the Project

The Workforce and Education Asset Inventory report addresses the skills development component of the Greater Charlotte Region's future. Here we identify the skills, education, and training assets in the community. We examine the availability of learning opportunities in the region across the six target sectors and three target competencies identified in the Comprehensive Economic Development Strategy. The Workforce and Education Asset Inventory report will specifically assess how well the current workforce and education and training systems meet the needs of the recommended target industries and skill sets.

Employers frequently state that access to talent is their most important site selection factor. Having a skilled workforce can be a key factor in determining whether industries will thrive in a region or if they will migrate to other locations. Rapid changes in technology, scientific discovery, global economics, business strategy, and human demographics require regions to have an educational ecosystem in place that ensures worker availability and skill sets keep pace with business needs.

Having a world-class educational system is a critical requirement for growing jobs in all of greater Charlotte's target industries and competencies. It is the foundation for future economic success, and as opposed to defining education as a Target Industry, it is characterized as a leading infrastructure asset.

Section 1:

Supply-Demand Analysis

College Graduate Output

Companies and site selectors describe a "war for talent" when talking about the importance of workers to business success, and college graduates are at the front-line of this battle. Prominent forces that are sweeping through the economy today (such as globalization, offshoring, automation, and mobile technology) are creating new demands on workers. Skills must be upgraded and some skills are invented anew. Fast growing companies seek a reliable stream of college graduates. Communities that have a lot of college graduates in high-demand fields can expect stronger economic performance in the coming years.

The Greater Charlotte Region graduates thousands of students a year, but are these students pursuing the right degrees? Do they align with the Greater Charlotte Region's target industry needs? Which technical degrees are the fastest growing and which ones might be under-represented given the target industry priorities? To assess these questions, the project team pulled data from the National Center for Education Statistics (US Department of Education) that inventories data from colleges and universities across the nation. College graduates by degree is available from their "IPEDS" database (The Integrated Postsecondary Education Data System). IPEDS includes all levels of degrees and some certificates in their numbers.

In the sections below, we examine output trends for Pre-Associate's, Associate's, Bachelor's, and Master's/PhD/Professional degrees individually.

We show the data using "bubble charts", which provide an interesting perspective of both local and national dynamics. As with industry employment in the previous economic reports, the bubble chart provides three metrics per degree group: growth rate (annualized, 2005-2010), "concentration quotient" (which is the per capita concentration in the region relative to the US), and number of degrees (the relative size of the bubble). [See the previous Competitive Assessment report for a complete description of how to best interpret a bubble chart.]

The concentration quotient (or CQ – see side bar for detailed explanation) for each degree group is presented on the vertical axis, which shows the relative concentration of degrees in this subject versus the US concentration. For example, a CQ of 0.9 for Liberal / Multicultural Studies Associate's degrees indicates that there are 10% fewer graduates receiving these degrees *per capita* in the region than the US average.

What is a "Concentration Quotient?"

This calculation, which is also called a "CQ", is the relative concentration or density of a specific degree in the region versus the US average for that degree. Specifically, the CQ is calculated by taking the per capita concentration of that degree in the region, divided by the same per capita concentration for the US. A 1.5 CQ indicates that the region has 50% more of a degree on a per capita basis than the US, which is a sign of relative local strength in that degree area.

CQ is a relative measure, and a high concentration in one degree area means that other degrees will have lower CQs. Having a CQ below 1 indicates a lower concentration relative to the denser clusters.

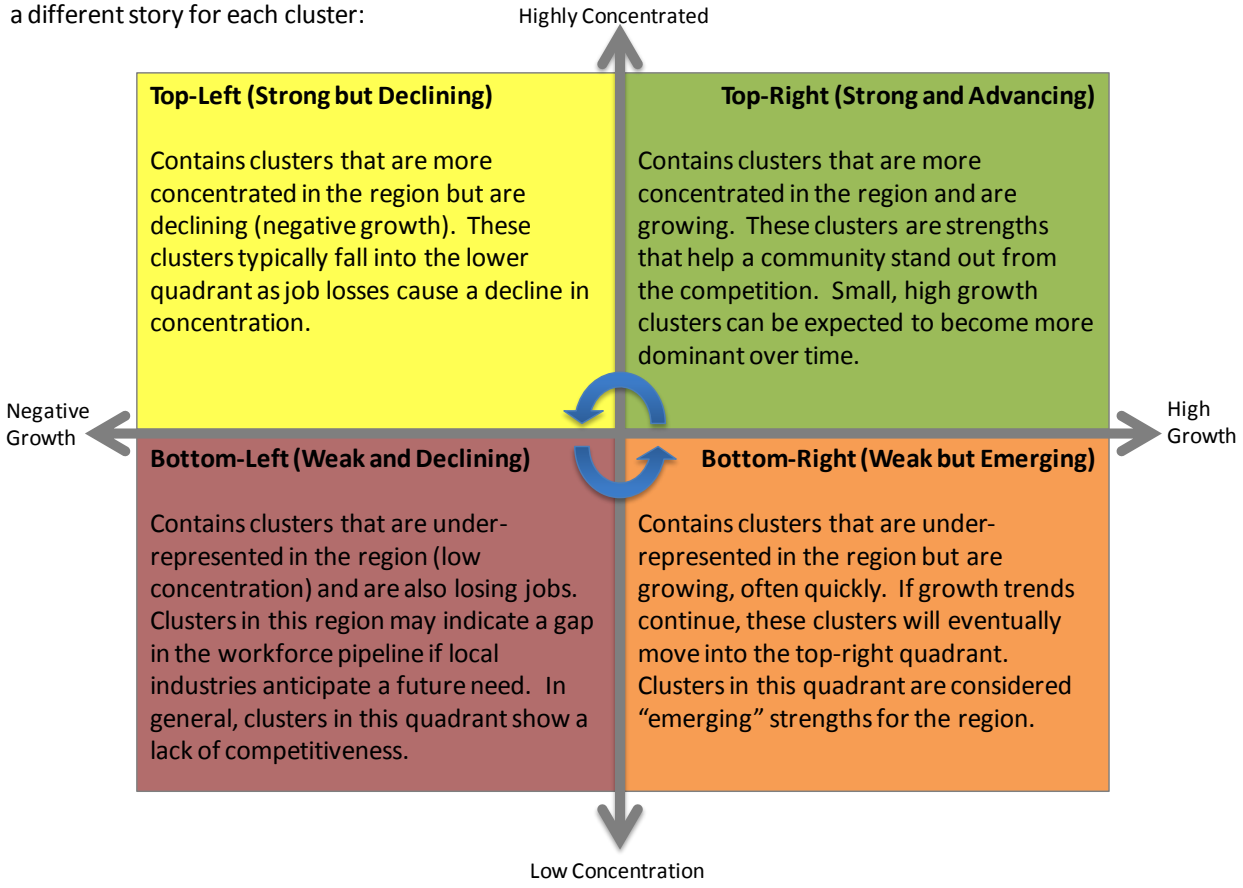
The side graphic illustrates how the bubble charts operate and the implications of cluster locations in each quadrant.

By showing the data by degree level in three similar charts, we can see where the Greater Charlotte Region's strengths are and which programs are growing the fastest. The charts were designed to be as comparable as possible (the sizing of the bubbles uses the same scale).

Hundreds of degree codes are available in the IPEDS database. To make the data easier to interpret, we aggregate degree codes into 15-20 groups (some groups such as Mechanics and Machine Repair only appear in the Associate's chart). More detail about specific degrees can be found in the Appendix, and all data has been provided in an accompanying spreadsheet.

Explanation of Cluster Bubble Charts

The graph's four quadrants each tell a different story for each cluster:



Pre-Associate's Degree Trends

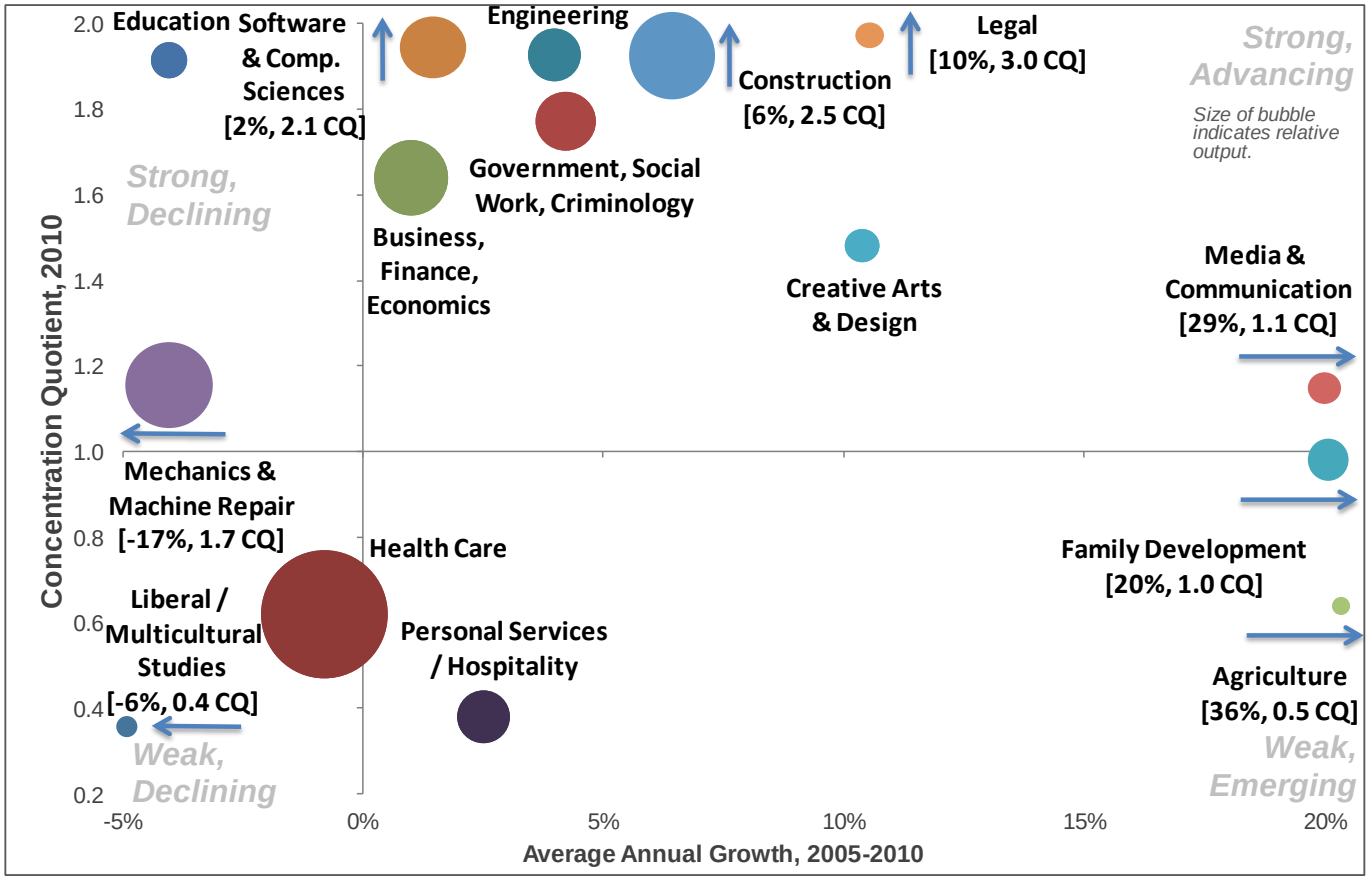
The chart on the following page shows trends in Pre-Associate's degrees conferred in the Greater Charlotte Region from 2005-2010. Pre-Associate's degrees generally include professional certifications, training programs, and other career related programs.

The most common Pre-Associate's awards in the Greater Charlotte Region are in **Health Care** (1,300), **Construction** (700), **Mechanics and Machine Repair** (600), and **Business, Finance, Economics** (450). These are frequently the most common Pre-Associate's awards in many regions, reflecting certification requirements for conducting business in these industries.

More interestingly, on a per capita basis, the most concentrated Pre-Associate's awards in the Greater Charlotte Region are **Legal** (Concentration Quotient = 3.0), **Construction** (CQ = 2.5), **Software and Computer Sciences** (CQ = 2.1), **Engineering** (CQ = 1.9), and **Education** (CQ = 1.9). The high concentration of Construction awards reflects the significant home building through the large population boom in recent years. High concentrations in Software and Computer Sciences and Engineering, however, reflect growing regional industry needs and strengths.

Although still relatively small in number, the fastest growing Pre-Associate's awards were in **Agriculture**(36% average annual growth), **Media and Communication** (29%), **Family Development** (20%), **Creative Arts and Design** (10%), and **Legal** (10%).

Pre-Associate's Degree Clusters: Greater Charlotte Region



Source: Avalanche Consulting using data from US Dept. of Education.

Associate's Degree Trends

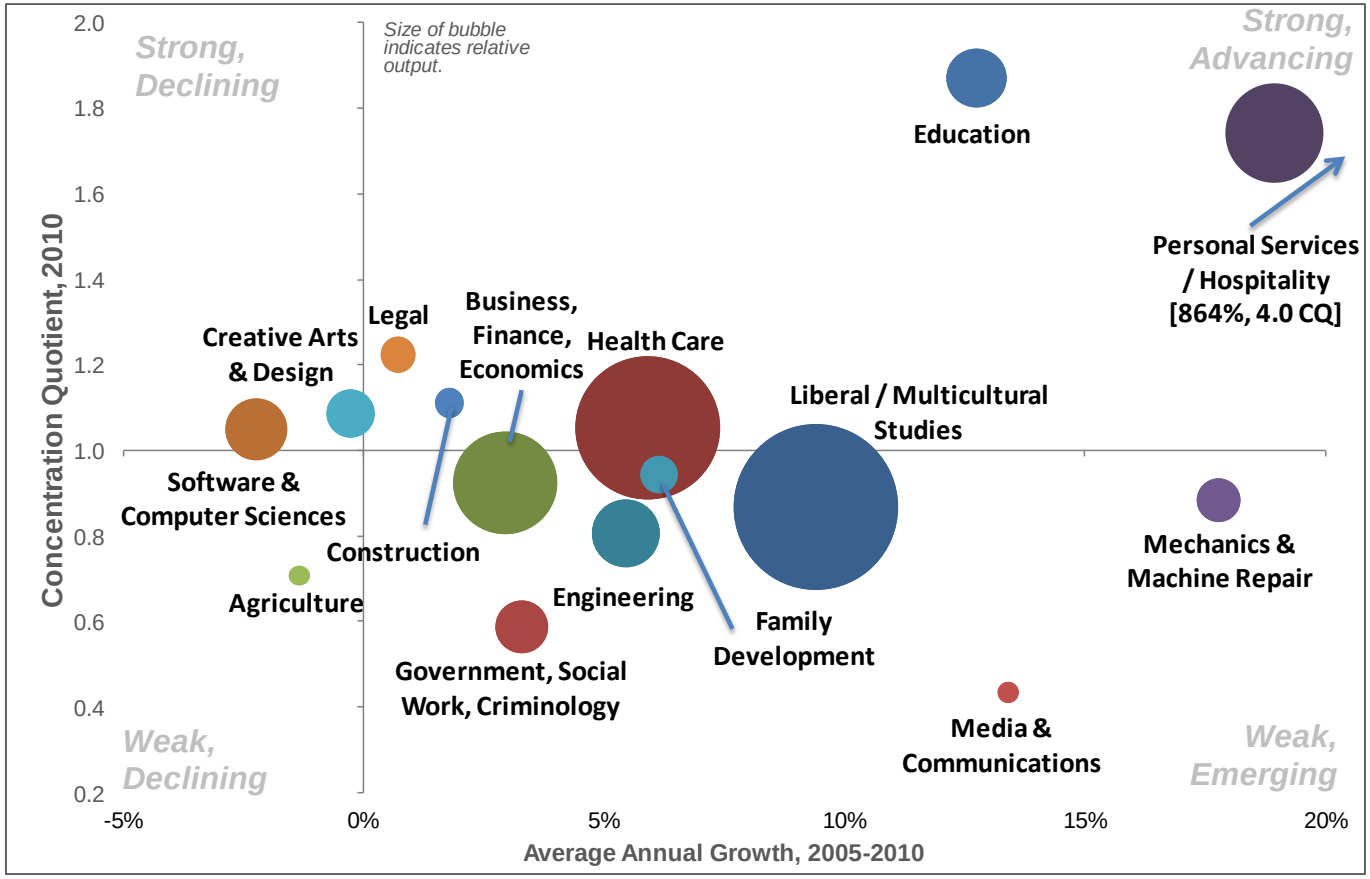
The chart on the following page shows trends in Associate's degrees conferred in the Greater Charlotte Region from 2005-2010.

Liberal / Multicultural Studies (1,800 degrees) and **Health Care** (1,400 degrees) comprise a majority of Associate's degrees awarded in the region. **Business, Finance, Economics** (700 degrees), **Personal Services / Hospitality** (600 degrees), and **Engineering** (300 degrees) were the other largest Associate's degree areas. It is important to note that many Liberal / Multicultural Studies Associate's degree recipients will continue their education to get Bachelor's degrees, in a wide variety of fields, including health.

On a per capita basis, the most concentrated Associate's degree areas in the region are **Personal Services / Hospitality** (CQ = 4.0), **Education** (CQ = 1.9), **Legal** (CQ = 1.2), **Health Care** (CQ = 1.1), **Creative Arts & Design** (CQ = 1.1), and **Software and Computer Sciences** (CQ = 1.1). With the exception of Hospitality degrees, these concentrations are relatively close to the national average (CQ = 1), and few degree areas showed exceptionally low concentration quotients. The high concentration of Personal Services / Hospitality degrees is likely a reflection of the growing Tourism and Hospitality industries in the region and the local awareness of public sector investments in tourism assets.

Personal Services / Hospitality is also the fastest growing Associate's degree cluster in the region at 57% annual growth. Other rapidly growing Associate's degree areas include **Mechanics and Machine Repair** (18%), **Education** (13%), and **Media and Communications** (13%).

Associate's Degree Clusters: Greater Charlotte Region



Source: Avalanche Consulting using data from US Dept. of Education.

Bachelor's Degree Trends

As seen on the chart on the following page, the largest number of Bachelor's degrees conferred in the Greater Charlotte Region are in **Business, Finance, Economics** (2,100 degrees and 25% of the total) and **Health Care** (1,100 degrees, 13% of total). The next largest Bachelor's degree areas are **Government, Social Work, Criminology**(900 degrees), **Liberal / Multicultural Studies** (850 degrees), **Engineering**(800 degrees), and **Education** (700 degrees).

As with Associate's degrees, many Bachelor's degree clusters have concentrations either just below or just above the national averages. Also similarly, the most concentrated Bachelor's degree cluster is **Personal Services / Hospitality** (CQ = 3.1). The other most concentrated degree areas are **Education** (CQ = 1.4), **Mathematics** (CQ = 1.3), **Business, Finance, Economics** (CQ = 1.1), and **Government, Social Work, Criminology** (CQ = 1.4). The only notably low concentration is in **Agriculture** (CQ = 0.2).

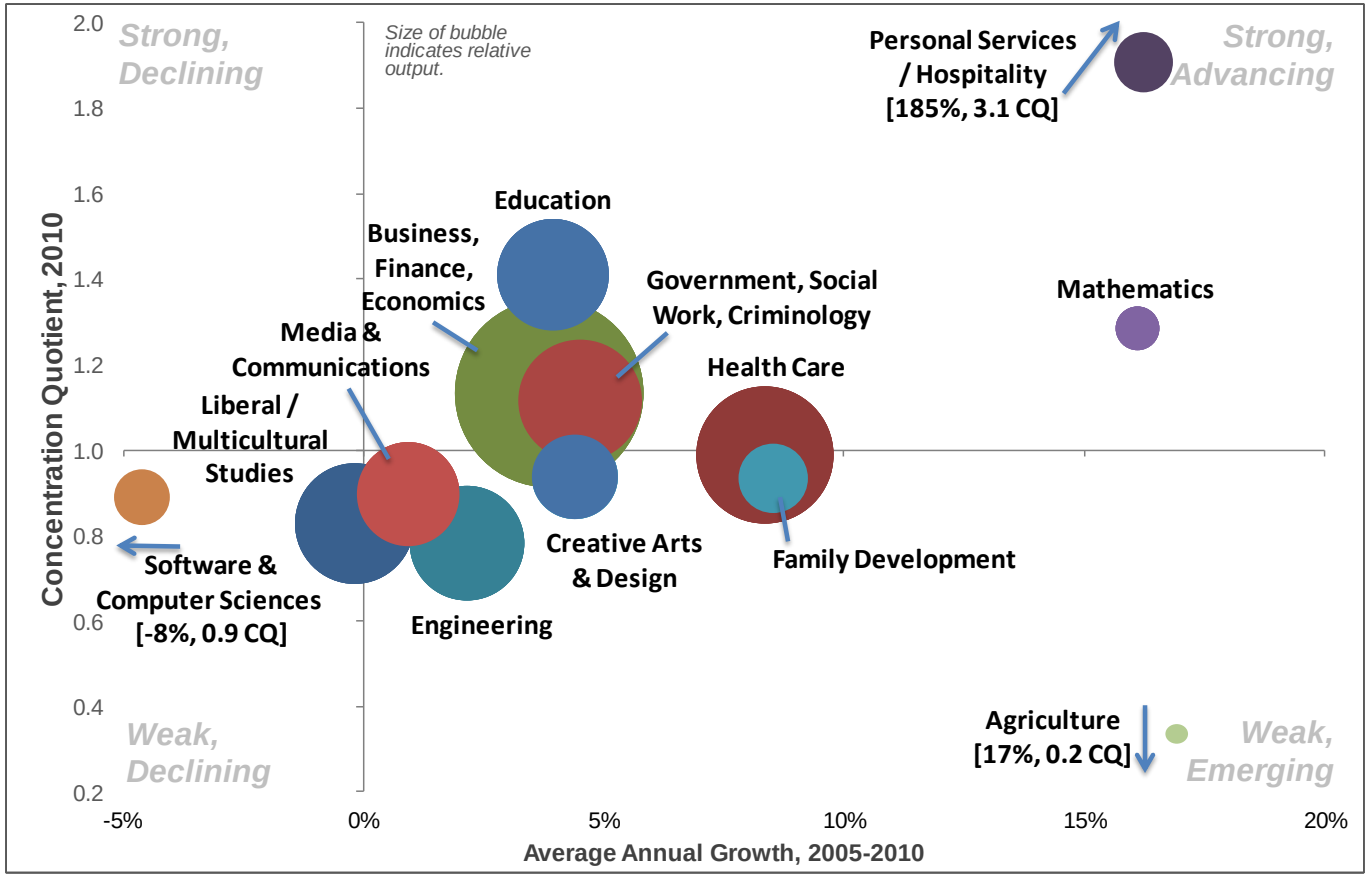
Liberal / Multicultural Studies degrees, which are the most conferred Associate's degree in the region with 1,800, only accounted for 850 Bachelor's degrees with a below average CQ of 0.8. This likely indicates that many students in the region, including those moving from Associate's to Bachelor's degree programs, are choosing more technical or professional career pathways.

Growth trends indicate changes in student interest and expectations of what industries will be hiring when they graduate. Growth may also indicate the priorities of educational institutions and which subject areas receive greater funding.

In the Greater Charlotte Region, the fastest growing Bachelor's degree areas are **Personal Services / Hospitality** (185% average annual growth), **Mathematics** (16%), **Family Development** (9%), and **Health Care** (8%).

As with Associate's degrees, **Software and Computer Sciences** Bachelor's degrees declined at an annual rate of -8%. In both Associate's and Bachelor's degrees this was one of the only areas to decline from 2005-2010. Generally across the nation, the number of Software and Computer Science degrees conferred declined over the past decade following the tech bubble bust in the early 2000s, but more recent drops in this degree area stand in contrast to the emerging and high-growth technology-driven sectors in the region and are a cause for concern, particularly with high forecast growth in Computer occupations and a focus on Information Technology target competencies.

Bachelor's Degree Clusters: Greater Charlotte Region



Source: Avalanche Consulting using data from US Dept. of Education

Master's, Professional, and PhD Degree Trends

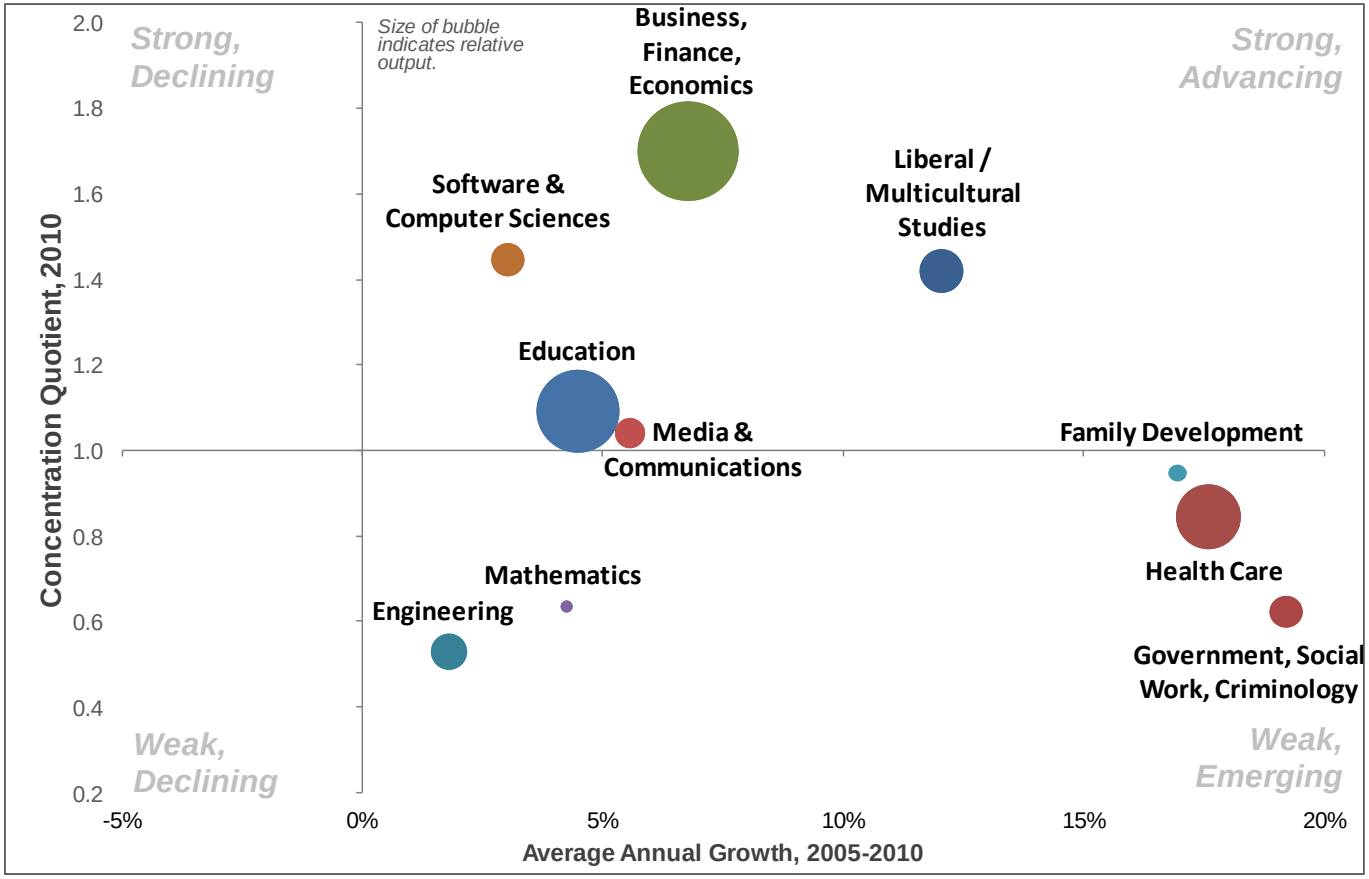
An examination of Master's, Professional, and PhD degree trends in the Greater Charlotte Region shows similar themes to lower degree levels. The largest "Master's+" degree areas are **Business, Finance, Economics** (1,100 degrees), **Education** (800 degrees), and **Health Care** (500 degrees).

Most of these degree areas showed higher than average concentration, with **Business, Finance, Economics** the most concentrated at a CQ of 1.7, followed by **Software and Computer Science** (CQ = 1.4), **Liberal / Multicultural Studies** (CQ = 1.4), and **Education** (CQ = 1.1). **Health Care** has a below average CQ of 0.8, not yet reflecting the recent opening of the UNC School of Medicine – Charlotte. The relatively large **Software and Computer Science** advanced degree cluster is surprising for the region but reflects UNCC's new institutes in computer science and visualization.

All advanced degree areas grew in the Greater Charlotte Region from 2005-2010. The fastest growing areas were **Government, Social Work, Criminology** (19% average annual growth), **Health Care** (18%), **Family Development** (17%), and **Liberal / Multicultural Studies** (12%).

The Charlotte School of Law, a private law school, received accreditation from the American Bar Association in 2011. Lacking a law school, in the past, the region did not award any Masters of Jurisprudence (**Legal**) degrees. With the accreditation of the Charlotte School of Law, the region now has a local source of attorneys.

Masters/PhD/Professional Degree Clusters: Greater Charlotte Region



Source: Avalanche Consulting using data from US Dept. of Education

Growth Trends vs. the US

How do growth trends in the Greater Charlotte Region compare with the US? In the table below, we compare regional and US growth data for three degree levels examined above: Associate's, Bachelor's, and Master's or Higher (PhD, Professional).

College Graduate Output by Major Degree Group and Level

Greater Charlotte Region

	Degrees, 2010			Compounded Annual % Growth, '05-'10					
				Associate's		Bachelor's		Master's or Higher	
Major Degree Group	Assoc	Bach	Mast+	Charlotte	US	Charlotte	US	Charlotte	US
Agriculture	29	22		1.3%	-1.6%	17.1%	2.6%		1.1%
Architecture		71	29		-1.4%	0.3%	1.8%	19.3%	5.1%
Business, Finance, & Econ	710	2,115	1,098	2.9%	4.2%	3.9%	2.9%	6.8%	4.8%
Construction	59			1.8%			13.2%		16.7%
Creative Arts & Design	147	434	11	-0.3%	-2.8%	4.4%	2.5%	0.0%	3.4%
Education	237	738	762	12.8%	4.0%	4.0%	-0.8%	4.5%	2.0%
Engineering	300	777	141	5.5%	1.5%	2.2%	4.0%	1.8%	3.4%
Family Development	97	283	35	6.1%	3.5%	8.5%	5.0%	16.9%	6.1%
Government, Social Work	181	905	118	3.3%	8.6%	4.5%	2.9%	19.2%	4.6%
Health Care	1,370	1,121	463	5.9%	8.1%	8.4%	6.2%	17.6%	6.3%
Legal	85	4		0.7%	0.3%	-18.3%	3.5%		1.2%
Mathematics		114	16		5.4%	16.1%	2.5%	4.2%	5.1%
Mechanics, Machine Repai	127			17.8%	3.3%		-0.5%		13.0%
Media and Comm	30	639	97	13.4%	5.2%	0.9%	1.5%	5.6%	2.7%
Liberal/Multicult. Studies	1,803	850	210	9.7%	3.5%	-0.2%	2.5%	12.0%	2.9%
Personal Svcs / Hospitality	559	187		57.3%	0.0%	184.7%	9.2%		7.0%
Software & Comp Sci	253	223	123	-2.2%	-2.9%	-7.8%	-7.1%	3.0%	-2.2%
Transport. Professionals	9			n/a	5.4%		1.4%		9.2%
GRAND TOTAL	**5,996**	**8,483**	**3,103**	**7.9%**	**4.0%**	**3.9%**	**2.7%**	**7.7%**	**3.6%**

Source: Avalanche Consulting using data from the US Dept of Education

Note: Masters+ includes Master's, Professional, and PhD degrees

An examination of the chart on the previous page reveals the following significant degree growth trends in the Greater Charlotte Region:

- Total degrees are growing more quickly at all three levels in the Greater Charlotte Region than the US.
- **Software and Computer Sciences** degrees, although in decline at the Associate's and Bachelor's level, are declining at similar rates to the US. At the Master's+ level, Software and Computer Sciences degrees are rising in the region in contrast to national declines. Among Software and Computer Sciences degrees, only Networking Technologies and Web Design / Graphics / Informatics degrees are on the rise.
- **Business, Finance, Economics** and **Health Care**, two of the region's largest degree areas, like the US, are growing at all degree levels. This appears to support local targets in Financial and Biomedical industries. The region also continues to have a high output of Biomedical Engineering students, with over 300 of these degrees awarded in 2010.
- **Education**, another large degree area in the Greater Charlotte Region, is growing more quickly than the US at all degree levels.
- The Greater Charlotte Region lacks a law school, only awarding **Legal** Associate's and Bachelor's degrees for paralegal and pre-law training.
- **Engineering** degrees are also growing at all levels, but more slowly than the US at the Bachelor's and Master's+ levels.
- **Transportation Professionals**, an important degree area for the regional Logistics target, only had 9 Associate's degrees conferred in the entire region (and few Pre-Associate's degrees). This demonstrates a need for more certificate programs and potentially Bachelor's and other advanced degree programs in transportation.

The Appendix includes tables displaying more detailed college degree trends in the Greater Charlotte Region, including Minor Degree cluster numbers.

Occupational Demand

Are students pursuing degrees in areas that are in demand in the long-term and match the Greater Charlotte Region's target industries?

The answer to this question is not necessarily straightforward. Education and workforce development efforts typically focus on skill sets as opposed to specific occupations, partially because matching a college degree to an occupation can be challenging. Some degrees, such as Liberal Arts, can lead to a number of occupations, Business or Education for example. More technical degrees are often easier to link to occupations, for example Mechanical Engineering degrees leading to Industrial Engineering occupations.

Current Occupational Mix

In order to answer the question posted above, the consulting team first examines the current composition and growth trends of the Greater Charlotte Region's occupational clusters. The consulting team first grouped all occupations into broad clusters. The clusters were defined to most closely match degree groups from the previous section. In the bubble chart on the following pages, average annual growth from 2007-2012 is presented along the x-axis for each cluster and its concentration quotient (per capita concentration in Greater Charlotte relative to the US) is along the y-axis. The size of each bubble indicates the relative number of jobs in the occupation.

In order to better understand the overall region, two occupational bubble charts are presented, one that includes all counties in the Greater Charlotte Region and one that excludes Mecklenburg County.

The fastest growing occupation clusters in the Greater Charlotte Region from 2007-2012 are **Medical** (2.1% average annual growth), **Performance** (1.2%), **Agriculture** (0.9%), **Social Service** (0.8%), **Computer** (0.6%), and **Hospitality** (0.5%). In fact, these are the only occupation clusters that grew during this time period. With the exception of Social Service and Hospitality, all of these occupation clusters have concentration quotients below 1.0. This means that although they are currently less concentrated than the US average, their rapid growth will likely lead to above average concentration in the future.

Many of the largest and most concentrated occupation clusters lost jobs over the past five years. **Construction** occupations saw the greatest declines, losing jobs at an average annual rate of -6.5%, followed by **Production** (-5.1%), **Manufacturing Operations** (-2.6%), **Logistics / Transportation** (-2.2%), and **Mechanics** (-2.0%). Other large clusters that lost jobs were **Back Office Admin Support** (-0.9%) and **Personal Services** (-1.1%).

Outside Mecklenburg County

Trends were largely similar when comparing the overall Greater Charlotte Region to all counties excluding Mecklenburg. Overall, occupation clusters saw less growth outside Mecklenburg County and were less concentrated (particularly Financial and Back Office occupations), but overall bubble chart distributions were similar.

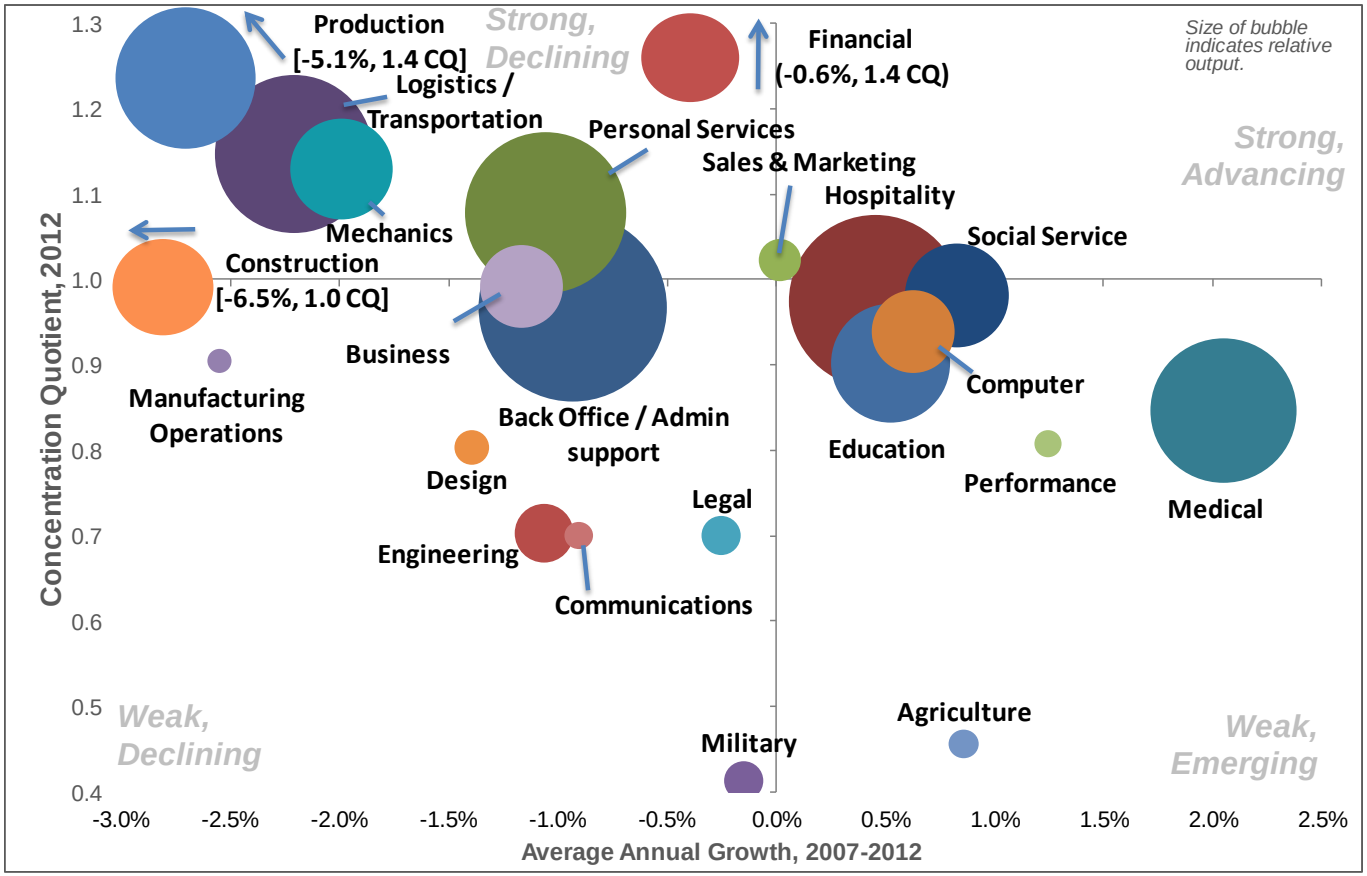
The fastest growing occupation clusters are **Agriculture** (1.2% average annual growth),**Medical**(1.0%), **Sales & Marketing** (0.9%), **Computer** (0.6%), and **Social Service** (0.2%). Most of these clusters tend to be slightly less concentrated in the region outside Mecklenburg County than in the region as a whole and are growing slightly less quickly.

Financial occupations showed the greatest concentration disparity relative to Mecklenburg County. In the overall Greater Charlotte Region, The **Financial** occupation cluster has a CQ of 1.4, but in the counties outside Mecklenburg, the cluster only has a CQ of 0.9. The **Back Office / Admin Support** and **Computer** clusters show similar trends, with less concentration outside of Mecklenburg County.

The **Production** occupation cluster, on the other hand, is *more* concentrated outside of Mecklenburg County, with a CQ of 1.4 in the overall region and a CQ of 2.0 when excluding Mecklenburg. The **Education** and **Mechanics** clusters show similar trends, with greater concentrations outside of Mecklenburg County.

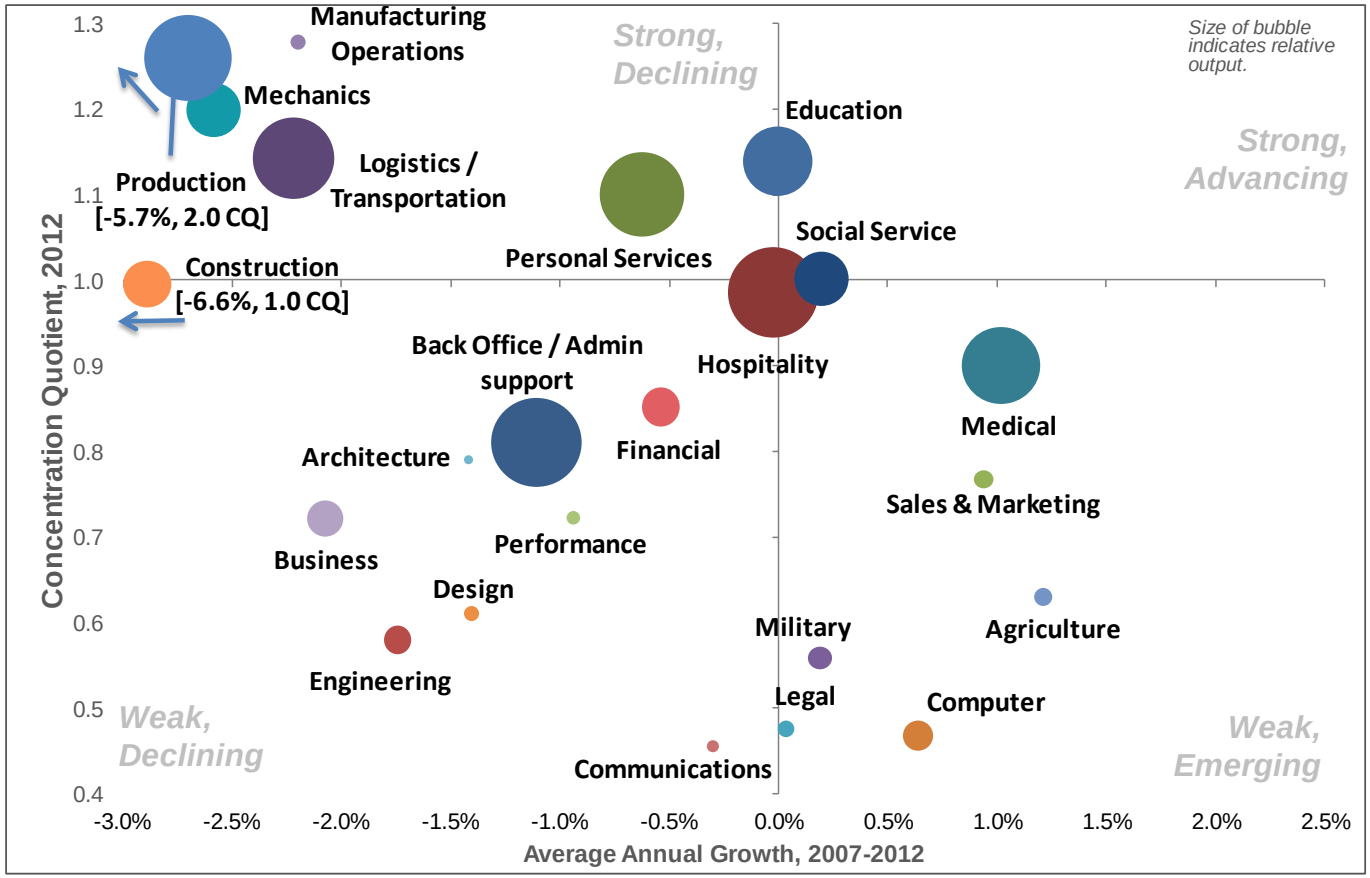
These charts show a very clear trend: the mix of occupations in the Greater Charlotte Region is changing, with traditionally established occupations in manufacturing, logistics, finance, and back office industries shedding jobs as less concentrated, emerging occupations gain prominence, including IT, health care, education, and hospitality. The lack of large, established clusters in the top-right quadrants is indicative of a region in occupational flux and the need for future workforce development strategies.

Occupational Clusters: Greater Charlotte Region



Source: Avalanche Consulting using data EMSI

Occupational Clusters: Greater Charlotte excluding Mecklenberg

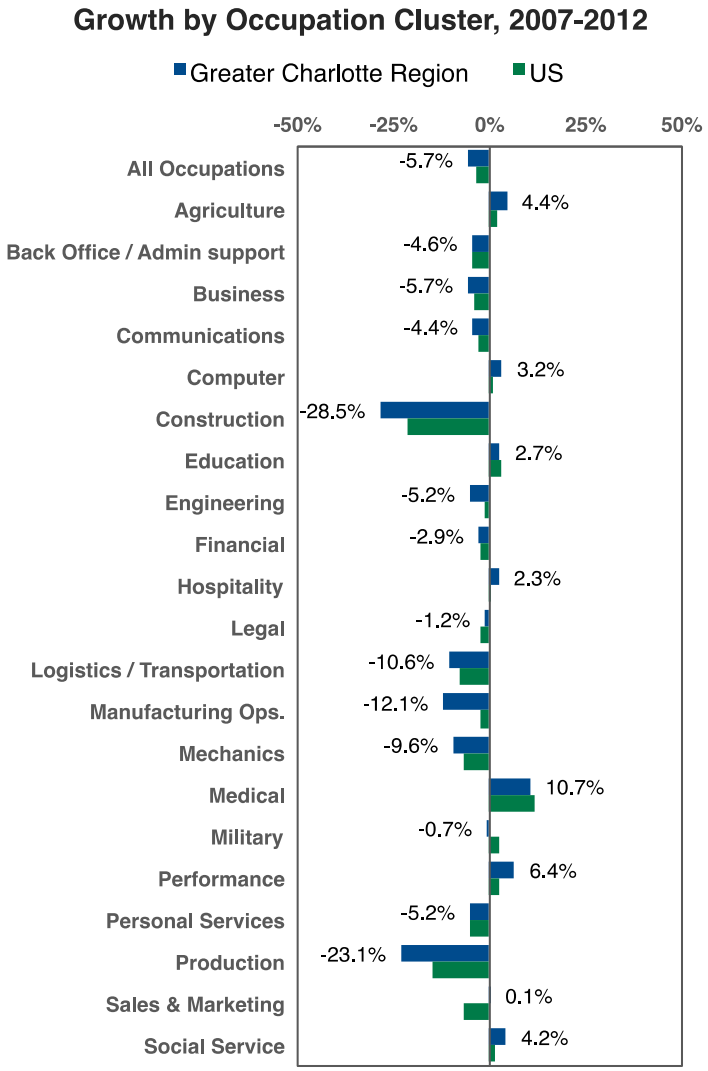


Source: Avalanche Consulting using data from US Bureau of Labor Statistics

Bubble charts provide a snapshot of current and past occupational cluster dynamics in the Greater Charlotte Region, but it also helps to compare occupation growth rates to US rates. This helps establish which occupational changes in the region are unique and which are indicative of broader changes in the national economy. Overall, occupational cluster growth patterns roughly followed the national trends.

The chart to the right shows several occupational clusters growing more quickly in the Greater Charlotte Region than the US, including **Agriculture** (4.4% local growth vs. 2.1% for the US), **Computer** (3.2% vs. 1.0%), **Hospitality** (2.3% vs. 0.0%), **Performance** (6.4% vs. 2.7%), and **Social Service** (4.2% vs. 1.5%).

Only a few occupational clusters lost jobs at a rate significantly faster than the US. These included **Construction** (-28.5% vs. -21.3%), **Logistics / Transportation** (-10.6% vs. -7.7%), **Manufacturing Operations** (-12.5% vs. -2.3%), and **Production** (-23.1% vs. -15.0%). Many of these job losses are linked to broad national economic trends including the housing bust and the national decline in manufacturing employment, but these trends hit the Greater Charlotte Region more strongly, due to regional concentrations and strengths in these sectors.



Occupational Forecast

Occupational growth trends help us understand what has been happening in recent years in a community, but these numbers reflect the past. In order to prepare for the future, we must look at forecasts and better understand what changes to expect in upcoming years. Are these occupational patterns going to change, and what can the Greater Charlotte Region do to prepare for these changes and possibly shape them? For this analysis, we utilized forecasts from EMSI, a leading private-sector data provider. EMSI provides job forecasts for individuals as well as occupations through 2017.

On the following pages, we provide a chart that show average annual growth rates for occupations in the past five years and forecasts for the next five. On the following chart, we convert those percentages into net new jobs created; for the "US Rate" numbers, the net new jobs reflect a situation as "if the Greater Charlotte Region grew at the US forecast rate."

These charts are followed by occupational bubble charts like those in the section above but projecting future growth trends by occupation, looking at the entire Greater Charlotte Region and the region excluding Mecklenburg County.

Occupational forecast bubble charts, analysis, and detailed cluster competitiveness tables for each individual county in the Greater Charlotte Region are provided in Appendix C.1: County Occupation Cluster Snapshots.

The Appendix also includes tables detailing occupational trends in the Greater Charlotte Region, including Minor Occupation details, LQs, and forecast growth rates.

By examining growth rates, net new jobs, and comparisons to US forecast growth rates, we see the following trends for major occupations and those related to target industries:

- Overall occupation growth in the Greater Charlotte Region is forecast to outpace the US, with a projected 1.6% growth rate per year compared to 1.0% in the US.
- **Medical** occupations will have the most significant growth in the Greater Charlotte Region over the next five years, both in terms of percentage growth (3.2% per year) and new jobs (3,400 jobs per year). Nurses & Therapists will account for the majority of these positions, but Doctors will be the fastest growing.
- **Back Office / Admin Support**, although only projected to grow 1.7% per year will create 3,000 jobs per year. The most significant minor occupational growth groups will be Finances and Information.
- Only manufacturing occupations, some of the most concentrated in the Greater Charlotte Region, are projected to lose employment in upcoming years. **Production** occupations are projected to continue to decline across the board but at a faster

pace in the Greater Charlotte Region, with a forecast of 1,000 jobs lost a year. **Manufacturing Operations** occupations are projected to lose 20 jobs a year. This in particular highlights an area where economic development strategy may be able to reverse current forecasts.

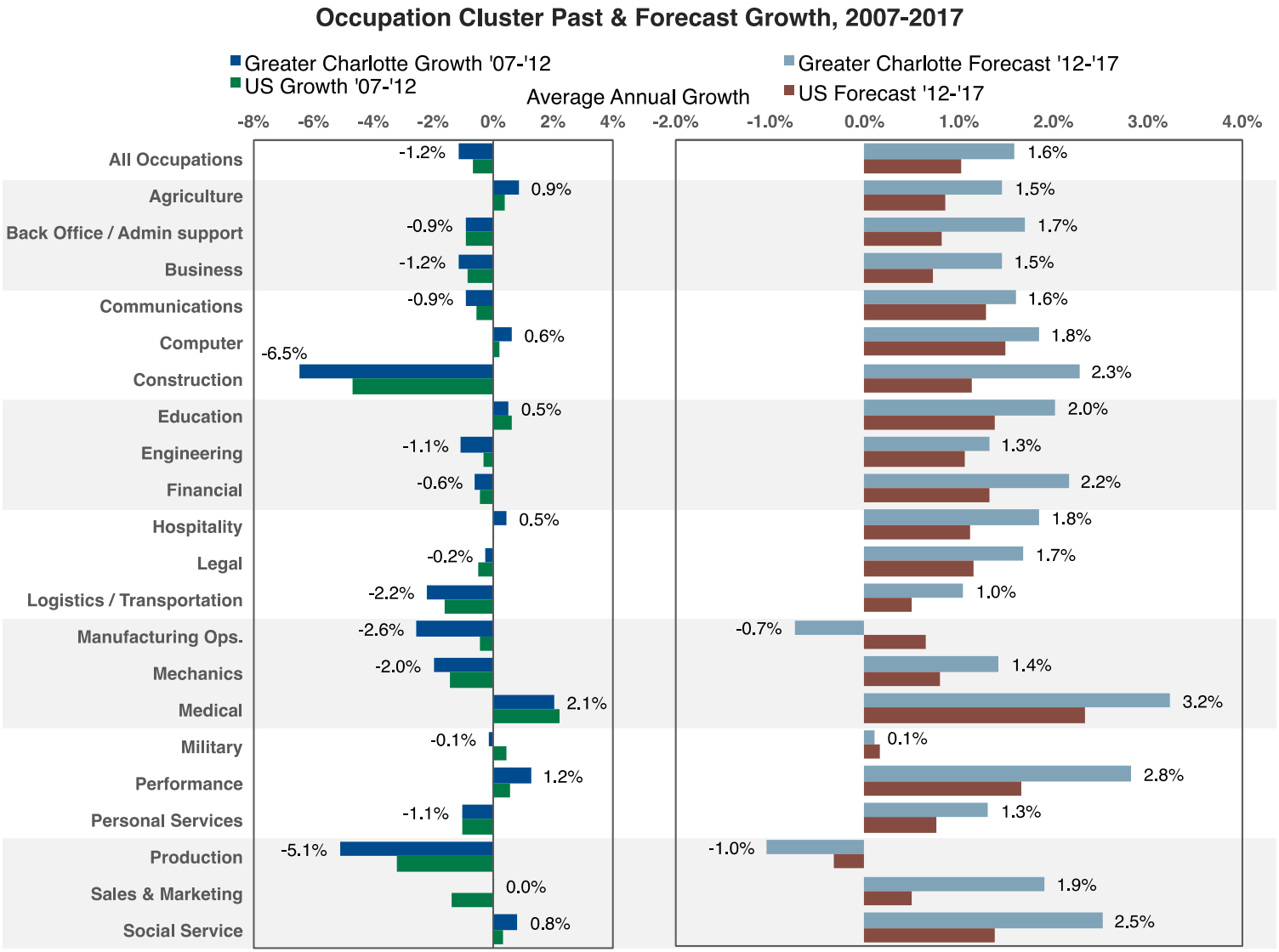
- **Logistics / Transportation** occupations are projected to grow more slowly than the overall economy at 1.0% a year, but this would account for a relatively high 1,300 jobs per year. Most of these positions will be in Ground Transportation.
- **Computer** occupations that grew slowly the past five years are projected to outpace the overall economy in the next five, creating 600 jobs per year, primarily in Software and Support.
- The **Financial** occupation cluster has already begun to rebound and is forecast to grow 2.2% a year, accounting for 1,000 new jobs each year. Roughly half of these jobs will be for Financial Accountants and Analysts.
- **Hospitality** and **Personal Services** occupations, two of the largest clusters in the Greater Charlotte Region, are forecast to create a combined 3,300 jobs per year over the next five years, with most of the positions in Food & Culinary and Retail Sales.
- The **Construction** occupation cluster that lost 3,600 jobs a year over the past five years, is forecast to turn around, creating 1,100 jobs a year in the near future.

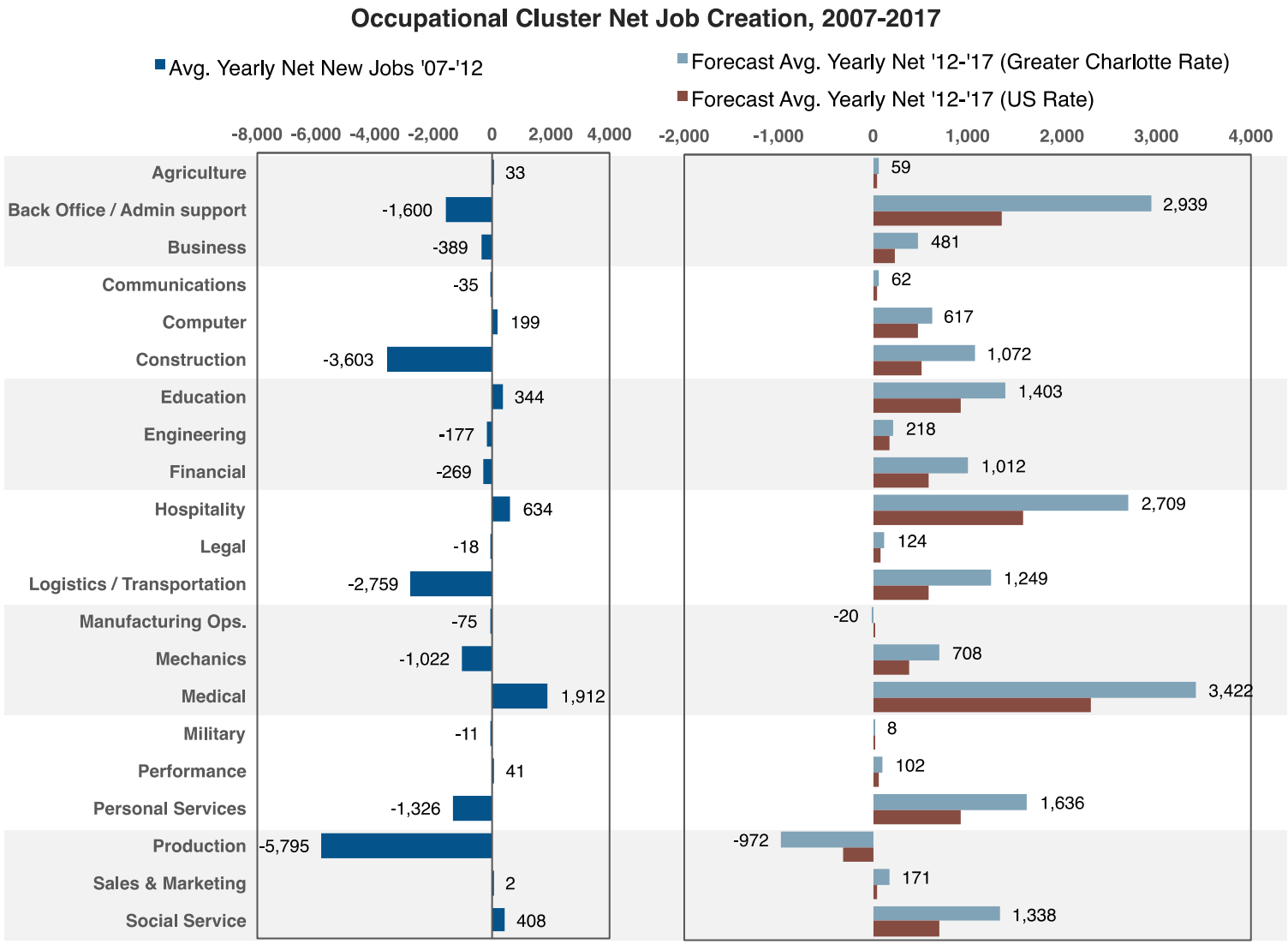
The following occupations represented too few jobs to include in the above charts:

- **Architecture** positions will continue to grow locally but more slowly than the US.
- **Design** is on par for growth matching the overall economy.
- **Geology** occupations are basically static, growing slightly faster than the US, roughly 2 jobs per year.
- **Math** occupations will grow slowly, at about 20 jobs per year.
- **Political** occupations will also grow slowly, at about 20 jobs per year.

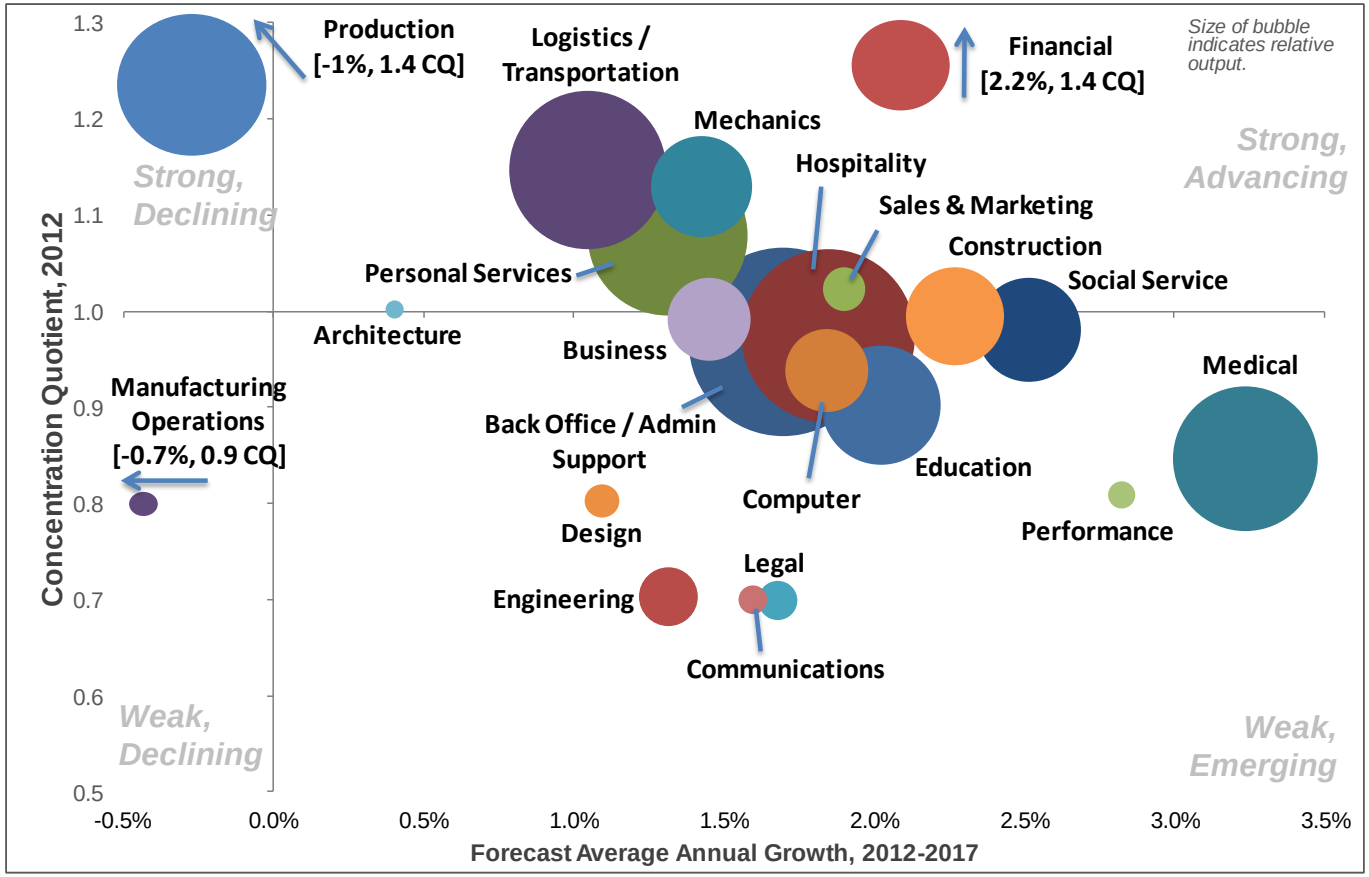
Outside Mecklenburg County

- Forecast occupational growth trends outside Mecklenburg County generally follow the same patterns as the overall Greater Charlotte Region. Similarly, the only two occupation clusters projected to decline over the next five years are **Production** and **Manufacturing Operations**.
- The occupations clusters with the highest forecast growth rates outside of Mecklenburg County are **Medical** (3.1% forecast average annual growth), **Performance** (3.0%), **Communications** (2.7%), **Financial** (2.3%), and **Construction** (2.1%).


Occupation Cluster Past & Forecast Growth, 2007-2017
Greater Charlotte Growth '07-'12
US Growth '07-'12
Average Annual Growth
Greater Charlotte Forecast '12-'17
US Forecast '12-'17
-8% -6% -4% -2% 0% 2% 4%
-2.0% -1.0% 0.0% 1.0% 2.0% 3.0% 4.0%
All Occupations -1.2% 1.6%
Agriculture 0.9% 1.5%
Back Office / Admin support -0.9% 1.7%
Business -1.2% 1.5%
Communications -0.9% 1.6%
Computer 0.6% 1.8%
Construction -6.5% 2.3%
Education 0.5% 2.0%
Engineering -1.1% 1.3%
Financial -0.6% 2.2%
Hospitality 0.5% 1.8%
Legal -0.2% 1.7%
Logistics / Transportation -2.2% 1.0%
Manufacturing Ops. -2.6% -0.7%
Mechanics -2.0% 1.4%
Medical 2.1% 3.2%
Military -0.1% 0.1%
Performance 1.2% 2.8%
Personal Services -1.1% 1.3%
Production -5.1% -1.0%
Sales & Marketing 0.0% 1.9%
Social Service 0.8% 2.5%

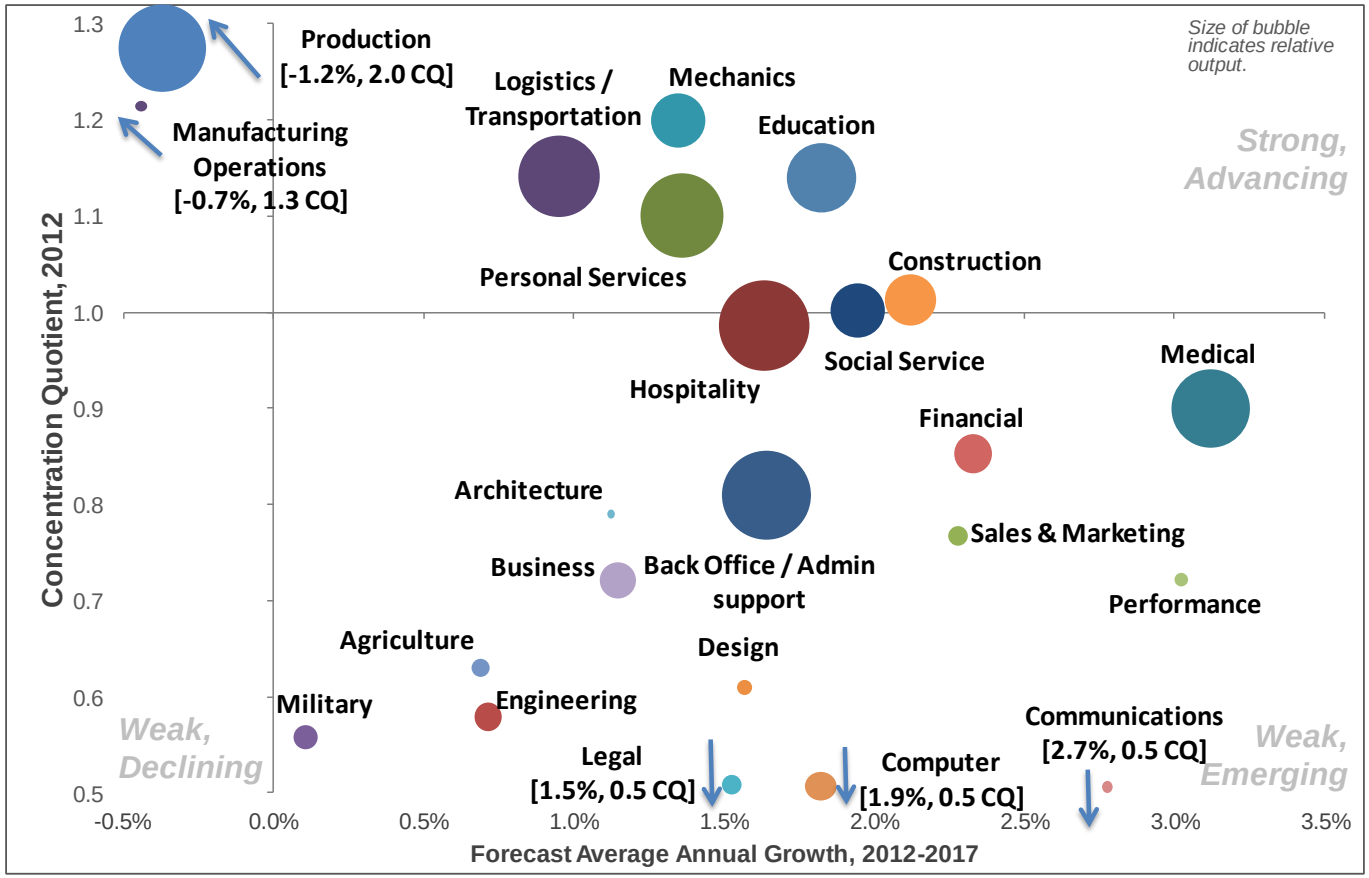

Occupational Cluster Net Job Creation, 2007-2017
Avg. Yearly Net New Jobs '07-'12
Forecast Avg. Yearly Net '12-'17 (Greater Charlotte Rate)
Forecast Avg. Yearly Net '12-'17 (US Rate)
-8,000 -6,000 -4,000 -2,000 0 2,000 4,000
-2,000 -1,000 0 1,000 2,000 3,000 4,000
Agriculture 33 59
Back Office / Admin support -1,600 2,939
Business -389 481
Communications -35 62
Computer 199 617
Construction -3,603 1,072
Education 344 1,403
Engineering -177 218
Financial -269 1,012
Hospitality 634 2,709
Legal -18 124
Logistics / Transportation -2,759 1,249
Manufacturing Ops. -75 -20
Mechanics -1,022 708
Medical 1,912 3,422
Military -11 8
Performance 41 102
Personal Services -1,326 1,636
Production -5,795 -972
Sales & Marketing 2 171
Social Service 408 1,338

Occupational Forecast: Greater Charlotte Region



Source: Avalanche Consulting using data from EMSI

Occupational Forecast: Greater Charlotte excluding Mecklenburg



Source: Avalanche Consulting using data from EMSI

Identify Supply-Demand Gaps in the Future Workforce

The previous two sections examined trends in college graduate output and occupational demand in the Greater Charlotte Region. In this section, the consulting team brings these two areas together to assess the connections between the two. College graduates are not the only source for local workers (people relocating to the Greater Charlotte Region can fill gaps in the workforce), but they are a significant source of new workers and one that can be directly affected through economic and workforce development programs in the Greater Charlotte Region. In an ideal community, the local workforce pipeline will provide a steady stream of college graduates with degrees that match the needs of growing occupations.

As discussed previously, many degrees do not directly match to an occupation (e.g. some Liberal Arts degrees), and some occupations do not have a corresponding degree (e.g. Purchasing). Despite some ambiguity, linking degree groups and occupational demands provides insight into the supply and demand for graduates. In particular, we can see whether graduates in one degree area are higher or lower than forecast job creation in related occupations, or whether growth trends for degrees and occupations are moving in opposite directions.

Based on our analysis of degree completions, we foresee workforce shortages in the following areas:

Occupations With Future Potential Shortages	
Computer occupations	This cluster raises one of the largest concerns in the Greater Charlotte Region. Computer occupations have been growing in recent years, despite the recession, and are forecast to grow more rapidly, but Software and Computer Science degrees have been in steady decline. In 2010, the Greater Charlotte Region's educational institutions conferred 250 Associate's degrees and 220 Bachelor's degrees in Software and Computer Science, and these numbers are lower than five years earlier. These degrees are below the forecast Computer occupation projection of 600 jobs per year.
Logistics / Transportation occupations	Despite a large Logistics / Transportation occupational cluster in the Greater Charlotte Region with high forecast growth, in 2010 local educational institutions only awarded 9 degrees for Transportation Professionals at the Associate's and 4 Pre-Associate's certificates. Logistics / Transportation occupations are forecast to create 1,300 jobs a year over the next five years, and the lack of local training programs reveals a distinct need for additional programs, potentially including Transportation Management Bachelor's degrees, Ground Transportation

	certificates for drivers, and other Associates and Pre-Associates degrees for related occupations.
Hospitality & Personal Services occupations	Hospitality and Personal Services are forecast to create over 3,300 new jobs a year in the Greater Charlotte Region over the next five years, but local education institutions only awarded less than 1,000 degrees in Personal Services / Hospitality, at the Pre-Associate's, Associate's, and Bachelor's level. Many of these Hospitality and Personal Services occupations likely do not require Bachelor's degrees, but certifications are frequently necessary, particularly in food services. Despite this gap, Personal Services / Hospitality degrees have been the fastest growing in the Greater Charlotte Region from 2005-2010, likely indicating strong connections between perceived needs and growth in occupations and worker supply.
Legal occupations	The Greater Charlotte Region is forecast to need new 214 Lawyers over the next five years, but the Charlotte School of Law was only accredited in 2011. This means that law firms will likely have to continue recruitment from outside the region to fill some demand. This should not be a major concern for the workforce strategy.

The rest of the occupation groups appear to be adequately served by local graduates:

Occupations In Balance With Graduate Output	
Financial and Business occupations	Business and Financial occupations are forecast to grow more quickly in the Greater Charlotte Region than the US, and Business, Finance, Economics degrees are the largest local degree group, with a surplus of graduates. Business and Financial occupations are forecast to create a combined 1,600 jobs per year over the next five. Regional institutions awarded 3,900 Business, Finance, Economics degrees in 2010, and these degrees continue to rise, demonstrating a clear surplus and strength in this cluster.
Back Office / Administrative	Back Office / Administrative Support occupations are forecast to create the second most jobs over the next five years, and regional graduates appear to be well matched for these occupations.

Support occupations	Back Office / Administrative Support positions are not as easily linked to degree clusters, but likely will draw from Business, Finance, Economics; Liberal Arts / Multicultural Studies; Mathematics; and Media and Communications. With a surplus of graduates in Business degree areas and thousands more spread throughout these other degree clusters, the Greater Charlotte Region appears set to address the forecast 3,000 new jobs a year in Back Office / Administrative Support.
Medical occupations	Medical occupations are forecast to create the most jobs in the Greater Charlotte Region over the next five years, and Health Care degrees are one of the largest awarded degree groups in the region. National demand for medical workers will also be a factor in workforce availability. Capacity to retain graduates in medical professions will be an important component of workforce development strategies for the region. The Greater Charlotte Region is forecast to create 3,400 Medical occupations per year over the next five, and local institutions awarded 4,300 Health Care degrees in 2010, including Pre-Associate's certifications. Health Care degrees are some of the fastest growing in the Greater Charlotte Region, outpacing the US at the Bachelor's and Master's+ level.
Education occupations	Education occupations are projected to grow by 1,400 a year over the next five years, and the Greater Charlotte Region awarded 1,700 education degrees in 2010 at a growing rate. This indicates that degree needs are likely met locally.
Engineering occupations	The Greater Charlotte Region has major strengths in Engineering degrees, awarding over 1,200 in 2010, with all degree levels growing more quickly than the US. These awards easily outpace forecast Engineering occupational growth of 200 jobs a year, revealing another likely worker surplus sector.
Mechanics occupations	The Greater Charlotte Region is forecast to create 700 Mechanics occupation positions a year, and in 2010 regional institutions awarded 600 Pre-Associate's degrees and over 100 Associate's in Mechanics, Machine Repair degree areas. Nonetheless, the number of Pre-Associate's degrees has been in decline, indicating a potential future concern.

Section 2:

Target Sector Program Inventory: Findings & Recommendations

Introduction

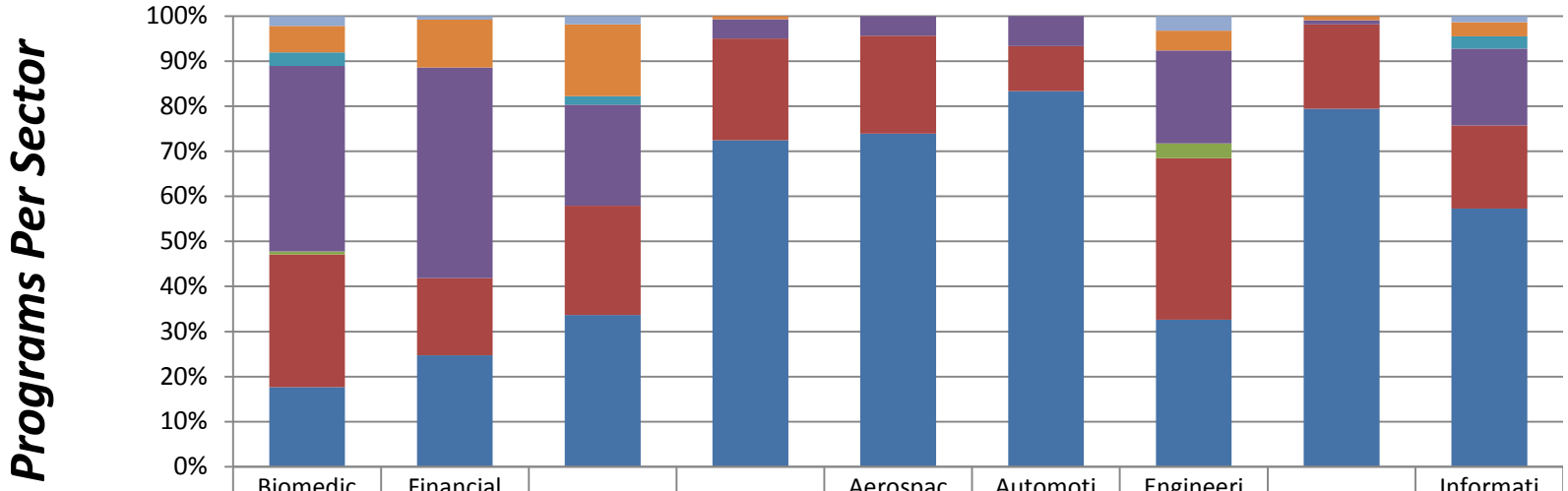
This review and inventory of the education and training offerings in the region includes specific degrees and credentials within the major disciplines of the target sectors and competency areas. Each degree and certificate program available in the region is detailed for each sector, providing an overview of current programming and identifying areas that might be developed to better support the target sectors moving forward. Only degree and certificate programs are included. Many key skills are addressed within broader program areas and majors, though often not to the degree or to the same depths as in dedicated majors.

While in many regions institutions will offer similar programming – competing with one another for similar sets of students and similar sets of business partners – in the Greater Charlotte Region, institutions are especially careful to focus on how their offerings add to the mix of programming in the region without duplicating programs offered elsewhere in the region. This culture of coordination is not limited to the community of educators, but also includes the local Workforce Investment Boards and the Council of Governments who are key partners in decisions around investments in education and training.

The following graphs provide a high level overview of the collection of education programs (ranging from certificate to doctorate level) in each of the six core target sectors and three cross-cutting competencies. The various tables include data that indicates the type of credential program offerings per sector (certificate programs, associate programs), the type of institution per sector, (public college, private university, private/for profit); and that provides an overview of each institutions' programs per sector. Within each of the sector, overviews these data sets are outlined individually. The aggregate overview provides a higher-level view the educational offerings within each target sector in the region.

Sector/Competency and Institutional Overview: Post-Secondary Institutions

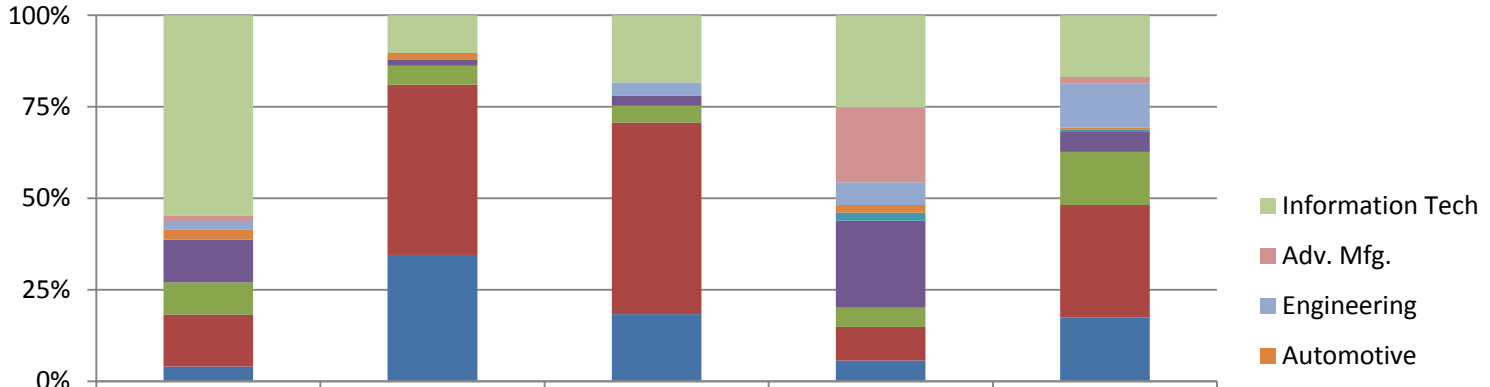
The first graph shown below (**Programs Per Sector**) breaks down the type of credential offered in support of each target sector and competency, whether it is a Certificate or Degree (Associate, Bachelor, etc.) level and the number of individuals completing that level within the sector. We can see from this graph that some target sectors have education and training opportunities that produce more completers at the Certificate compared to higher credential levels, notably in the Energy, Advanced Manufacturing and Information Technology areas. We can also see certain target sectors in which the education and training opportunities are centered around higher levels of degree attainment at the Baccalaureate level such as Financial Services and Biomedical.



	Biomedical	Financial Services	Logistics	Energy	Aerospace	Automotive	Engineering	Adv. Mfg.	Information Tech
Doctorate	3	2	2	0	0	0	3	0	6
Master	8	28	17	2	0	0	4	2	14
Post-Bachelor Certificate	4	0	2	0	0	0	0	0	12
Bachelor	56	123	24	12	1	2	19	2	76
Post-Associate Certificate	1	0	0	0	0	0	3	0	0
Associate	40	45	26	64	5	3	33	40	82
Pre-Associate Certificate	24	65	36	205	17	25	30	170	255

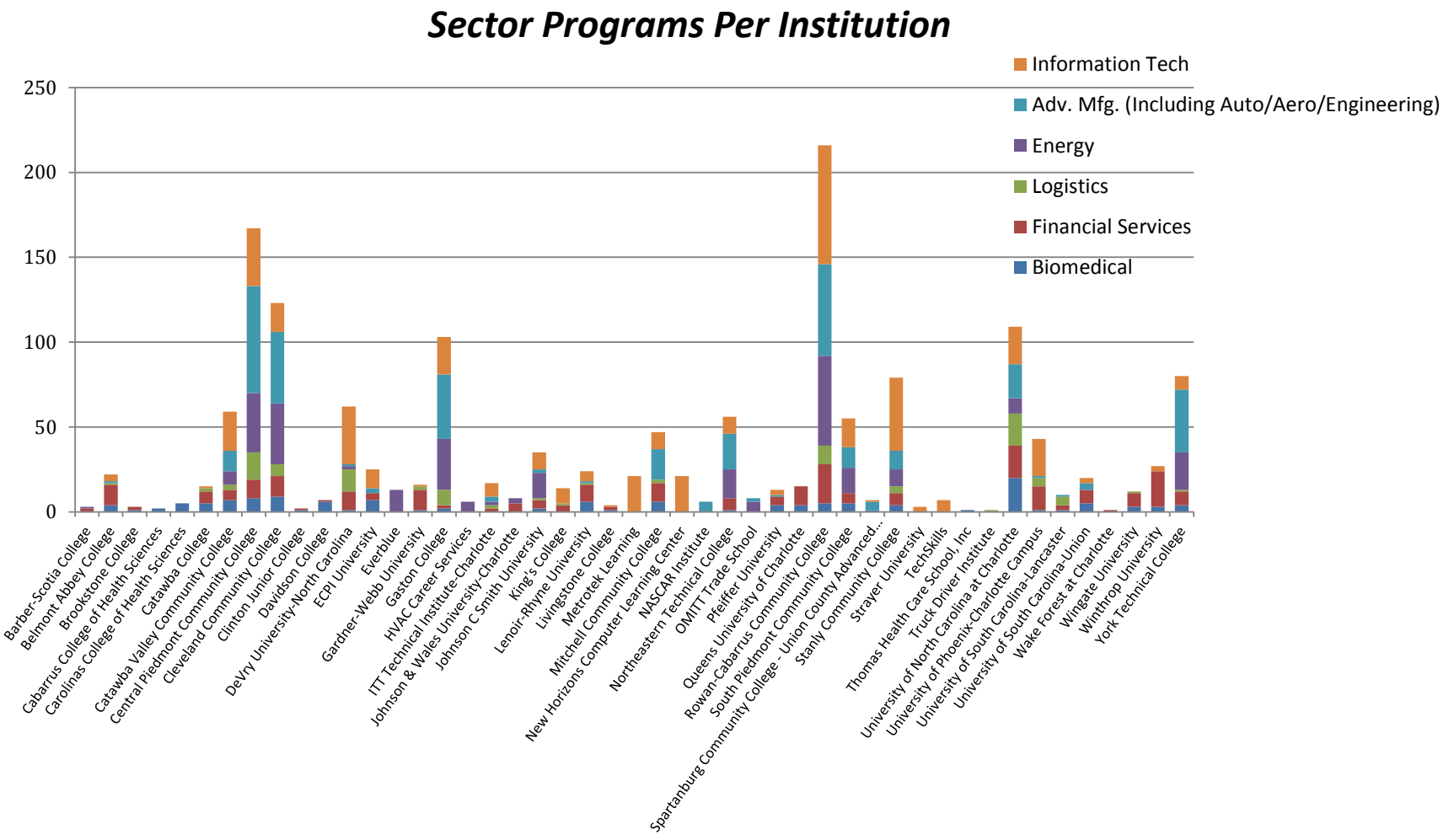
Similarly, the second graph (**Type of Institution Programs Per Sector**) shows what types of institutions offer education and training opportunities particular to the skill development needs of each target sector. From this we can see that for-profit institutions produce a larger share of the program offerings for some target sectors such as Financial Services and Information Technology. Conversely, Public Colleges and Universities offer larger numbers of education and training programs for Information Technology, Energy and Advanced Manufacturing.

Type of Institution Programs Per Sector



	For Profit	Private College	Private University	Public College	Public University
Information Tech	136	6	20	255	28
Adv. Mfg.	4	0	0	207	3
Engineering	5	0	4	63	20
Automotive	7	1	0	21	1
Aerospace	0	0	0	22	1
Energy	29	1	3	241	9
Logistics	22	3	5	53	24
Financial Services	35	27	57	93	51
Biomedical	10	20	20	57	29

The last graph in this section (**Sector Programs Per Institution**) provides further detail about how each sector is represented relative to one another in the education and training community in the region. From this we can see that the community colleges have the largest numbers of programs particular to the target sectors and competencies. It's evident from these numbers that the community colleges have set the pace in developing programs which support growing industry. Back up data totals are provided for each sector and institution in the chart below the graph.



Institution Type	Institution Name	Biomedical	Financial Services	Logistics	Energy	Adv. Mfg. (Including Auto/Aero/Eng	Information Tech	Totals
Private College	Barber-Scotia College	0	2	0	1	0	0	**3**
Private College	Belmont Abbey College	4	12	1	0	1	4	**22**
Private College	Brookstone College	1	2	0	0	0	0	**3**
Private College	Cabarrus College of Health Sciences	2	0	0	0	0	0	**2**
Public College	Carolinas College of Health Sciences	5	0	0	0	0	0	**5**
Private College	Catawba College	5	7	2	0	0	1	**15**
Public College	Catawba Valley Community College	7	6	3	8	12	23	**59**
Public College	Central Piedmont Community College	8	11	16	35	63	34	**167**
Public College	Cleveland Community College	9	12	7	36	42	17	**123**
Private College	Clinton Junior College	1	1	0	0	0	0	**2**
Private College	Davidson College	6	1	0	0	0	0	**7**
For Profit	DeVry University-North Carolina	1	11	13	2	1	34	**62**
For Profit	ECPI University	7	4	0	0	3	11	**25**
For Profit	Everblue	0	0	0	13	0	0	**13**
Private University	Gardner-Webb University	1	12	2	0	0	1	**16**
Public College	Gaston College	2	2	9	30	38	22	**103**
For Profit	HVAC Career Services	0	0	0	6	0	0	**6**
For Profit	ITT Technical Institute-Charlotte	0	2	2	2	3	8	**17**
Private University	Johnson & Wales University-Charlotte	0	5	0	3	0	0	**8**
Private University	Johnson C Smith University	2	5	1	15	2	10	**35**
For Profit	King's College	0	4	1	0	0	9	**14**
Private University	Lenoir-Rhyne University	6	10	1	0	1	6	**24**
Private College	Livingstone College	1	2	0	0	0	1	**4**
For Profit	Metrotek Learning	0	0	0	0	0	21	**21**
Public College	Mitchell Community College	6	11	2	0	18	10	**47**
For Profit	New Horizons Computer Learning Center	0	0	0	0	0	21	**21**
For Profit	NASCAR Institute	0	0	0	0	6	0	**6**

Institution Type	Institution Name	Biomedical	Financial Services	Logistics	Energy	Adv. Mfg. (Including Auto/Aero/Eng)	Information Tech	Totals
Public College	Northeastern Technical College	1	7	0	17	21	10	**56**
For Profit	OMITT Trade School	0	0	0	6	2	0	**8**
Private University	Pfeiffer University	4	5	0	0	1	3	**13**
Private University	Queens University of Charlotte	4	11	0	0	0	0	**15**
Public College	Rowan-Cabarrus Community College	5	23	11	53	54	70	**216**
Public College	South Piedmont Community College	5	6	0	15	12	17	**55**
Public College	Spartanburg Community College - Union County Advanced Technology Center	1	0	0	0	5	1	**7**
Public College	Stanly Community College	4	7	4	10	11	43	**79**
For Profit	Strayer University	0	0	0	0	0	3	**3**
For Profit	TechSkills	0	0	0	0	0	7	**7**
For Profit	Thomas Health Care School, Inc	1	0	0	0	0	0	**1**
For Profit	Truck Driver Institute	0	0	1	0	0	0	**1**
Public University	University of North Carolina at Charlotte	20	19	19	9	20	22	**109**
For Profit	University of Phoenix-Charlotte Campus	1	14	5	0	1	22	**43**
Public University	University of South Carolina-Lancaster	1	3	5	0	1	0	**10**
Public University	University of South Carolina-Union	5	8	0	0	4	3	**20**
Private University	Wake Forest at Charlotte	0	1	0	0	0	0	**1**
Private University	Wingate University	3	8	1	0	0	0	**12**
Public University	Winthrop University	3	21	0	0	0	3	**27**
Public College	York Technical College	4	8	1	22	37	8	**80**
Totals		**136**	**263**	**107**	**283**	**359**	**445**	**1593**
Percent of Total		**8.54%**	**16.51%**	**6.72%**	**17.77%**	**22.54%**	**27.93%**	**100.00%**

Sector/Competency and Institutional Overview: High School Districts

Helping young people understand the opportunities in the economy and how their interests relate to careers that will be critical to the region is largely the responsibility of the secondary education system, in particular the Career and Technical programs within the high schools. The Career Cluster programs are prominent throughout both the North Carolina and South Carolina School Systems. Particularly in North Carolina there are program areas which align with the standard Department of Labor classification of the 16 career clusters. Eight of the 16 career clusters and 4 of the 8 program areas are directly aligned to the target sectors and competencies in the region. Alignment between the sectors and competencies are listed below:

Target Sector and Competencies		Automotive	Aerospace	Biomedical	Energy	Financial Services	Logistics	Advanced Manufacturing	Engineering	Information Technology
Career Clusters	Architecture and Construction				◆			◆		
	Business Management and Administration					◆	◆			
	Finance					◆				
	Health Science			◆						
	Information Technology	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Manufacturing	◆	◆					◆		
	Science, Technology, Engineering and Math	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Transportation, Logistics and Distribution						◆			
Program Areas	Business, Finance and Information Technology	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Health Science			◆						
	Trade and Industrial		◆				◆	◆	◆	
	Technology, Engineering and Design	◆	◆		◆		◆	◆	◆	◆

The following tables provide an overview of the career cluster curriculum and program opportunities at each of the high school districts in the North and South Carolina portions of the region as well as an overview of the program areas listed specifically to North Carolina schools.

It is clear from the first table ("NC and SC High School Career Cluster Programs"), that while a majority of the subject areas are well-covered by the collection of independent school district there are some areas where there are gaps in curriculum and competency development opportunities. In particular, Manufacturing and Transportation/Distribution/ Logistics – both of which are key industries for this strategy – are not available at all schools across the region. Science, Technology, Engineering and Math programs which address foundational skills for these and other target areas are, however, offered in all school districts. This STEM programming could be leveraged to include aspects of the Manufacturing and Logistics sector/competencies at the school districts to promote these sectors and their competencies even where full-blown Manufacturing or Logistics programs aren't currently being offered. Additionally, in the North Carolina High School system, curriculum is taught within Program Areas which encompass various Career Cluster tracks. In a review of the Program Areas covered within the school districts Technology, Engineering and Design is only taught at 8 of the 14 districts. There is a need for connection between the STEM Career Cluster curriculum and the Program Area track in the school districts where Technology, Engineering and Design is not an area of focus.

NC and SC High School Career Cluster Programs

State	County	School District	Agriculture, Food and Natural Resources	Architecture and Construction	Arts, Audio/Video Technology and Communications	Business Management and Administration	Education and Training	Finance	Government and Public Administration	Health Science	Hospitality and Tourism	Human Services	Information Technology	Law, Public Safety, Corrections and Security	Manufacturing	Marketing	Science, Technology, Engineering and Mathematics	Transportation, Distribution and Logistics
NC	Alexander County	Alexander County Schools	X	X	X	X		X		X	X	X	X			X	X	
NC	Anson County	Anson County Schools	X	X	X	X		X		X	X	X	X			X	X	X
NC	Cabarrus County	Carrabus County Schools	X	X	X	X		X		X	X	X	X	X		X	X	X
NC	Cabarrus County	Kannapolis City Schools		X		X	X			X	X		X			X	X	
NC	Catawba County	Catawba County Schools	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NC	Cleveland County	Cleveland County Schools	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NC	Gaston County	Gaston County Schools	X	X	X	X		X		X	X	X	X			X	X	X
NC	Iredell County	Iredell-Statesville Schools	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NC	Iredell County	Mooresville Graded School District	X	X	X	X		X		X	X	X	X		X	X	X	X
NC	Lincoln County	Lincoln County Schools	X	X		X	X	X		X	X	X	X		X	X	X	X
NC	Mecklenburg County	Charlotte-Mecklenburg Schools	X	X	X	X	X	X		X	X	X	X		X	X	X	X
NC	Rowan County	Rowan-Salisbury Schools	X	X	X	X	X			X	X	X	X			X	X	
NC	Stanly County	Stanly County Schools	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
NC	Union County	Union County Public Schools	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SC	York County	Rock Hill Schools	X	X	X	X	X	X	X	X	X	X	X	X		X	X	
SC	York County	Fort Mill Schools	X	X	X	X	X	X		X	X		X	X		X	X	X
SC	York County	Clover School District	X	X	X	X	X	X		X	X	X	X		X	X	X	
SC	York County	York School District One	X	X		X		X		X		X	X		X	X	X	
SC	Union County	Union County School District	X	X	X	X		X		X		X			X		X	
SC	Lancaster County	Lancaster County Schools	X	X	X	X	X	X		X	X	X	X	X	X		X	X
SC	Chesterfield County	Chesterfield County Schools	X	X	X	X	X	X	X	X			X	X	X		X	
SC	Chester County	Chester County Schools	X	X	X										X	X	X	

North Carolina High School Program Areas									
NC County	**Program Areas**	**Agriculture**	**Business, Finance and Information Technology**	**Health Science**	**Marketing and Entrepreneurship**	**Family and Consumer Sciences**	**Trade and Industrial**	**Career Development**	**Technology Engineering and Design**
Alexander County	Alexander County Schools	X	X	X	X	X	X	X	
Anson County	Anson County Schools		X	X	X	X	X		
Cabarrus County	Cabarrus County Schools	X	X	X	X	X	X	X	X
Cabarrus County	Kannapolis City Schools		X	X	X	X	X		X
Catawba County	Catawba County Schools	X	X	X	X	X	X	X	X
Cleveland County	Cleveland County Schools	X	X	X	X	X	X	X	X
Gaston County	Gaston County Schools		X	X	X	X	X	X	
Iredell County	Iredell-Statesville Schools	X	X	X	X	X	X	X	X
Iredell County	Mooresville Graded School District		X	X	X	X	X	X	
Lincoln County	Lincoln County Schools	X	X	X	X	X	X		X
Mecklenburg County	Charlotte-Mecklenburg Schools	X	X	X	X	X	X		X
Rowan County	Rowan-Salisbury Schools	X	X	X	X	X	X		X
Stanly County	Stanly County Schools	X	X	X	X	X	X	X	
Union County	Union County Public Schools	X	X	X	X	X	X	X	

Sector and Competency Content Review

Aerospace Sector

The Greater Charlotte Region has a growing aviation and aerospace industry. New defense and related companies that have aerospace connections have moved into the region. Along with the presence of these companies and the Greater Charlotte Region's strategic location connecting the economy with most of the major U.S. markets, the area's balanced infrastructure, expanding airport space and advanced facilities, and direct rail and interstate highway access for intermodal shipping poises the region for enhanced growth in this economic sector.

Career opportunities in this sector range from regulatory compliance, to manufacturing and engineering and also include traditional business and business service occupations. Computer Integrated Machining skill development opportunities are available across higher education institutions in the Greater Charlotte Region. These skill sets can be developed through short-term workforce training available through the local state college system and are supported through education pathways into engineering technology offerings available at most community college and 4-year college programs.

With only 23 programs particular to skill development within aerospace, the growth opportunity in this sector requires the collection of institutions to widen beyond existing offerings. Most of the educational offerings in the region rely heavily on preparing for general engineering and Computer Integrated Machining, Machine Tool or CAD, CAM and CNC teaching and learning opportunities. Learning specific to aerospace engineering or manufacturing is more limited. Many economic development opportunities are connected to the use of composites, yet offerings focusing on materials science are absent among the colleges, training programs and universities.

The overlap between this sector and the advanced manufacturing and engineering target competencies offers important growth opportunities for the region. The size and importance of the Charlotte airport offers an important venue for further development and creation of education offerings that combine foundational manufacturing skill sets with their specific application in the aerospace niche. Opportunities for Aerospace-related business development in the Greater Charlotte Region include various material and composite application. Some areas that need to be developed within the education infrastructure include the following:

- Composites
- Material Science
- Aeronautics
- Aerospace Technology
- Aerospace Engineering
- Non-Destructive Exam. Tech

Aerospace Programs	Catawba Valley Community College	Central Piedmont Community College	Cleveland Community College	Gaston College	Rowan-Cabarrus Community College	University of North Carolina at Charlotte
Aeronautics						B*
Aerospace Engineering			A			
Aerospace Technology						
Composites						
Computer Integrated Machining	C	A	C	C, A	C, A	
Material Science						
Non-Destructive Examination Technology		C				
Project Management						
C=Certificate, A=Associate, PAC=Post-Associate Certificate, B=Bachelor, PBC=Post-Bachelor Certificate, M=Master, D=Doctoral, *=Minor Only						

Automotive Sector

The Greater Charlotte Region has historically been a hub for the automotive field, most recognized through the location of various NASCAR facilities and events and the University of North Carolina at Charlotte Motorsports Lab. This sector is well represented through certificate-level education and training programs across the education and training providers in the region. There are 30 programs across the region that are specific to the automotive field, with 25 (over 80%) of the programs graduating students with pre-associate level certificates. The range of skill development needs of this sector including higher-level credentials, however, are addressed through more advanced educational offerings that are included within programs that address other sectors and competencies critical to the region – most notably engineering, certain energy programs supporting mechanical and electrical technology or alternative fuel technology, and advanced manufacturing.

Considering that most of the directly automotive-related education pathways exist around the certificate or mechanic level it will be important to expand offerings from the Associate level and beyond that will help to fuel this industry and keep the Greater Charlotte Region as a motorsports, research and development and automotive manufacturing hub. Opportunities for expansion of learning opportunities for the automotive sector in the Greater Charlotte Region could specifically address and emphasize the following:

- Associate and above program development for:
  - Automotive and Motorsports Engineering Technology
  - Fuel System Technology
  - Power Train Technology
  - Automotive Engine, Electrical System and Electronic Technology

Automotive Programs	Belmont Abbey College	Catawba Valley Community College	Gaston College	Mitchell Community College	NASCAR Institute	OMITT Trade School	Rowan-Cabarrus Community College	University of South Carolina-Union	York Technical College
Automotive Systems Technology		A	C, A		C	C	C, A		C
Automatic Transmission							C		
Automotive Brakes, Steering, Suspension							C		C
Automotive Electrical and Air Conditioning							C		C
Automotive Electrical and Electronics							C		
Engine Repair			C				C		C
Fuel Systems			C						C
Power Trains			C				C		C
Motorsports Management, Sports Management	B							B	
Motorsports Engineering Technology				C					
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Biomedical Sector

The Biomedical sector is a multi-faceted discipline typically broken up into sub-disciplines including Life Sciences (including Biology, Chemistry and Physical Science), Health Technology (including information systems and technology management) and Bio Science (including biomedical research, engineering and biochemistry). The education and training providers in the Greater Charlotte Region offer programming in various life science disciplines including biological and chemical sciences as well as offerings for biomedical, bioinformatics and biotechnology skill development. Career opportunities in the region include a range of possibilities from research and development, health information management specialist, medical technician, chemist, biomedical technician and other technology based healthcare and biomedical focused positions (including surgical technician, cytotechnician and pharmacy technician).

The location of the Cancer Research Center, the Bioinformatics Services Division and the David H. Murdock Research Institute at the University of North Carolina at Charlotte all draw focus on biomedical research and makes the region an international presence in terms of research and development within the biomedical sector. These centers of research and the relative proximity to the North Carolina Research Center in Kannapolis has built the national and international recognition of the region. As this industry continues to evolve and the region builds its intellectual capacity there is a need for higher-level Information Technology skills to meet the demands of this employer and the sector in the region.

The biomedical sector has 136 education and training offerings, with only 15 (roughly 12%) of those programs at the post-Baccalaureate level. In order to meet the needs of the sector and the highly technical workforce required to attract biomedical research companies and manufacturers the region will need to focus on the depth and breadth of the education and training offerings available. Increasing the number of Bachelor and Master programs that go beyond Chemistry and Biology competencies into highly targeted biomedical specific niches will position the region to secure their foothold in the region on this growing sector.

Opportunities for expansion of learning opportunities for biomedical services in the Greater Charlotte Region could specifically address and emphasize the following:

- General Biomedical Studies
- Advanced Learning in Biotechnology
- Bioinformatics and Genomics
- Advanced Learning in Health Information Technology
- Materials Chemistry
- Nanoscale Science
- Molecular Technology

Biomedical Programs	Belmon Abbey College	Brookstone College	Carolinas College of Health and Sciences	Catawba College	Catawba Valley Community College	Central Piedmont Community College	Cleveland Community College	Davidson College	Devry University-North Carolina	ECPI University	Gardner-Webb University	Gaston College	Johnson & Wales University- Charlotte	Johnson C. Smith University	King's College	Lenoir-Rhyne University	Livingstone College
Biology	B			B			A	B						B		B	
Biomedical												A					
Biotechnology	B						C,A					A					
Bioinformatics and Genomics																	
Biomedical Engineering																	
Biomedical Equipment Technology												C					
Cardiovascular Technology						A											
Chemical Engineering																	
Chemistry	B*			B		A		B			B			B		B	B*
Cytotechnology						A											
Genomics								B									
Health Administration/Management		C			C	C	C,A			A, B							
Health IT					C,A	C,A	A		A	B							
Materials Chemistry																	
Medical Lab Technology			PBC	B		A				B						B	
Molecular Technology																	
Nanoscale Science																	
Pharmacy Technician		C				A											
Physical Therapy																	
Polysomnography					C,A												
Radiography					A		A	A		A							
Radiologic Technology			A														
Surgical Technology			C,A		C	A	C			A							

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Biomedical Programs	Mercy School of Nursing	Mitchell Community College	Northeastern Technical College	Pfeiffer University	Queens University of Charlotte	Rowan-Cabarrus Community College	South Piedmont Community College	SCC – Union Co. Adv. Technology Center	Stanly Community College	Strayer University	Thomas Health Care School, Inc	University of North Carolina at Charlotte	University of Phoenix-Charlotte Campus	University of South Carolina- Lancaster	University of South Carolina- Union	Wingate University	Winthrop University	York Technical College
Biology		A	A	B	B		A		A			B, M, D		B	B		B, M	
Biomedical							A		A			C, M						
Biotechnology				B		A	A											C
Bioinformatics and Genomics												C, M, D						
Biomedical Engineering															B			
Biomedical Equipment Technology							C		C									
Cardiovascular Technology																		
Chemical Engineering															B			
Chemistry		C		B	B							B,M			B	B		
Cytotechnology																		
Genomics																		
Health Administration/Management			C	B, M		C, A	C,A	C		M		C, M	B, M, D					
Health IT		C,A			C	A						C						
Materials Chemistry												B						
Medical Lab Technology		A					A		A						B			A
Molecular Technology																		
Nanoscale Science												D						
Pharmacy Technician		C				C			C									C
Physical Therapy																D		
Polysomnography		A																
Radiography						A			A									
Radiologic Technology																		C
Surgical Technology							C											C

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Energy Sector

The Energy sector has the most education and training programs of all the target sectors and competencies in the region. The education and training providers offer a total of 283 credential and degree programs within the region, however, the vast majority (205 or just over 70%) of these programs result in a pre-associate level certificate. There is a strong need for expansion of programming to serve the higher skilled needs of the sector to support growth and stability in the future. Traditional energy skill development is well represented through training and credential programs supporting Air Conditioning, Heating and Ventilation, Welding and Electrical System technology. Lacking in the educational ecosystem are higher level programs that would support skill development critical to green energy such as Renewable Energy (only one Bachelor program at a private institution). Additionally Green Building, Power Systems and Alternative Energy, Heating Systems, Lean Manufacturing and Solar Photovoltaic programs are only available at the certificate level. These certificate offerings provide relatively easy entry points for the workforce access this sector, the fewer number of higher level offerings limits the potential for these entry level workers to increase their skills and support higher-value sector growth and employment opportunities in the region.

This sector will continue to evolve as new alternative technologies and mature practices change to meet the needs of the new economy with regard to energy use, production and distribution/delivery. Considering the strong foundation of programs already in existence in the region which support the sector, the region is positioned to meet these evolving needs and be at the apex of new technology deployment.

Opportunities for expansion of learning opportunities for the Energy sector in the Greater Charlotte Region could specifically address and emphasize the following:

- Bio-production
- Bio-maintenance
- Civil engineering technology
- Code inspection
- Computer Aided Design
- Computer Numerical Controls
- Energy Assessment/Auditing (residential and industrial)
- Green Building
- Heating Systems
- Industrial Engineering and Systems Technology
- Instrumentation Technology
- Lean Manufacturing
- Nuclear Plant Inspections
- Power System and Alternative Energy
- Renewable Energy
- Solar Photovoltaics, Solar Thermal

ENERGY SECTOR PROGRAMS	Barber-Scotia College	Catawba Valley Community College	Central Piedmont Community College	Cleveland Community College	DeVry University-North Carolina	Everblue	Gaston College	HVAC Career Services	ITT Technical Institute-Charlotte	Johnson & Wales University-Charlotte	Mitchell Community College	Northeastern Technical College	OMITT Trade School	Rowan-Cabarrus Community College	South Piedmont Community College	Stanly Community College	University of North Carolina at Charlotte	York Technical College
Air Conditioning/Heating and Refrigeration Technology			C, A	C			C	C			C		C	C, A	C, A	C		C
Automation Engineering				A														
Biodiesel Production			C															
Bio-Maintenance				C														
Carpentry													C					C
Civil Engineering Technology							C, A										B	
Code Inspection			C															
Computer Aided Design (CAD)											C	C						
Computer Numerical Controls (CNC)							C							C				C
Computer Integrated Machining		C	C, A	C			C, A							C, A				
Computer Technology Integration			C															
Construction Management			C											C, A		C	B	C
Drafting											C	C						
Electrical and Electronics System Technology		A	C, A	C, A	A		C, A				C	C	C	C, A	C, A		B	A

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ENERGY SECTOR PROGRAMS	Barber-Scotia College	Catawba Valley Community College	Central Piedmont Community College	Cleveland Community College	DeVry University-North	Everblue	Gaston College	HVAC Career Services	ITT Technical Institute-Charlotte	Johnson & Wales University-Charlotte	Mitchell Community College	Northeastern Technical College	OMITT Trade School	Rowan-Cabarrus Community College	South Piedmont Community College	Stanly Community College	University of North Carolina at Charlotte	York Technical College
Electrical Engineering		A	A						A, B	A, B	C, A	A		A	A	C, A	B, M	A
Facility Maintenance				C														
Energy Auditing						C												
General Occupational Technology		A		C, A			A				C, A				C			A
Green Building			C			C							C					
Heating Systems								C							C			
Industrial Engineering Technology												A		C, A				
Industrial Systems Technology				C, A			C									C		
Lean Manufacturing				C										C				C
Machine Tool Technology											C	C						C, A
Mechanical Engineering Technology		A	C, A	C			C, A				A			C, A	A		B, M	A
Non-Destructive Examination Technology			C, A															
Nuclear Plant Inspection			C, A															
Plumbing																		C
Power Systems and Alternative Energy			C															
Renewable Energy	B																	
Solar Photovoltaic			C			C	C						C					
Sustainability Technologies			C, A		B													
Welding Technology		C	C	C			C					C, A		C, A		C		C, A

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Financial Services Sector

The financial services sector is one that has historically been a driving force within the greater Charlotte economy. There is significant representation of bank Headquarters and the region has continued to produce high volumes of educated workers in the financial services sector on the heels of the recession. The education landscape for financial services covers a breadth of skill sets including accounting and financial management, business technology, entrepreneurship, operations and finance.

This sector continues to evolve due to the changing economic landscape, and the skills of its workforce must evolve accordingly. In particular, the workforce will need to combine capabilities of finance, regulatory affairs and information technology to address increasingly complex compliance, regulatory and business needs. Several disciplines that need to be further developed within the education and training community to better support the future of this sector include financial information technology, call center support and management, and wholesale banking.

Within the region there are 251 education programs, representing just fewer than 17% of the total degree and certificate target sector output in the region. There is almost an even split between the types of institutions through which that these programs are offered, with slightly more learning opportunities available through public institutions. Roughly 45% of the financial services education and training opportunities (pre-associate certification through Master program) are offered at either private or for profit institutions. The remaining 55% are offered through the public college and university system in the region. By targeting those already in the industry or in similar professional service industries who are non-degreed the region could create a pathway within the financial services sector through the education offerings available in the public college and university systems. This is a unique opportunity for the region to better engage adult students through education pathways either from within the industry at lower employment positions or in a transition pathway from declining industries.

The range of sub-specialties in the Financial Service sector, Marketing, Administration, Entrepreneurship, Business Management, Finance and Accounting are well supported through the education and training offerings in the region. Opportunities for expansion of learning opportunities for financial services in the Greater Charlotte Region could specifically address and emphasize the following:

- Financial Analysis
- Leadership
- International Business
- Mathematics and Statistics
- Technology Infrastructure
- Regulatory affairs
- Financial Law
- Financial Policy

Financial Services Programs	Barber-Scotia College	Belmont Abbey College	Brookstone College	Catawba College	Catawba Valley Community College	Central Piedmont Community College	Cleveland Community College	Clinton Junior College	Davidson College	Devry University-North Carolina	ECPI University	Gardner-Webb University	Gaston College	ITT Technical Institute- Charlotte	Johnson & Wales University- Charlotte	Johnson C. Smith University	King's College	Lenoir-Rhyne University
Accounting		B	C	B	A	C,A	A			A, B, M	A, B	B, M			B	B	C,A	C, B
Administration			C		C, A	A	A	A		B, M	A, B	B, M	C,A		B	B	C,A	B, M
Analysis																		
Economics		B*		B		A			B			B				B		B
Entrepreneurship	B	B			C,A	C	C,A			B								
Finance				B	A	C	A			B		B				B		B
International Business		B				C, A				M		B, M				B		B
Leadership																		
Management		B		B		C				B		M		B	B	B		B
Marketing		B		B		A	C,A			B		B			B			B
Math and Statistics																		
Technology				B														

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Financial Services Programs	Livingstone College	Mitchell Community College	Northeastern Technical College	Pfeiffer University	Queens University	Rowan-Cabarrus Community College	South Piedmont Community College	Stanly Community College	University of North Caroline at Charlotte	University of Phoenix- Charlotte	University of South Carolina- Lancaster	University of South Carolina- Union	Wake Forest at Charlotte	Wingate University	Winthrop University	York Technical College
Accounting	B	C	C	B		C,A	C,A	C,A	B, M	A, B, M		B		B	B, M	C
Administration	B	C,A	C,A	B	B, M	C,A	C,A	C,A	M	M, D	A, B		M		B	A
Analysis																
Economics				B*					B, M		B	B		B	B	
Entrepreneurship						C	C	C		B					B	C
Finance				B	C	C			B, M, D	B		B		B	B, M	
International Business									B		A				B, M	
Leadership					B*										M	
Management					M	C			B	B, M		B		B	B	C,A
Marketing		C,A	C		B*	C,A						B			B, M	
Math and Statistics					B*				B, M			B		B	B	
Technology			C			C										
C=Certificate, A=Associate, PAC=Post-Associate Certificate, B=Bachelor, PBC=Post-Bachelor Certificate, M=Master, D=Doctoral, *=Minor Only																

Logistics Sector

The expansion of the Charlotte Douglas International Airport - including the new intermodal facility, seaport access, multiple rail lines, location within a Foreign Trade Zone and the presence of many international companies- positions the region for significant growth in the dynamic logistics industry sector. The support and development of a logistics workforce is crucial to the success of this sector and the region. This sector has significant overlap in skill development needs from other growth sectors and competencies critical to the region. For example, the logistics sector relies on the skills developed within manufacturing through industrial machine and robotic maintenance, development and usage; additionally this workforce will need to have well-developed information technology capabilities with an emphasis on mobile technology.

Public awareness of the industry is increasing, but greater understanding of the various pathways into this sector will help to cultivate a well-rounded workforce. This is true of other sectors as well (aerospace, biomedical and energy are key areas to demonstrate pathways for a pipeline of workers) that have limited public understanding of the skills requirements, career pathways and education programs available. The more people who understand the job opportunities available the more likely they will be to pursue specific education programs that will develop the skills needed to support the sector. Understanding how this sector works and how interconnected various career pathways are within the sector can begin at the High School level to help build a pipeline of the future workforce. Focusing curriculum and program areas around logistics-specific skills, such as those within the Technology, Engineering and Design program area and the Science, Technology, Engineering, Math and Manufacturing career clusters will help to penetrate knowledge of the sector and industry needs at an early age. Continued expansion of the Transportation, Distribution and Logistics Career Cluster is advisable; currently there are 9 school districts that do not teach this cluster within their documented career programs.

There are certainly education and training supports that currently do not exist at the level that would sufficiently support the anticipated needs of the sector. Currently there are 107 Logistics focused programs within the education and training programs in the region. This sector has the greatest percentage of Masters-level programs with 17 total offerings representing 16% of the swath of programs. While there are many opportunities from certificate to even the doctoral level, there are many areas that are under-represented in the region that would help further develop the workforce for incoming and incumbent employers. Support and expansion of the Information Technology, Advanced Manufacturing and Supply Chain Management education and training opportunities will create a well-rounded education ecosystem to fuel the logistics sector in the coming years.

Opportunities for expansion of learning opportunities for the logistics sector in the Greater Charlotte Region could specifically address and emphasize the following:

- Environmental Science
- Geographic Information Systems
- General skill development for Information Systems
- Certificate and Associate Level International Business Programs
- Logistics and Transportation General Programs
- Logistics Information Technology
- Safety Technology
- Supply Chain Management
- Logistics-specific Sustainability

Logistics Programs	Belmont Abbey College	Catawba College	Catawba Valley Community College	Central Piedmont Community College	Cleveland Community College	Devry University-North Carolina	Gardner-Webb University	Gaston College	ITT Technical Institute- Charlotte	Johnson C. Smith University	King's College	Lenoir-Rhyne University	Mitchell Community College	Rowan-Cabarrus Community College	Stanly Community College	Truck Driver Institute	University of North Caroline at Charlotte	University of Phoenix- Charlotte	University of South Carolina-Lancaster	Wingate University	York Technical College
Administration			A	A	C, A	A, M		C, A	A				A	C, A	C, A					B	
Automotive systems			A	C, A				C,A						C, A	C						
Driver Training			C					C					C			C					
Environmental Science																	D				
Geography/Geographic Information Systems				A													B, M, D		C, A		
Information systems		B				B											B				
International Business	B			C, A		M	B, M			B		B					B		A		
Logistics and Transportation			C					A													
Logistics IT					A																
Operations/Project Management						B, M			B		A						PBC, B	B, M			A
Safety Technology																					
Service Technician				C, A	C																
Supply Chain Management				A																	
Sustainability		B				B, M												M			

C=Certificate, A=Associate, PAC=Post-Associate Certificate, B=Bachelor, PBC=Post-Bachelor Certificate, M=Master, D=Doctoral, *=Minor Only

Advanced Manufacturing Competencies

The advanced manufacturing industry is incredibly diverse in the region and connects to other target sectors (aerospace, automotive, energy and biomedical) through the varied education opportunities and skill development needs. Many of the traditional skill sets under the advanced manufacturing umbrella are well developed in the region, including Industrial Maintenance, Industrial Technology, Engineering and Management. This strong base has allowed the manufacturing industry to remain a sustained pillar of the regional economy.

There are several secondary and post-secondary education pathways to support the skill development needs of the Advanced Manufacturing sector. In total there are 210 program offerings, 166 of which are at the pre-associate certificate level. This is roughly 80% of the total education and training opportunities, and far fewer opportunities for skill development at the associate level and above. While this preponderance of pre-associates level training opportunities aligns with the proportion and number of individuals working at that level, their aspirations and the regions potential for advancement may be limited due to the fewer opportunities for higher-level learning. The specialty tracks within this sector range from electrical and mechanical system technology to machine tool and welding technology.

As shown in the chart below, there are a number of short-term skill development opportunities that support the Advanced Manufacturing sector offered in most of the specialty areas. These allow for rapid assistance to people looking to transition into the industry or diversify their skill set while currently employed. What is lacking is the opportunity to continue this learning onto a higher level of degree completion either through the community college system into an associate of applied science or an associate of science that would then lead to a bachelor degree or through the four-year institutions. There is also a need to develop opportunities that will build skills particular to quality assurance and industrial engineering to support this sector.

Many of the skills developed within advanced manufacturing competencies are applicable to the plans of study for engineering, energy, automotive and aerospace sectors/competencies such as maintenance, mechanics, machining and management. Individuals who have these competencies developed while working in these feeder sectors but may not have earned academic or industry credentials that validate them are well positioned to transition into higher-level roles in Advanced Manufacturing. More deliberate transition programs could increase the availability of Advanced Manufacturing workers. As a key component of such a transition program such as incumbent worker training, dislocated worker training and continuation of 2 year associate degrees to university programs, colleges can work with students to validate the skills developed elsewhere as a way of advancing towards completion of new credentials much more rapidly.

Opportunities for advanced manufacturing development in the Greater Charlotte Region include specific competencies that emphasize the following:

- Computer Aided Drafting
- Computer Numerical Controls
- Drafting
- Installation and Maintenance
- Industrial Safety
- Facility and Industrial Maintenance
- Lean Manufacturing
- Mechanical Drafting Technology
- Mechanical Engineering Technology
- Survey Technology

Advanced Manufacturing Programs	Catawba Valley Community College	Central Piedmont Community College	Cleveland Community College	DeVry University-North Carolina	Gaston College	ITT Technical Institute-Charlotte	Mitchell Community College	Northeastern Technical College	OMITT Trade School	Rowan-Cabarrus Community College	South Piedmont Community College	SCC – Union Co. Adv. Tech Center	Stanly Community College	University of North Carolina at Charlotte	University of Phoenix-Charlotte Campus	York Technical College
Air Conditioning, Heating & Refrigeration	A	C, A	C		C		C			C, A	C, A					C
Architectural Drafting and Technology	A	C, A			C, A	A										
Computer Aided Drafting (CAD)							C	C								
Computer Numerical Controls (CNC)													C			C
Construction Management		C, A								A				B, M		C
Drafting							C	C								
Electrical Systems Technology	C	C, A	C, A		C		C	A		C, A	C, A					
Installation and Maintenance																
Industrial Electronics								C, A			C					C
Industrial Safety																
Industrial Systems Technology	A		C, A		C					C		C	C			
Electronics Engineering				A			C, A									
Engineering Technology																
Facility/Industrial Maintenance		C	C					A								A
General Technology	A				A		C, A	A								
Lean Manufacturing			C							C						
Machine Tool Technology							C	C, A								C, A
Mechanical Drafting Technology			C							C						
Mechanical Engineering Technology		C					A	A								
Project Management		C	A							C		C			B	
Survey Technology		A														
Welding Technology	A	C	C		C			C, A		C, A	C	C	C			C, A

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Engineering Competencies

The William States Lee College of Engineering at the University of North Carolina at Charlotte coupled with the growing Energy sector have created a strong education and industry foundation for engineering competencies in the region. The need for skilled engineers has overwhelmed the labor demand at national and international levels. Locally, in the Greater Charlotte Region, there are roughly 300 engineering graduates per year creating a significant pipeline of qualified engineers into the labor market. Given the location of many manufacturing companies, energy companies, automotive employers and other research and development entities in the region there will continue to be a need for qualified engineers in several disciplines.

In order to continually fill this supply of workers with engineering skills it will be critical to make connections between skills needs at all levels of the education spectrum – starting with entry into the field through certificate level programs. There are many Associate and below programs available through electrical and mechanical engineering technology. Key to the future of this competency and the success of the related target sectors (energy, biomedical, automotive and aerospace) will be development of training programs that allow the workforce to quickly up skill and gain industry recognized credentials that will allow for entrance into a myriad of sectors and job openings in the future. There is already a strong foundation for this career pathway in the various career clusters and program areas being taught at the high school level, allowing for more technical skill development through the public college system will ensure that those interested in pursuing engineering type careers will have opportunities outside of the standard Baccalaureate and beyond education track.

Opportunities for Engineering competency development in the Greater Charlotte Region should emphasize the following:

- Bio-process Engineering
- Industrial Engineering
- Information System Engineering
- Systems Engineering

Engineering Programs	Catawba Valley Community College	Central Piedmont Community College	Cleveland Community College	ECPI University	Gaston College	ITT Technical Institute-Charlotte	Johnson C Smith University	Lenoir-Rhyne University	Pfeiffer University	Rowan-Cabarrus Community College	South Piedmont Community College	SCC – Union Co. Adv. Tech Center	Stanly Community College	University of North Carolina at Charlotte	University of South Carolina-Lancaster	University of South Carolina-Union	York Technical College
Bioprocess Engineering										C							
Civil Engineering Technology		A			C, A									B, M, D		B	
Computer Engineering		C, A			A		B						C, A	B, M, D			A
Electrical Engineering		C, A			C, A	A, B				A				B, M, D		B	
Electronics Engineering	A	A	C, A	A, B									C, A				A
Engineering			A					B	B*		A			B	C		C, A
Industrial Engineering										C, A							
Information Systems Engineering							B										
Mechanical Engineering	A	C, A			C, A					A	A			B, M, D		B	C, A
Mechatronics Engineering	C	C, A		B							C	C					
Systems Engineering														B, M			

C=Certificate, A=Associate, PAC=Post-Associate Certificate, B=Bachelor, PBC=Post-Bachelor Certificate, M=Master, D=Doctoral, *=Minor Only

Information Technology Competencies

Information Technology is a sector that undergirds all other pillars of the regional economy, not just in the Greater Charlotte Region, but in the national economy as well. Each of the target industries requires highly skilled Information Technology workers, most notably the Biomedical and Logistics sectors whose operations rely heavily on sound and compliant IT systems and operations. Since the tech bust of the late 1990's interest in and pursuit of IT degrees has waned as evidenced by the skills shortage on a national level, despite the fact that employment has exceeded pre-bust levels for some time. Information Technology is a dynamic industry where skills developed this year will be outdated by next year, continual education and up skilling is required by all information technology affected sectors, which is to say all sectors.

In the Greater Charlotte Region there are a total of 444 Information Technology education and training programs, by far the most programs available from any of the sectors or competencies identified as targets through this regional inventory. Almost 30% of the total programs reviewed are specific to the field of information technology. The presence of so many programs indicates a very strong foundation of information technology skill development that will support the other growth sectors within the education ecosystem. Due to the emergence of other high-growth sectors there is an opportunity to encourage people to pursue education in information technology fields that will eventually support the other growth sectors, such as Logistics or Biomedical through their particular IT needs.

With the growing innovations in technology there is a need to continue to develop new education and training opportunities that go beyond the standard systems and network support functions that are addressed through the existing education offerings in the region. For example the creation of coursework that would support mobile application development and software and system support specifically for Logistics IT, Geographic Information Systems, supply chain management, and Health Information Technology Management niches would help to develop a talent base that is positioned to support this growth area.

Opportunities for IT-related business development in the Greater Charlotte Region include basic business infrastructure and application development needs with particular emphasis on the following:

- Database Management
- Digital Media
- Geographic Information Systems
- Mobile Applications
- Project Management
- Safety Technology
- Health Information Technology
- Supply Chain Management
- Logistics Information Technology

Information Technology Programs	Belmont Abbey College	Catawba College	Catawba Valley Community College	Central Piedmont Community College	Cleveland Community College	Devry University-North Carolina	ECPI University	Gardner-Webb University	Gaston College	ITT Technical Institute- Charlotte	Johnson C Smith University	King's College	Lenoir-Rhyne University	Livingstone College
Computer Science	B		C,A	C	A	A, B, M						C	B	
Cloud Computing							A, B							
Database						B	A, B							
Digital Media													B	
Graphic Design		B				A, B					B	C,A		
Information Systems				C	C,A	PBC, B, M	A, B	B	C,A	B	B		B	A
Mobile Applications				C		PBC								
Network Administration			C,A	C	C,A	PBC, A, M			C,A	A		A		
Office Administration			C,A						C,A	B		C,A		
Programming				C,A		B			C,A		A	A		
Project Management					C									
Security/Cybersecurity			C,A	C	C,A	PBC, B	A, B		C,A					
Simulation and Game Programming							A, B							
Software & Computer Related Engineering			C,A	C,A		B				A, B	A, B			
Technology Mgmt.					C	B				A, B	A, B			
Web Development			C,A	C	C,A	B			C,A					
C=Certificate, A=Associate, PAC=Post-Associate Certificate, B=Bachelor, PBC=Post-Bachelor Certificate, M=Master, D=Doctoral, *=Minor Only														

Information Technology Programs	Livingstone College	Metrotek Learning	Mitchell Community College	Northeastern Technical College	Pfeiffer University	Rowan-Cabarrus Community College	South Piedmont Community College	SCC – Union Co. Adv. Tech Center	Stanly Community College	Strayer University	TechSkills Charlotte	UNC at Charlotte	University of Phoenix- Charlotte Campus	Winthrop University	University of South Carolina-Union	York Technical College	New Horizons Computer Learning Center
Computer Science				A								PBC, B, M, D,		B	B		
Cloud Computing																	
Database			C			C					C		A				
Digital Media		C				C							B				
Graphic Design							C,A		C,A					B		C	
Information Systems	A	C	C,A		B	A	C,A	C	C	A, B, M D	C	PBC, B, M, D	A, B		B		
Mobile Applications						C	C										
Network Administration		C	C		B	C,A			C,A		C		B			C,A	C
Office Administration		C		A		C	C		C								C
Programming			C			C,A			C,A				A			A	
Project Management		C															
Security/Cybersecurity		C			B	C,A			C,A		C		B			C	C
Simulation and Game Programming																	
Software & Computer Related Engineering						C			C,A				B				
Technology Mgmt.		C		C,A		C,A	A						B, M, D		B		
Web Development			C,A	C		C,A	C		C				A, B	B		C	
C=Certificate, A=Associate, PAC=Post-Associate Certificate, B=Bachelor, PBC=Post-Bachelor Certificate, M=Master, D=Doctoral, *=Minor Only																	

Section 3:

Prior Learning Assessment: Findings & Recommendations

Prior Learning Assessment Policy Overview

At the post-secondary level, opportunities documented in this report are available via largely traditional delivery models. Most of the local universities and colleges are geared toward the "traditional" student, those ages 18-24. The community and technical college systems in North and South Carolina and the two main Universities (University of North Carolina – Charlotte and the University of South Carolina – Lancaster) are the sole providers among the public and non-profit providers to bridge this gap by catering to older and non-traditional students, offering accredited degrees through evening and distance learning programs. However the limited amount of Bachelor Degrees offered through these institutions and their connection to the emerging industry targets in the region makes degree attainment at bachelor level and above in the target sectors more difficult for the adult and non-traditional learner. There are fewer mechanisms to support life-long learning and therefore provide a platform for adults who have Associate degrees, or some college, to continue their learning and advance within or enter into the target sectors.

Although there is a clear and heavily supported articulation policy within the state of North Carolina in the Community College System there are limited options for the adult learner to get back into college or on a degree path for a specialized degree that is compatible with their working conditions or that might require them to cross state lines in order to access specific content areas. Despite the policy framework that allows active transfer and articulation, many of the regional education institutions do not take advantage of this policy. At best, this is a missed opportunity for adults to take advantage of their prior college and experiential learning, for the institutions who would serve them and for the industries who would benefit from higher levels of educational attainment.

Prior Learning Assessment is a term used by educators to describe learning gained outside a traditional academic environment. Learning through work, employer training programs, military service, independent study, volunteer or community service, and open source courseware study are all examples of where knowledge may be acquired. PLA is the evaluation and assessment of an individual's life learning for college credit, certification, or advanced standing toward further education or training. PLA also serves as an incentive for individuals to enter into or re-enter college programs as PLA credits can reinforce the value of prior learning and earning PLA credits shortens the amount of time and reduce the costs of completing a degree.

Below is an overview of the prior learning assessment policies documented in each of the education institutions that we've profiled earlier in this section. The definition of each option for gaining credit for prior learning is outlined in conjunction with an aggregate comparison of available options at each institution.

Credit for Prior Learning Options

CLEP - The College Level Examination Program (CLEP) is a group of standardized tests that assess college-level knowledge in several subject areas.

DANTES/DSST - Defense Activity for Non-Traditional Education Support (DANTES) or now known as the Defense Subject Standardized Test (DSST) program. These are credit-by-examination tests designed to allow a student to demonstrate proficiency in an area of study normally taught at a college or university. This may also include credit recommendations provided based off of military experience and training record transcript submission.

Portfolio Development– The process of documenting prior learning through previous work or life experiences by an individual student.

Credit by Exam - Local tests offered by a college to verify learning achievement.

Advanced Placement (AP) - A series of tests developed by the College Board initially for AP High School courses, including 34 exams in 19 subject areas.

International Baccalaureate(IB) – Two-year educational program for students aged 16-19 that provides an internationally accepted qualification for entry into higher education and is recognized by universities worldwide.

Institution Review

- ***Barber-Scotia College:***
  Credit toward graduation can be awarded for scores of 50% or more on CLEP subject exams. AP credit awarded for scores of 3 or better on exams.

- ***Belmont Abbey College:***
  Credit awarded for scores above 3 (generally) on AP exams. IB credit and CLEP scores also assessed and accepted. Up to 30 credits can be awarded for any of these, and departments vary on minimum score and maximum credit requirements. "Credit by Competency Assessment/Challenge Examination," is available, where students can challenge courses through records, examinations on campus, or national Assessment/test scores, and/or certain projects.

- ***Brookstone College:***
  No prior learning assessment or credit bearing process outlined in college catalog.

- ***Cabarrus College of Health Sciences:***
  Scores of 4 or better on AP exams, 50 or better on CLEP exams, and a C or better on Regents exams are accepted for credit. Students can challenge any of the general required classes by taking an exam through the department, and must receive a C or better to earn credit (maximum of 15 credits). Option to apply for credit via "Experiential Learning" is available, which requires an application, portfolio, letters of recommendation, etc.

- ***Carolinas College of Health Sciences:***
  AP test scores and CLEP exam scores may be considered for credit. Challenge exams are assessed by department. No more than 75% of full credits required for graduation can come from transfer credits.

- ***Catawba College:***
  CLEP scores, IB Exam scores of 4 or better, and AP scores of 3 or better are assessed for credit/advanced placement.

- ***Catawba Valley Community College:***
  CLEP testing offered and accepted with minimum score and maximum credit requirements determined by department.

- ***Central Piedmont Community College:***
  CLEP scores are accepted with minimum score and maximum credit requirements varying by department. Military credit is granted by assessment of official military transcripts. Credit by exam is available.

- ***Cleveland Community College:***
  CLEP scores are accepted with minimum score and maximum credit requirements varying by department. Prior experiential learning credit can be granted; student must submit requested documents (explanatory letter, letter from employer, etc.) and these credits cannot exceed 20% of required credits for their degree. Credits from AP can be awarded depending on department. Credits for military training can be granted upon assessment.

- ***Clinton Junior College:***
  Awards credits for experience in the military based on the regulations outlined in Guide to the Evaluation of Education Experiences in the Armed Services, published by the American Council on Education.

- ***Davidson College:***
  AP credit is accepted for a few programs.

- ***DeVry University-North Carolina:***
  Credit can be granted for CLEP, AP and IB exams. Military experience can be assessed for credit via DANTES/DSST exam or evaluation based on ACE recommendations. They grant credit for professional certifications/training based on ACE recommendations.

- ***ECPI University:***
  Website does not indicate opportunities for prior learning credit.

- ***Everblue:***
  Website does not indicate opportunities for prior learning credit.

- ***Gardner-Webb University:***
  Offers portfolio development for PLA (based on info from accrediting agencies and organizations like CAEL). CLEP exam credit accepted based on recommendations by ACE. AP scores of 3 or better can be counted for credit. Military transcripts can be assessed for credit.

- ***Gaston College:***
  Students can request credits via subject exams – up to 18 credits. AP credits are granted for scores of 3 or better. Military experience assessed for credit using the Guide to the Evaluation of Education Experiences in the Armed Services. CLEP scores of 50 or better are assessed for credit.

- ***HVAC Career Services:***
  Website does not indicate opportunities for prior learning credit.

- ***ITT Technical Institute-Charlotte:***
  Website does not indicate opportunities for prior learning credit.

- ***Johnson & Wales University-Charlotte:***
  Maximum of 45 credits granted from prior learning. CLEP scores are assessed based on ACE recommendations. Students can develop a portfolio and review it with a counselor to submit for credit. They can also request a challenge exam.

- ***Johnson C Smith University:***
  AP scores of 3 or better and IB scores of 5 or better (or a minimum of 24 for the IB Diploma) are accepted for credit.

- ***King's College:***
  Per College Catalog: "Credit is not granted for advanced placement or experiential learning."

- ***Lenoir-Rhyne University:***
  Credit by exam with a grade of C or better can be granted up to 16 credits (8 within major) and is dependent upon department. AP scores of 3 or better can be given credit. CLEP scores of (generally) 50 or better are accepted for credit. IB scores of 4 or better for Higher Level exams and 5 or better for Standard Level exams are accepted; maximum of 30 credits awarded for students who earned their IB diploma, and by subject for those who didn't. Experiential learning opportunities available for credit, but evaluations are not made here (meaning they only accept experiential learning credits that have already been institutionally approved).

- ***Livingstone College:***
  "Satisfactory" scores on CLEP, AP, and IB exams can be granted credit.

- ***Mercy School of Nursing:***
  CLEP scores and AP scores of 3 or higher are accepted for credit. Challenge exams are available.

- ***Metrotek Learning:***
  Website does not indicate opportunities for prior learning credit.

- ***Mitchell Community College:***
  No prior learning assessment or credit bearing process outlined in college catalog.

- ***NASCAR Technical Institute:***
  Website does not indicate opportunities for prior learning credit.

- ***Northeastern Technical College:***
  Accept CLEP scores and AP scores for credit.

- ***OMITT Trade School:***
  Website does not indicate opportunities for prior learning credit.

- ***Pfeiffer University:***
  Accept Higher Level IB scores of 5 or better and AP scores of an acceptable level (minimum 3-4 depending on department) for credit. CLEP scores of an acceptable level (minimum 50-60 depending on department) are accepted. They grant 4 "activity credits" for military experience and evaluate additional credit opportunities via the Guide to the Evaluation of Education Experiences in the Armed Services. Students can request challenge exams for any course.

- ***Queens University of Charlotte:***
  Credits granted for AP scores of 4 or 5. Will grant 6 semester hours of elective credit in each area in which a student has achieved a score of 5, 6 or 7 in a higher level IB Exam. Adequate CLEP scores are counted. Students can have a maximum of 38 credits total in IB, AP, and/or CLEP credits.

- ***Rowan-Cabarrus Community College:***
  CLEP and AP scores can be submitted for credit. No more than 75% of credits toward graduation can come from any type of transfer credits.

- ***South Piedmont Community College:***
  AP scores are accepted, and CLEP scores as determined by ACE. Military transcripts are evaluated for credit. Credit by exam options are available for students who want to gain credit from experiential learning.

- ***Spartanburg Community College – Union County Advanced Technology Center:***
  Website does not indicate opportunities for prior learning credit.

- ***Stanly Community College:***
  Accept AP scores of 3 or better for credit. CLEP scores of 45-50 (depending on department) or better are accepted for credit. Credit by exam option is available for a maximum of 5 courses.

- ***Strayer University:***
  CLEP scores are evaluated for credit. Military students can have DSST scores evaluated for credit. Portfolio evaluation is available (based on CAEL). Challenge exam option available; students may not apply for a challenge exam when they have 18 credits or less remaining in their programs.

- ***TechSkills Charlotte:***
  Website does not indicate opportunities for prior learning credit.

- ***Truck Driving Institute:***
  Website does not indicate opportunities for prior learning credit.

- ***University of North Carolina at Charlotte:***
  CLEP and AP scores are accepted, with minimum score requirements varying by department. IB scores (normally) of 5 or better are accepted – up to 30 credits.

- ***University of Phoenix-Charlotte Campus:***
  Offer PLA credit for work experience through portfolio/essay development and evaluation. CLEP, AP, and DSST exam scores can be evaluated for credit. Also Excelsior College Exams, Berlitz Language Evaluations, and Defense Language Proficiency Tests are offered.

- ***University of South Carolina-Lancaster:***
  Accept up to 30 credits from military experience (via DANTES or other training). AP, IB and CLEP credit is also accepted for various courses.

- ***University of South Carolina-Union:***
  Accept up to 30 credits from military experience (via DANTES or other training). AP, IB and CLEP credit is also accepted for various courses.

- ***Wake Forest at Charlotte:***
  Website does not indicate opportunities for prior learning credit.

- ***Wingate University:***
  Up to 30 credits awarded for: Scores of 3 or better on AP exams, scores of 5 or better on IB HL exams, a score of 50 or better on CLEP exams.

- ***Winthrop University:***
  CLEP credit accepted.

- ***York Technical College:***
  AP and CLEP scores can be evaluated for credits. Military credits granted according to the Guide to the Evaluation of Education Experiences in the Armed Services.

Institution Type	Institution	Credit by Exam	CLEP	AP	IB	Military Credit	Portfolio
Private College	Barber-Scotia College		x	x			
Private College	Belmont Abbey College	x	x	x	x		
Private College	Brookstone College						
Private College	Cabarrus College of Health Sciences	x	x	x			x
Public College	Carolinas College of Health Sciences		x	x			
Private College	Catawba College		x	x	x		
Public College	Catawba Valley Community College		x				
Public College	Central Piedmont Community College	x	x			x	
Public College	Cleveland Community College	x	x	x		x	x
Private College	Clinton Junior College					x	
Private College	Davidson College			x			
For Profit	DeVry University-North Carolina	x	x	x	x	x	
For Profit	ECPI University						
For Profit	Everblue						
Private University	Gardner-Webb University		x	x		x	x
Public College	Gaston College	x	x	x		x	
For Profit	HVAC Career Services						
For Profit	ITT Technical Institute-Charlotte	x	x				x
Private University	Johnson & Wales University-Charlotte						
Private University	Johnson C Smith University			x	x		
For Profit	King's College	x	x	x	x		
Private University	Lenoir-Rhyne University		x	x	x		
Private College	Livingstone College		x	x	x		
For Profit	Mercy School of Nursing	x	x	x			
For Profit	Metrotek Learning						
Public College	Mitchell Community College						
For Profit	NASCAR Institute						
Public College	Northeastern Technical College		x	x			
For Profit	OMITT Trade School						

Institution Type	Institution	Credit by Exam	CLEP	AP	IB	Military Credit	Portfolio
Private University	Pfeiffer University	x	x	x	x	x	
Private University	Queens University of Charlotte		x	x	x		
Public College	Rowan-Cabarrus Community College		x	x			
Public College	South Piedmont Community College	x	x	x		x	
Public College	Spartanburg Community College – Union County Advanced Technology Center						
Public College	Stanly Community College	x	x	x			
For Profit	Strayer University						
For Profit	TechSkills Charlotte						
For Profit	Truck Driver Institute						
Public University	University of North Carolina at Charlotte		x	x	x		
For Profit	University of Phoenix-Charlotte Campus		x	x		x	x
Public University	University of South Carolina-Lancaster		x	x	x	x	
Public University	University of South Carolina-Union		x	x	x	x	
Private University	Wake Forest at Charlotte						
Private University	Wingate University						
Public University	Winthrop University		x				
Public College	York Technical College		x	x		x	

Section 4:

Summary Recommendations

Recommendation: Expand Target Sector Education and Training Alignment Programs

Energy Sector

- Grow Associate Level & above programs
- Create more program offerings in:
  - Bioproduction and Maintenance
  - Civil & Industrial Eng
  - Code Insp/Green Bld
  - CAD/CNC
  - Heating Sys.
  - Alternative Energy (Solar/Renewable/Lean Mfg.)
  - Instrumentation Technology

Financial Services Sector

- Engage the current workforce with some college and no degree into Financial Service pathways
- Create more program offerings in:
  - Analysis
  - Leadership
  - Int'. Business
  - Math/Stats
  - Technology Infrastructure
  - Regulatory/Law/Policy

Logistics Sector

- Create more program offerings in:
  - Supply Chain Management
  - Safety Tech.
  - Geographic Info Sys.
  - Logistics IT
  - General Logistics/Transportation Programs
  - International Business Programs
  - Logistics Specific Sustainability Programs

Advanced Manufacturing Competency

- Deliberate transition programs to higher skill development opportunities
- Create more program offerings in:
  - CAD/CNC
  - Drafting
  - Installation/Maint.
  - Industrial Safety
  - Lean Mfg
  - Survey Tech.

Engineering Competency

- Development of training programs to allow for quick "upskilling"
- Create Associate and below entry points into supportive sectors
- Create more Eng. program offerings in:
  - Bio-Process
  - Industry
  - Info Sys./Systems

Information Technology Competency

- Create more program offerings in:
  - Database Management
  - Digital Media
  - Geographic Information Systems
  - Mobile Apps
  - Project Management
  - Safety Tech.
  - Health IT
  - Logistics IT
  - Supply Chain Management IT

Aerospace Sector

- Expand aerospace specific learning, i.e. ***aerospace engineering*** and ***technology***
- Create more program offerings in:
  - Composites
  - Material Science
  - Aeronautics
  - Non-Destructive Exam Technology

Automotive Sector

- Develop more offerings at the Associate Degree level
- Create technologyprogram offerings in:
  - Auto Engineering
  - Fuel Systems
  - Power Train
  - Auto Engine Electrical System and Electronic Technology

Biomedical Sector

- Increase the Bachelor and above education programs beyond Biology and Chemistry
- Create technologyprogram offerings in:
  - General Biomedical
  - Biotechnology and Molecular Technology
  - Bioinformatics
  - Health Information Technology
  - Materials Chemistry
  - Nanoscale Science

Recommendation: Expand Target Sector and Competency Career Awareness and Connections

While educators supply target industry curricula, the region must also generate demand for target industry programs. Currently, limited career information linked to industry opportunities is available to the public. Understanding the number of career possibilities within an industry can be difficult for someone with little to no experience in the sector. Even those already employed in an industry may not fully recognize the array of options.

North and South Carolina K-12 school systems have various program tracks which align to the 16 career clusters as defined by the Department of Education. These pathways are clearly defined for the student; however, connection to real-world labor demand and career opportunities might not be as clear. Awareness of the opportunities in the region is key for the future workforce coming through the pipeline and those already employed, underemployed or dislocated. Using the key industry targets and competencies and associated employers as the focal point of career awareness mechanisms, the residents of the Greater Charlotte Region will be positioned to make informed decisions upon education and training pathways that lead to sustainable, in demand employment.

Create Career Awareness Portals

- Industry overviews
- Job families and job titles
- Descriptions of skills, credentials and degrees needed in the field
- Cross-walk of skills between industries
- Career pathways from entry to mid- to senior-level positions
- Education and training programs at all levels aligned with job families and specific jobs
- Job and internship postings

STEMersion2012

Expand STEMersion Program

- Replicate program in other school districts throughout the region.
- Develop STEMersions online lessons. This online portal (utilizing a youtube channel) will help scale the learning of the program beyond the teachers that are available for the retreat.
- Include Students - Middle School through High School students.
- Create STEM specific awareness materials with the parent as the main audience.

Conduct Business and Industry Open Houses

- Allow students, teachers, counselors, parents, career changers an opportunity to see business operations first hand.
- Provide businesses the platform to showcase their best practices or internship and pipeline models. For example, highlight Apprenticeship 2000 with face to face exposure.
- Create a "Day in the Life" overview of growing and in demand job opportunities for the target sector and competency careers.

Recommendation: Formalize Structures for Workforce System Partnerships across the Region

The recent development of a Memorandum of Understanding between the key players in the workforce system is a great advancement for the region and is indicative of movement towards a more cohesive structure and framework for partnership. To ensure that this is an effective agreement and one that fosters close collaboration, shared strategic planning, and leveraged resources, it will be important to revisit the structure of this model as the collaboration continues to grow and evolve within the workforce system.

Expanding the current Memorandum of Understanding between the various workforce boards, alliances, and partnerships can provide a platform that goes beyond agreements to pursue grant funding and include opportunities to leverage limited resources of the individual boards to benefit the needs of the broader group. This can include structure for committee creation particular to the target sectors, agreements for shared professional development opportunities and leveraged resources to obtain regionalized and uniform platforms for data collection and reporting.

Regionwide Detailed MOU

- Enhance current collaboration between the Workforce Systems and Alliances through a structured strategy and MOU.
- Create structure for shared resources, grant making opportunities and leveraged professional development opportunities.
- Develop strategic format for addressing regional needs and allocation of resources. For example, have target sector, business services subcommittees.

Shared Professional Development

- Use Target Industry and Competencies as the main focus on Regional Career Advising Training - help all workforce staff understand the needs of these targets.
- Regional Training:
  - Data usage
  - Client Assessment
  - Business/Education Outreach
- Create a forum for "islands of excellence" to be shared across the workforce areas in the region.

Leveraged Funding

- Share dollars across the region to obtain similar labor market information. Sharing the same source of data will help to foster stronger conversations with your clients, businesses and local elected officials on what the market is demanding.
- Pool public and private funding to secure technology needed across the region. For example, most engaged from the Workforce System indicated a need for a shared Customer Relationship Management System.

Recommendation: Strengthen Regional Collaboration and Target Industry Input

Armed with a comprehensive economic development strategy which incorporates the assets and strengths of the full Greater Charlotte Region, the key stakeholders - including but not limited to economic development, workforce development, education and industry - will need to actively focus efforts on collaboration using the target sectors and competencies as the driving force for shared impact and outcomes of localized strategies. Considering the overlap of competencies needed in the labor market across the target sectors, it will become increasingly important to have industry lead conversations on the up-skilling of the current and future workforce. Utilizing the targets as the nexus for collaboration will allow for a much richer and deeper conversation around how the workforce, economic development and educational systems can strategize efforts to support employer needs.

Target Sector Workforce Councils

♦ Strenthen and expand the regional workforce alliance, representative of all boards across the Greater Charlotte Region, to address sector/competency specific needs.

♦Convene around strategic planning and goal development and would evolve into a smaller sector, creating subcommittees to address tactical measures within each key sector across the region.

♦Evolve into a comprehensive group (led by the workforce system) including Economic Devvelopment, K-12, Higher Education and, industry associations.

Industry Skill Panels

♦Utilize employers to drive the skills need conversation.

♦Using the successful Allied Health Regional Skill Partnership model to scale impact for all target sectors.

♦Real-time employer feedback will help to inform the strategies developed through the workforce councils and provide input for tactical responses to sector and employer needs.

Targeted Virtual Career Centers

♦ Scale the SHARE Network and SNAP site Model, in an online capacity, to address sector career opportunities and job search assistance.

♦Online Assistant should provide:

- Career information on target sectors
- Career advice, guidance and supportive services
- Employer opportunity for information sessions and interview
- In-depth information on education and training opportunities for the target skill areas

Recommendation: Enhance Employer Engagement and Employer Services

Talent development stakeholders must understand employer needs and align resources appropriately to have an impact on regional perceptions of the current workforce skills gap and the system with which those skills are addressed. Employer participation in the task of raising workforce skills is critical to the success of a regional economy.

There are many efforts currently underway that can be brought to a larger and broader scale in the region to further benefit development of the workforce. Expanding employer-led panels and replicating the Allied Heath Regional Skill Partnership process across the target sectors, as mentioned above, are two ways to foster effective employer engagement strategies. Building on information gathered via the business survey conducted by the University of North Carolina at Charlotte is another opportunity to create a continuous mechanism for gathering employer information and keeping their needs at the forefront of workforce system programs. Additionally, by creating a platform to celebrate employer engagement "islands of excellence" across the region is another strategy to keep the employer community involved in the education and development of the workforce.

Streamline Employer and Business Services

- Replicate the UNCC business survey across the full Greater Charlotte region.
- Create a quarterly and more detailed version to help streamline employer needs across the region
- Utilize key themes from survey to develop a questionnaire for employers to determine which workforce system or education partner is best suited to address their needs/concerns

Celebrate Employer Engagement

- Institute a formal process by which companies compete for regional recognition and encourage healthy competition
- Highlight innovative business practices in areas of:
  - Investment in all levels of employee learning
  - Linking work-based learning to college credit
  - Employee degree attainment

Connect to the Younger Workforce

- Help to build the workforce pipeline through middle school and high school employer engagement
- Employer adopt-a-school with connection to the career clusters and program areas
- Industry consortiums working collaboratively with schools
- Leverage funding and resources to impact career and education pathway decisions from within the K-12 system

Recommendation: Increase Regional Opportunities for Credential Attainment

The region's future and current workforce would benefit from a mechanism and support system to further advance the community's overall level of degree attainment. If an individual does not have a high school diploma, take the steps necessary to obtain a GED. If an individual has industry experience and skills but no certification or degree, use the foundational industry knowledge to potentially fast-track degree/credential attainment through prior learning assessment. Incremental increases in degree attainment at individual campuses will be important, and broader increases across the institutions will result in wider impact. Formalization of this collaborative effort among academic leaders can provide a "megaphone" for education issues and the importance of post-secondary education, particular to the target sectors and competencies identified in this strategy, and serve as the leadership body for implementing education and lifelong learning initiatives.

Expand PLA Offerings

♦Develop policies at the institutional or systemwide level that will allow people with college level learning to document that learning and gain credit toward a credential.

♦Many colleges have limited or no policy documented for prior learning assessment (PLA). These policies can be expanded to offer the following:

- CLEP Testing
- Military Experience Credit (DSST Testing)
- Credit by Exam
- Portfolio Development

Improve Articulation Agreements

♦ Continue to develop and expand Dual Credit programs for high school students into target sector and competency education pathways.

♦Work across the state lines to ensure articulation of credit transfer among the 2 year and 4 year college systems.

Increase Target Sector Training Availability

♦ Create credit-bearing workforce training programs so credits can be articulated into a degree program.

♦Utilize industry-led skill panels to develop industry recognized certification programs.

♦Develop training on-site with employers to address the skills needs of the incumbent workforce.

♦ Create opportunities for training that go beyond the typical school hours.

Appendix:

- Detailed College Degree Trends
- Detailed Occupational Trends
- Regionally Accredited Colleges & Universities
- County Occupation Cluster Snapshots

Detailed College Degree Trends

Detailed College Degree Trends

Greater Charlotte Region

Degree Groups	Level	Degrees Conferred 2005	2006	2007	2008	2009	2010	2005-2010 Recent Growth Trend	Annual %
Agriculture									
Ag Business									
	Associate's	**31**	**27**	**21**	**23**	**25**	**29**		**-1.3%**
Ag Conservation									
	Bachelor's	**10**	**19**	**16**	**20**	**22**	**22**		**17.1%**
Architecture									
Arch. Services (Other)									
	Total	**82**	**81**	**69**	**105**	**98**	**100**		**4.0%**
	Bachelor's	70	71	57	88	74	71		0.3%
	Master's or higher	12	10	12	17	24	29		19.3%
Business, Finance, Economics									
Accounting									
	Total	**448**	**440**	**481**	**527**	**568**	**644**		**7.5%**
	Associate's	156	169	142	168	174	174		2.2%
	Bachelor's	220	209	251	259	298	349		9.7%
	Master's or higher	72	62	88	100	96	121		10.9%
Finance & Economics									
	Total	**306**	**351**	**333**	**334**	**370**	**365**		**3.6%**
	Associate's	6	1	3	2	1	1		-30.1%
	Bachelor's	289	342	319	329	351	352		4.0%
	Master's or higher	11	8	11	3	18	12		1.8%
General Business									
	Total	**222**	**213**	**280**	**208**	**210**	**251**		**2.5%**
	Associate's	152	140	213	140	143	194		5.0%
	Bachelor's	61	52	52	55	52	52		-3.1%
	Master's or higher	9	21	15	13	15	5		-11.1%

Detailed College Degree Trends

Greater Charlotte Region

Degree Groups	Level	Degrees Conferred 2005	2006	2007	2008	2009	2010	2005-2010 Recent Growth Trend	Annual %
Human Resources									
	Total	**20**	**22**	**7**	**12**	**30**	**23**		**2.8%**
	Associate's	11	12	4	4	9	3		-22.9%
	Master's or higher	9	10	3	8	21	20		17.3%
Management									
	Total	**1,894**	**2,043**	**2,062**	**2,130**	**2,284**	**2,245**		**3.5%**
	Associate's	264	327	310	312	327	297		2.4%
	Bachelor's	990	979	967	1,002	1,102	1,098		2.1%
	Master's or higher	690	822	864	888	925	939		6.4%
Marketing									
	Total	**214**	**242**	**232**	**292**	**265**	**306**		**7.4%**
	Associate's	25	44	45	49	42	41		10.4%
	Bachelor's	189	198	186	243	222	264		6.9%
	Master's or higher	-	-	1	-	1	1		n/a
Creative Arts and Design									
Arts Management									
	Total	**-**	**-**	**-**	**-**	**-**	**7**		**n/a**
	Bachelor's	-	-	-	-	-	2		n/a
	Master's or higher	-	-	-	-	-	5		n/a
Performing Arts									
	Total	**141**	**320**	**328**	**314**	**293**	**338**		**19.1%**
	Associate's		-	-	-	2	-		n/a
	Bachelor's	134	130	175	151	150	170		4.9%
	Master's or higher	7	10	7	7	13	3		-15.6%
Visual Arts									
	Total	**210**	**229**	**189**	**236**	**194**	**203**		**-0.7%**
	Associate's	-	-	-	-	2	-		n/a
	Bachelor's	210	222	187	230	189	203		-0.7%
	Master's or higher	-	7	2	6	3	-		n/a

Detailed College Degree Trends

Greater Charlotte Region

Degree Groups	Level	Degrees Conferred 2005	2006	2007	2008	2009	2010	2005-2010 Recent Growth Trend	Annual %
Visual/Graphic Design & Art									
	Total	**159**	**156**	**161**	**170**	**179**	**209**		**5.6%**
	Associate's	149	150	146	121	132	147		-0.3%
	Bachelor's	6	3	14	48	46	59		58.0%
	Master's or higher	4	3	1	1	1	3		-5.6%
Construction									
Carpentry									
	Associate's	**3**	**1**	**2**	**4**	**-**	**1**		**-19.7%**
Construction Management									
	Associate's	**-**	**-**	**1**	**2**	**9**	**15**		**96.8%**
Electrical/Mechanical & Machine Tools									
	Associate's	**51**	**32**	**35**	**35**	**30**	**43**		**-3.4%**
Education									
Administration/Leadership									
	Master's or higher	**187**	**234**	**195**	**209**	**187**	**235**		**4.7%**
Classroom Teaching									
	Total	**1,002**	**1,120**	**1,186**	**1,301**	**1,218**	**1,316**		**5.6%**
	Associate's	130	182	172	216	177	237		12.8%
	Bachelor's	585	629	664	712	694	709		3.9%
	Master's or higher	287	309	350	373	347	370		5.2%
General Operations									
	Total	**161**	**128**	**127**	**121**	**172**	**186**		**2.9%**
	Bachelor's	23	17	20	11	14	29		4.7%
	Master's or higher	138	111	107	110	158	157		2.6%
Engineering									
Aerospace									
	Bachelor's		**-**	**3**	**12**	**12**	**15**		**49.5%**

Detailed College Degree Trends

Greater Charlotte Region

Degree Groups	Level	Degrees Conferred 2005	2006	2007	2008	2009	2010	2005-2010 Recent Growth Trend	Annual %
Bio/Medical									
	Total	**359**	**332**	**371**	**348**	**349**	**334**		**-1.4%**
	Associate's	28	5	17	10	13	33		3.3%
	Bachelor's	314	305	336	326	319	281		-2.2%
	Master's or higher	17	22	18	12	17	20		3.3%
Chemical									
	Total	**57**	**76**	**77**	**72**	**78**	**85**		**8.3%**
	Bachelor's	50	60	68	67	70	77		9.0%
	Master's or higher	7	16	9	5	8	8		2.7%
Civil, Architectural, Structural									
	Total	**127**	**121**	**147**	**145**	**155**	**129**		**0.3%**
	Associate's	39	33	40	48	31	40		0.5%
	Bachelor's	80	76	97	81	110	79		-0.3%
	Master's or higher	8	12	10	16	14	10		4.6%
Computers and Electronics									
	Total	**291**	**214**	**247**	**250**	**260**	**321**		**2.0%**
	Associate's	117	86	82	76	123	150		5.1%
	Bachelor's	136	88	118	115	91	129		-1.1%
	Master's or higher	38	40	47	59	46	42		2.0%
General									
	Total	**6**	**8**	**7**	**5**	**6**	**5**		**-3.6%**
	Associate's	-	-	-	-	-	2		n/a
	Bachelor's	-	-	-	-	-	1		n/a
	Master's or higher	6	8	7	5	6	2		-19.7%
Geology, Nat. Resources, Petroleum, Ocean									
	Bachelor's	30	16	12	15	28	29		-0.7%
	Master's or higher	5	1	3	5	3	6		3.7%

Detailed College Degree Trends

Greater Charlotte Region

Degree Groups	Level	Degrees Conferred 2005	2006	2007	2008	2009	2010	2005-2010 Recent Growth Trend	Annual %
Manufacturing, Industrial, Tech., General									
	Total	**17**	**25**	**19**	**15**	**20**	**25**		**8.0%**
	Bachelor's						1		
	Master's or higher	11	15	8	8	9	11		0.0%
Physics, Mechanical, Nuclear									
	Total	**165**	**197**	**220**	**238**	**256**	**269**		**10.3%**
	Associate's	40	37	24	48	53	62		9.2%
	Master's or higher	37	43	25	26	29	42		2.6%
Family Development									
Family/Consumer Sciences									
	Total	**32**	**50**	**54**	**64**	**77**	**58**		**12.6%**
	Associate's	32	50	44	32	49	27		-3.3%
	Bachelor's			10	32	28	31		
Human Development, Phys. Ed., Nutrition									
	Total	**244**	**337**	**318**	**310**	**317**	**357**		**7.9%**
	Associate's	40	60	65	32	26	70		11.8%
	Bachelor's	188	259	233	266	267	252		6.0%
	Master's or higher	16	18	20	12	24	35		16.9%
Government, Social Work, Criminology									
Criminal Justice									
	Total	**314**	**342**	**339**	**356**	**372**	**394**		**4.6%**
	Associate's	111	120	112	121	137	152		6.5%
	Bachelor's	199	211	213	224	224	237		3.6%
	Master's or higher	4	11	14	11	11	5		4.6%
Fire Protection									
	Total	**45**	**48**	**49**	**52**	**68**	**59**		**5.6%**
	Associate's	36	37	37	37	34	29		-4.2%
	Bachelor's	9	11	12	15	34	30		27.2%

Detailed College Degree Trends

Greater Charlotte Region

Degree Groups	Level	Degrees Conferred 2005	2006	2007	2008	2009	2010	2005-2010 Recent Growth Trend	Annual %
Government Mgmt & Security									
	Bachelor's	**226**	**277**	**254**	**238**	**237**	**296**		**5.5%**
Social Work									
	Total	**344**	**374**	**393**	**405**	**441**	**455**		**5.8%**
	Associate's	7	18	4	19	18	-		n/a
	Bachelor's	292	301	331	302	321	342		3.2%
	Master's or higher	45	55	58	84	102	113		20.2%
Health Care									
Admin, Operations, Information									
	Total	**239**	**359**	**381**	**337**	**448**	**445**		**13.2%**
	Associate's	152	194	163	134	180	138		-1.9%
	Bachelor's	15	35	26	31	52	78		39.1%
	Master's or higher	72	130	192	172	216	229		26.0%
Aides, Assistants & Therapists									
	Total	**202**	**231**	**245**	**266**	**261**	**277**		**6.5%**
	Associate's	134	142	153	147	153	171		5.0%
	Bachelor's	65	84	79	96	72	85		5.5%
	Master's or higher	3	5	13	23	36	21		47.6%
Dentistry									
	Total	**40**	**52**	**56**	**63**	**56**	**48**		**3.7%**
	Associate's	37	50	55	62	52	46		4.5%
	Bachelor's	3	2	1	1	4	2		-7.8%
*Doctors**									
	Total	**-**	**-**	**-**	**-**	**-**	**-**		**n/a**
Equipment Technicians									
	Total	**158**	**159**	**183**	**197**	**195**	**236**		**8.4%**
	Associate's	156	156	182	197	191	217		6.8%
	Bachelor's	2	3	1		4	19		56.9%

Detailed College Degree Trends

Greater Charlotte Region

Degree Groups	Level	Degrees Conferred 2005	2006	2007	2008	2009	2010	2005-2010 Recent Growth Trend	Annual %
Nurses									
	Total	**806**	**951**	**995**	**1,099**	**1,242**	**1,238**		**9.0%**
	Associate's	507	635	683	706	828	752		8.2%
	Bachelor's	213	227	217	291	348	391		12.9%
	Master's or higher	86	89	95	102	66	95		2.0%
Other / Alternative									
	Associate's	**16**	**27**	**34**	**43**	**32**	**2**		**-34.0%**
Psychology									
	Total	**515**	**515**	**558**	**598**	**591**	**636**		**4.3%**
	Associate's	26	17	18	8	5	44		11.1%
	Bachelor's	452	481	506	540	540	546		3.9%
	Master's or higher	37	17	34	50	46	46		4.5%
Research									
	Master's or higher	**-**	**-**	**53**	**61**	**52**	**63**		**5.9%**
Legal									
Lawyers									
	Bachelor's	**11**	**4**	**10**	**6**	**6**	**4**		**-18.3%**
Legal Support									
	Associate's	**82**	**97**	**91**	**60**	**79**	**85**		**0.7%**
Mathematics									
General Mathematics									
	Total	**59**	**70**	**87**	**99**	**100**	**122**		**15.6%**
	Bachelor's	54	67	74	91	93	110		15.3%
	Master's or higher	5	3	13	8	7	12		19.1%
Statistics & Computational/Applied Math									
	Total	**8**	**5**	**5**	**8**	**11**	**8**		**0.0%**
	Bachelor's	-	-	-	4	6	4		n/a
	Master's or higher	8	5	5	4	5	4		-12.9%

Detailed College Degree Trends

Greater Charlotte Region

Degree Groups	Level	Degrees Conferred 2005	2006	2007	2008	2009	2010	2005-2010 Recent Growth Trend	Annual %
Media and Communications									
Advertising and Public Relations									
	Total	**39**	**34**	**40**	**48**	**41**	**56**		**7.5%**
	Bachelor's	39	34	40	48	41	40		0.5%
	Master's or higher	-	-	-	-	-	16		n/a
Design									
	Associate's	**8**	**6**	**4**	**5**	**6**	**5**		**-9.0%**
English, Literature, Writing, Speech									
	Total	**551**	**655**	**640**	**650**	**643**	**554**		**0.1%**
	Bachelor's	477	549	561	566	555	473		-0.2%
	Master's or higher	74	106	79	84	88	81		1.8%
Journalism									
	Bachelor's	**3**	**2**	**2**	**6**	**8**	**4**		**5.9%**
Radio, Television, Technology, Film									
	Total	**99**	**85**	**100**	**91**	**82**	**147**		**8.2%**
	Associate's	8	5	7	10	11	25		25.6%
	Bachelor's	91	80	93	81	71	122		6.0%
Liberal / Multicultural Studies									
History, Anthropology, General Liberal/Interdiscip									
	Total	**568**	**493**	**593**	**665**	**602**	**635**		**2.3%**
	Associate's	48	33	53	66	56	63		5.6%
	Bachelor's	491	435	498	548	497	505		0.6%
	Master's or higher	29	25	42	51	49	67		18.2%
Linguistics and Literature									
	Total	**1,278**	**1,485**	**1,480**	**1,373**	**1,669**	**1,958**		**8.9%**
	Associate's	1,102	1,288	1,295	1,171	1,450	1,738		9.5%
	Bachelor's	165	166	165	174	196	196		3.5%
	Master's or higher	11	31	20	28	23	24		16.9%

Detailed College Degree Trends

Greater Charlotte Region

Degree Groups	Level	Degrees Conferred 2005	2006	2007	2008	2009	2010	2005-2010 Recent Growth Trend	Annual %
Minority and Gender Studies									
	Bachelor's	**35**	**45**	**44**	**35**	**53**	**13**		**-18.0%**
Philosophy, Logic, & Ethics									
	Total	**37**	**21**	**27**	**26**	**24**	**34**		**-1.7%**
	Bachelor's	37	21	25	21	22	33		-2.3%
	Master's or higher	-	-	2	5	2	1		n/a
Religion									
	Total	**209**	**196**	**219**	**197**	**199**	**221**		**1.1%**
	Associate's	-	-	2	1	-	-		n/a
	Bachelor's	130	110	116	100	105	103		-4.5%
	Master's or higher	79	86	101	96	94	118		8.4%
Mechanics and Machine Repair									
Auto/Aero Repairs									
	Associate's	**36**	**53**	**82**	**59**	**43**	**72**		**14.9%**
General Repairs									
	Associate's	**20**	**39**	**26**	**49**	**51**	**55**		**22.4%**
Personal Services / Hospitality									
Cosmetology									
	Associate's	**3**	**7**	**7**	**5**	**3**	**6**		**14.9%**
Culinary									
	Total	**40**	**444**	**460**	**453**	**556**	**513**		**66.6%**
	Associate's	40	444	460	453	550	510		66.4%
	Bachelor's	-	-	-	-	6	3		n/a
Hospitality									
	Total	**15**	**70**	**263**	**287**	**273**	**227**		**72.2%**
	Associate's	15	70	93	59	75	43		23.4%
	Bachelor's	-	-	170	228	198	184		2.7%

Detailed College Degree Trends

Greater Charlotte Region

Degree Groups	Level	Degrees Conferred 2005	2006	2007	2008	2009	2010	2005-2010 Recent Growth Trend	Annual %
Software and Computer Sciences									
Data processing, general IT, word processing									
	Total	**487**	**439**	**403**	**371**	**402**	**384**		**-4.6%**
	Associate's	117	109	111	81	85	106		-2.0%
	Bachelor's	264	227	199	182	191	156		-10.0%
	Master's or higher	106	103	93	108	126	122		2.9%
Database technology									
	Associate's	**-**	**3**	**3**	**2**	**-**	**4**		**n/a**
Networking technologies									
	Total	**70**	**80**	**50**	**45**	**66**	**95**		**6.3%**
	Associate's	70	80	50	45	66	94		6.1%
	Master's or higher	-	-	-	-	-	1		n/a
Software Programming									
	Total	**135**	**107**	**106**	**54**	**89**	**79**		**-10.2%**
	Associate's	64	44	71	24	25	19		-21.6%
	Bachelor's	71	63	35	30	64	60		-3.3%
Web Design / Graphics / Infomatics									
	Total	**32**	**16**	**17**	**27**	**23**	**37**		**2.9%**
	Associate's	32	16	17	5	17	30		-1.3%
	Bachelor's	-	-	-	22	6	7		n/a
Transportation Professionals									
Transportation Mgmt/Other									
	Associate's	**-**	**-**	**3**	**4**	**6**	**9**		**44.2%**

Source: Avalanche Consulting using data from the IPEDS database, US Department of Education

Note: Annual average growth rate is a compounded rate.

*The creation of the UNC School of Medicine - Charlotte will create local output of medical doctor awards.

Detailed Occupational Trends

Detailed Occupational Trends

Greater Charlotte Region

Occupation Groups		Number of Workers						2012	2005-2012 Recent Growth		2012-2017 Forecast Growth	
Major	Minor	2007	2008	2009	2010	2011	2012	LQ	Trend	Annual %	Net New	Annual %
Agriculture												
	Total	**3,773**	**3,892**	**3,691**	**3,802**	**3,864**	**3,938**	**0.5**		**0.9%**	**296**	**1.5%**
	Farming	2,927	3,020	2,843	2,941	3,008	3,076	0.4		1.0%	257	1.6%
	Fishing	10	20	19	16	10	10	0.3		0.0%	0	0.0%
	Foresting	613	618	599	613	613	617	1.5		0.1%	32	1.0%
	Supervisors	223	234	230	232	233	235	0.6		1.1%	7	0.6%
Architecture												
	Total	**1,967**	**1,953**	**1,702**	**1,612**	**1,515**	**1,516**	**1.0**		**-5.1%**	**31**	**0.4%**
	Cartographers	154	154	148	157	154	157	1.4		0.4%	17	2.1%
	General	1,813	1,799	1,554	1,455	1,361	1,359	1.0		-5.6%	14	0.2%
Back Office / Administrative Support												
	Total	**175,336**	**174,488**	**164,059**	**163,836**	**164,319**	**167,334**	**1.0**		**-0.9%**	**14,695**	**1.7%**
	Buyers	3,017	3,041	2,826	2,774	2,830	2,840	0.8		-1.2%	171	1.2%
	Claims Agents	1,910	1,922	1,869	1,905	1,916	1,938	0.8		0.3%	137	1.4%
	Communications	1,356	1,351	1,268	1,231	1,204	1,207	0.9		-2.3%	-8	-0.1%
	Cost Estimators	3,477	3,462	3,185	3,130	3,149	3,222	0.8		-1.5%	482	2.8%
	Emergency Specialists	56	60	60	62	63	66	0.5		3.3%	14	3.9%
	Finances	31,340	31,256	29,133	28,954	28,999	29,621	1.0		-1.1%	2,899	1.9%
	Human Resources	8,430	8,510	8,088	8,307	8,451	8,662	1.1		0.5%	1,185	2.6%
	Information	51,040	50,815	48,770	48,979	49,127	50,385	1.1		-0.3%	5,317	2.0%
	Management	17,225	17,241	16,379	16,325	16,387	16,710	1.0		-0.6%	1,464	1.7%
	Office Administration	26,095	25,627	23,396	23,363	23,459	23,597	0.7		-2.0%	1,155	1.0%
	Real Estate	994	1,021	965	935	909	943	0.7		-1.0%	127	2.6%
	Secreteries	30,396	30,182	28,120	27,871	27,825	28,143	1.0		-1.5%	1,752	1.2%

Detailed Occupational Trends

Greater Charlotte Region

Occupation Groups		Number of Workers						2012	2005-2012 Recent Growth		2012-2017 Forecast Growth	
Major	Minor	2007	2008	2009	2010	2011	2012	LQ	Trend	Annual %	Net New	Annual %
Business												
	Total	**34,192**	**34,392**	**32,279**	**31,959**	**31,750**	**32,246**	**1.0**		**-1.2%**	**2,407**	**1.5%**
	Business Management	20,239	19,978	18,286	17,828	17,602	17,647	1.1		-2.7%	514	0.6%
	Business Research	13,953	14,414	13,993	14,131	14,148	14,599	0.9		0.9%	1,893	2.5%
Communications												
	Total	**3,963**	**3,991**	**3,687**	**3,714**	**3,743**	**3,787**	**0.7**		**-0.9%**	**312**	**1.6%**
	Advertising & PR	3,528	3,586	3,323	3,359	3,369	3,421	0.7		-0.6%	310	1.8%
	Journalism & Media	435	405	364	355	374	366	0.9		-3.4%	2	0.1%
Computer												
	Total	**31,310**	**32,034**	**30,896**	**31,364**	**31,680**	**32,307**	**0.9**		**0.6%**	**3,087**	**1.8%**
	Computer Hardware	2,605	2,646	2,484	2,461	2,428	2,425	0.5		-1.4%	66	0.5%
	Computer Software	19,024	19,424	18,726	19,014	19,175	19,554	1.0		0.6%	1,828	1.8%
	Computer Support	9,681	9,964	9,686	9,889	10,077	10,328	0.9		1.3%	1,193	2.2%
Construction												
	Total	**63,113**	**59,367**	**48,888**	**45,002**	**44,684**	**45,099**	**1.0**		**-6.5%**	**5,359**	**2.3%**
	Management	3,079	2,902	2,454	2,293	2,258	2,272	1.4		-5.9%	257	2.2%
	Supervisors	7,850	7,607	6,691	6,343	6,270	6,329	1.5		-4.2%	606	1.8%
	Trade Workers	52,184	48,858	39,743	36,366	36,156	36,498	0.9		-6.9%	4,496	2.4%
Design												
	Total	**5,865**	**5,873**	**5,443**	**5,400**	**5,413**	**5,467**	**0.8**		**-1.4%**	**306**	**1.1%**
	Artistic	212	229	165	163	158	157	0.4		-5.8%	3	0.4%
	Digital Media	1,680	1,716	1,623	1,635	1,644	1,673	0.8		-0.1%	114	1.3%
	Fashion & Photography	3,973	3,928	3,655	3,602	3,611	3,637	0.9		-1.8%	189	1.0%

Detailed Occupational Trends

Greater Charlotte Region

Occupation Groups		Number of Workers						2012	2005-2012 Recent Growth		2012-2017 Forecast Growth	
Major	Minor	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**LQ**	**Trend**	**Annual %**	**Net New**	**Annual %**
Education												
	Total	**64,920**	**67,404**	**67,178**	**67,547**	**65,020**	**66,641**	**0.9**		**0.5%**	**7,015**	**2.0%**
	Administration	3,381	3,504	3,494	3,509	3,392	3,471	1.0		0.5%	289	1.6%
	General	21,546	22,420	22,626	22,664	21,568	22,190	1.0		0.6%	2,777	2.4%
	Library	2,366	2,487	2,447	2,443	2,382	2,443	1.0		0.6%	236	1.9%
	Miscellaneous	15,510	16,109	15,757	15,782	15,121	15,502	0.8		0.0%	1,699	2.1%
	Secondary, Vocational	18,139	18,738	18,670	18,934	18,531	18,892	0.9		0.8%	1,474	1.5%
	Special Education	3,978	4,146	4,184	4,215	4,026	4,143	1.1		0.8%	540	2.5%
Engineering												
	Total	**17,018**	**17,225**	**16,001**	**16,041**	**16,002**	**16,133**	**0.7**		**-1.1%**	**1,088**	**1.3%**
	Aerospace	170	169	163	168	170	174	0.2		0.5%	13	1.5%
	Biology	14	16	16	19	22	24	0.2		11.4%	8	5.9%
	Bioag	197	213	211	217	219	224	0.4		2.6%	18	1.6%
	Biochem	1,763	1,751	1,668	1,666	1,684	1,655	0.5		-1.3%	12	0.1%
	Biogeo	131	139	134	139	140	142	0.4		1.6%	11	1.5%
	Biomedical	209	224	247	258	276	290	0.3		6.8%	59	3.8%
	Civil & Construction	3,244	3,298	2,964	2,940	2,831	2,894	0.8		-2.3%	255	1.7%
	Geology & Nat. Resources	2,267	2,295	2,138	2,163	2,136	2,203	0.7		-0.6%	295	2.5%
	Industrial	7,439	7,507	6,960	7,003	7,056	7,070	0.9		-1.0%	401	1.1%
	Management	1,584	1,613	1,500	1,468	1,468	1,457	0.8		-1.7%	16	0.2%

Detailed Occupational Trends

Greater Charlotte Region

Occupation Groups		Number of Workers						2012	2005-2012 Recent Growth		2012-2017 Forecast Growth	
Major	Minor	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**LQ**	**Trend**	**Annual %**	**Net New**	**Annual %**
Finance												
	Total	**46,275**	**45,999**	**43,682**	**43,452**	**43,815**	**44,928**	**1.4**		**-0.6%**	**5,061**	**2.2%**
	Financial Accountants	9,034	9,171	8,681	8,678	8,829	9,065	1.0		0.1%	1,111	2.3%
	Analysts	8,058	8,128	7,813	7,928	8,115	8,440	1.6		0.9%	1,442	3.2%
	Finance / Loans	5,344	4,983	4,741	4,830	4,840	5,009	1.9		-1.3%	675	2.6%
	Management	8,679	8,679	8,306	8,156	8,164	8,284	2.0		-0.9%	585	1.4%
	Miscellaneous	4,500	4,530	4,384	4,321	4,336	4,388	3.4		-0.5%	259	1.2%
	Real Estate	656	669	655	655	640	660	1.2		0.1%	82	2.4%
	Sales & Marketing	9,124	8,968	8,232	7,974	8,008	8,172	1.3		-2.2%	839	2.0%
	Tax	880	871	870	910	883	910	0.8		0.7%	68	1.5%
Geology												
	Total	**366**	**347**	**293**	**279**	**259**	**259**	**0.1**		**-6.7%**	**10**	**0.8%**
	Extraction	366	347	293	279	259	259	0.1		-6.7%	10	0.8%
Hospitality												
	Total	**138,081**	**140,043**	**135,158**	**134,704**	**137,483**	**141,249**	**1.0**		**0.5%**	**13,547**	**1.8%**
	Entertainment	8,366	8,563	8,401	8,482	8,311	8,570	0.9		0.5%	1,013	2.3%
	Food & Culinary	94,356	95,561	93,096	92,758	96,830	99,616	1.0		1.1%	9,522	1.8%
	Hotels & Conventions	35,359	35,919	33,661	33,464	32,342	33,063	0.8		-1.3%	3,012	1.8%
Legal												
	Total	**7,252**	**7,277**	**6,975**	**6,927**	**7,018**	**7,162**	**0.7**		**-0.2%**	**622**	**1.7%**
	Judges	247	246	242	231	225	224	0.6		-1.9%	-4	-0.4%
	Law	3,434	3,426	3,207	3,169	3,210	3,264	0.7		-1.0%	214	1.3%
	Suport	3,571	3,605	3,526	3,527	3,583	3,674	0.7		0.6%	412	2.1%

Detailed Occupational Trends

Greater Charlotte Region

Occupation Groups		Number of Workers							2005-2012 Recent Growth		2012-2017 Forecast Growth	
Major	Minor	2007	2008	2009	2010	2011	2012	2012 LQ	Trend	Annual %	Net New	Annual %
Logistics / Transportation												
	Total	**130,476**	**127,467**	**116,946**	**115,868**	**116,347**	**116,679**	**1.1**		**-2.2%**	**6,243**	**1.0%**
	Air Transportation	1,517	1,580	1,557	1,595	1,630	1,667	1.2		1.9%	235	2.7%
	First Line	5,186	5,078	4,623	4,516	4,491	4,472	1.4		-2.9%	112	0.5%
	Ground Transportation	40,784	39,714	36,381	35,786	35,632	36,020	1.1		-2.5%	3,122	1.7%
	Materials	1,486	1,474	1,435	1,451	1,450	1,487	1.0		0.0%	197	2.5%
	Management	1,084	1,064	986	966	951	946	1.2		-2.7%	2	0.0%
	Miscellaneous	51,412	49,902	45,016	44,924	45,212	45,078	1.3		-2.6%	1,603	0.7%
	Shipping	27,617	27,311	25,694	25,352	25,682	25,704	1.1		-1.4%	888	0.7%
	Traffic Control	1,330	1,285	1,182	1,213	1,248	1,250	0.6		-1.2%	64	1.0%
	Water Transportation	60	59	72	65	51	55	0.1		-1.7%	20	6.4%
Math												
	Total	**742**	**771**	**748**	**770**	**793**	**815**	**0.9**		**1.9%**	**99**	**2.3%**
	Actuaries	195	195	187	194	197	200	1.3		0.5%	18	1.7%
	General	10	10	5	5	5	5	0.1		-12.9%	0	0.0%
	Research Analysts	501	526	514	530	549	567	1.0		2.5%	76	2.5%
	Statistics	36	40	42	41	42	43	0.2		3.6%	5	2.2%
Mechanics												
	Total	**53,390**	**52,705**	**48,746**	**47,838**	**47,980**	**48,281**	**1.1**		**-2.0%**	**3,539**	**1.4%**
	Aerospace	1,281	1,269	1,162	1,234	1,279	1,278	1.1		0.0%	58	0.9%
	Automotive	14,981	14,654	13,242	13,184	13,246	13,398	1.2		-2.2%	1,020	1.5%
	Computer	6,108	6,111	5,921	5,787	5,754	5,798	1.3		-1.0%	409	1.4%
	Equipment	515	509	511	503	512	514	1.0		0.0%	40	1.5%
	Industrial	21,904	21,688	20,108	19,534	19,610	19,705	1.0		-2.1%	1,609	1.6%
	Maintenance	3,302	3,251	2,925	2,833	2,860	2,870	1.0		-2.8%	187	1.3%
	Supervisors	5,299	5,223	4,877	4,763	4,719	4,718	1.3		-2.3%	216	0.9%

Detailed Occupational Trends

Greater Charlotte Region

Occupation Groups		Number of Workers						2012	2005-2012 Recent Growth		2012-2017 Forecast Growth	
Major	Minor	2007	2008	2009	2010	2011	2012	LQ	Trend	Annual %	Net New	Annual %
Medical												
	Total	**89,496**	**90,983**	**92,839**	**93,554**	**94,736**	**99,054**	**0.8**		**2.1%**	**17,109**	**3.2%**
	Doctors	4,992	5,056	5,282	5,403	5,578	5,909	0.9		3.4%	1,290	4.0%
	Nurses & Therapists	55,305	56,689	58,189	58,332	58,904	61,727	0.9		2.2%	11,309	3.4%
	Medical Operations	5,723	5,767	5,845	5,862	5,961	6,192	0.7		1.6%	859	2.6%
	Psychologists	764	781	764	770	755	782	0.7		0.5%	116	2.8%
	Medical Technicians	22,712	22,690	22,759	23,187	23,538	24,444	0.9		1.5%	3,535	2.7%
Manufacturing Operations												
	Total	**3,082**	**3,016**	**2,848**	**2,812**	**2,794**	**2,708**	**0.9**		**-2.6%**	**-99**	**-0.7%**
	Chemical Processing	650	583	530	510	499	455	1.2		-6.9%	-101	-4.9%
	Plant Workers	2,432	2,433	2,318	2,302	2,295	2,253	0.9		-1.5%	2	0.0%
Military												
	Total	**7,273**	**7,510**	**7,507**	**7,557**	**7,206**	**7,220**	**0.4**		**-0.1%**	**40**	**0.1%**
	Military	7,273	7,510	7,507	7,557	7,206	7,220	0.4		-0.1%	40	0.1%
Sales and Marketing												
	Total	**8,649**	**8,888**	**8,448**	**8,432**	**8,484**	**8,657**	**1.0**		**0.0%**	**855**	**1.9%**
	Sales	8,649	8,888	8,448	8,432	8,484	8,657	1.0		0.0%	855	1.9%
Performance												
	Total	**3,220**	**3,344**	**3,252**	**3,290**	**3,302**	**3,426**	**0.8**		**1.2%**	**512**	**2.8%**
	Athletic Agents	82	83	86	96	101	108	0.9		5.7%	38	6.2%
	Athletes	1,879	1,964	1,877	1,860	1,805	1,896	1.0		0.2%	326	3.2%
	Entertainment	866	917	916	937	953	986	0.5		2.6%	170	3.2%
	Media	393	380	373	397	443	436	1.3		2.1%	-22	-1.0%

Detailed Occupational Trends

Greater Charlotte Region

Occupation Groups		Number of Workers						2012	2005-2012 Recent Growth		2012-2017 Forecast Growth	
Major	Minor	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**LQ**	**Trend**	**Annual %**	**Net New**	**Annual %**
Politics												
	Total	**578**	**595**	**573**	**588**	**582**	**605**	**0.6**		**0.9%**	**99**	**3.1%**
	Planners	407	418	397	404	397	416	1.3		0.4%	83	3.7%
	Research	72	75	77	79	79	80	0.4		2.1%	5	1.2%
	Sociologists	14	15	14	15	14	15	0.4		1.4%	2	2.5%
	Social Studies	85	87	85	90	92	94	0.2		2.0%	9	1.8%
Production												
	Total	**125,212**	**119,712**	**101,807**	**99,181**	**100,591**	**96,235**	**1.4**		**-5.1%**	**-4,858**	**-1.0%**
	Assembly	35,106	34,176	29,865	29,277	29,878	28,882	1.4		-3.8%	-647	-0.5%
	Production / Food	4,720	4,816	4,561	4,567	4,613	4,587	0.8		-0.6%	-22	-0.1%
	Industrial	1,796	1,748	1,525	1,463	1,457	1,389	1.2		-5.0%	-77	-1.1%
	Inspection	5,963	5,746	5,023	4,967	5,043	4,859	1.3		-4.0%	-174	-0.7%
	Machinery	24,426	23,611	19,832	19,178	19,888	19,253	1.2		-4.6%	-611	-0.6%
	Miscellaneous	10,889	10,476	8,760	8,741	9,071	8,786	1.2		-4.2%	-212	-0.5%
	Paint	2,895	2,815	2,380	2,316	2,356	2,276	1.7		-4.7%	-64	-0.6%
	Photography	1,420	1,350	1,237	1,206	1,183	1,138	1.0		-4.3%	-122	-2.2%
	Printing	3,017	2,860	2,485	2,429	2,383	2,296	0.9		-5.3%	-52	-0.5%
	Supervisors	9,375	9,023	7,851	7,558	7,617	7,332	1.5		-4.8%	-316	-0.9%
	Textiles	19,358	17,294	13,715	13,184	12,893	11,500	2.4		-9.9%	-2,075	-3.9%
	Lumber and Wood	6,247	5,797	4,573	4,295	4,209	3,937	2.2		-8.8%	-486	-2.6%
Personal Services												
	Total	**127,982**	**127,681**	**120,698**	**118,926**	**119,752**	**121,352**	**1.1**		**-1.1%**	**8,178**	**1.3%**
	Appearance	2,811	2,906	2,815	2,761	2,794	2,917	0.8		0.7%	461	3.0%
	Child	4,814	4,935	4,618	4,606	4,426	4,523	0.7		-1.2%	396	1.7%
	Funeral Services	433	479	500	655	760	869	1.1		14.9%	406	8.0%
	Miscellaneous	950	975	984	930	896	939	0.8		-0.2%	144	2.9%
	Retail Sales	118,974	118,386	111,781	109,974	110,876	112,104	1.1		-1.2%	6,771	1.2%

Detailed Occupational Trends

Greater Charlotte Region

Occupation Groups		Number of Workers						2012	2005-2012 Recent Growth		2012-2017 Forecast Growth	
Major	Minor	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**LQ**	**Trend**	**Annual %**	**Net New**	**Annual %**
Social Service												
	Total	**48,550**	**49,599**	**49,117**	**50,243**	**48,981**	**50,590**	**1.0**		**0.8%**	**6,691**	**2.5%**
	Community	9,067	9,207	9,140	9,093	8,995	9,423	0.9		0.8%	1,621	3.2%
	Counselors	3,997	4,081	4,070	4,015	3,977	4,139	0.8		0.7%	616	2.8%
	Dispatcher	2,518	2,474	2,321	2,324	2,281	2,310	1.0		-1.7%	174	1.5%
	Management	727	745	696	692	674	689	0.4		-1.1%	48	1.4%
	Miscellaneous	365	357	320	314	314	315	0.9		-2.9%	9	0.6%
	Protection	26,882	27,666	27,717	29,170	28,123	29,059	1.1		1.6%	4,020	2.6%
	Religion	206	211	197	201	206	215	0.4		0.9%	41	3.6%
	Postal	4,788	4,858	4,656	4,434	4,411	4,440	1.1		-1.5%	162	0.7%

Source: Avalanche Consulting using data from EMSI

Note: Annual average growth rate is a compounded rate.

Regionally Accredited Colleges & Universities

Regionally Accredited
Colleges & Universities
Greater Charlotte Region

		Programs Related toTarget Industries & Competencies								
	Degrees Levels Offered	Automotive	Logistics	Biomedical	Financial	Energy	Aerospace	Advanced Manufacturing	Engineering	Information Technology
Barber-Socita College	B				◆					
Belmont Abbey College	B			◆	◆					◆
Brookstone College	C			◆	◆					◆
Cabarrus College of Health Sciences	C,A,B			◆						
Carolina School of Broadcast Training	C									
Carolinas College of Health Sciences	C,A			◆						
Catawba College	B,M			◆	◆				◆	◆
Catawba Valley Community College	C,A	◆	◆	◆	◆	◆	◆	◆	◆	◆
Central Piedmont Community College	C,A	◆	◆	◆	◆	◆	◆	◆	◆	◆
Cleveland Community College	C,A	◆		◆	◆	◆	◆	◆	◆	◆
Clinton Junior College	C,A			◆	◆				◆	
Davidson College	B			◆	◆				◆	
DeVry University-North Carolina	A,B,M				◆				◆	◆
Gardner-Webb University	B,M			◆	◆				◆	◆
Gaston College	C,A	◆	◆	◆	◆	◆	◆	◆	◆	◆
Hood Theological Seminary	B,M,P									
ITT Technical Institute-Charlotte	A,B,M	◆			◆	◆	◆	◆	◆	◆
Johnson & Wales University-Charlotte	A,B				◆					
Johnson C Smith University	B			◆	◆	◆		◆	◆	◆
King's College	C,A			◆	◆					◆
Lenoir-Rhyne University	B,M	◆		◆	◆	◆	◆	◆	◆	◆
Livingstone College	B,M			◆	◆	◆		◆	◆	◆
Mercy School of Nursing	C,A			◆						
Mitchell Community College	C,A	◆		◆	◆	◆	◆	◆	◆	◆
NASCAR Technical Institute	C,A	◆								
NC Center for Applied Textile Technology	C,A				◆			◆	◆	
Northeastern Technical College	C,A	◆		◆	◆	◆	◆	◆	◆	◆
Pfeiffer University	B,M			◆	◆	◆			◆	◆
Queens University of Charlotte	B,M			◆	◆				◆	◆
Rowan-Cabarrus Community College	C,A	◆		◆	◆	◆	◆	◆	◆	◆
South Piedmont Community College	C,A	◆		◆	◆	◆	◆	◆	◆	◆
Stanly Community College	C,A	◆		◆	◆	◆	◆	◆	◆	◆
TechSkills-Charlotte	C,A			◆	◆				◆	◆
The Art Institute of Charlotte	C,A,B			◆	◆					◆
University of North Carolina at Charlotte	B,M	◆		◆	◆	◆	◆	◆	◆	◆
University of Phoenix-Charlotte Campus	B,M			◆	◆					◆
University of South Carolina-Lancaster	C,A			◆	◆					
Wake Forest University MBA - Charlotte	M				◆					
Wingate University	B,M			◆	◆				◆	◆
Winthrop University	B			◆	◆	◆			◆	◆
York Technical College	C,A	◆		◆	◆	◆	◆	◆	◆	◆

C=Certificate, A=Associate, B=Bachelor, M=Master, P=Doctoral

County Occupation Cluster Snapshots

Occupation Clusters

Greater Charlotte Region

The Greater Charlotte Region's three **largest clusters** by employment size are Back Office/Admin Support (167,000 employees), Hospitality (141,000), and Personal Services (121,000).

The region's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (11% growth, 9,600 new jobs), Hospitality (2%, 3,200), and Social Service (4%, 2,000).

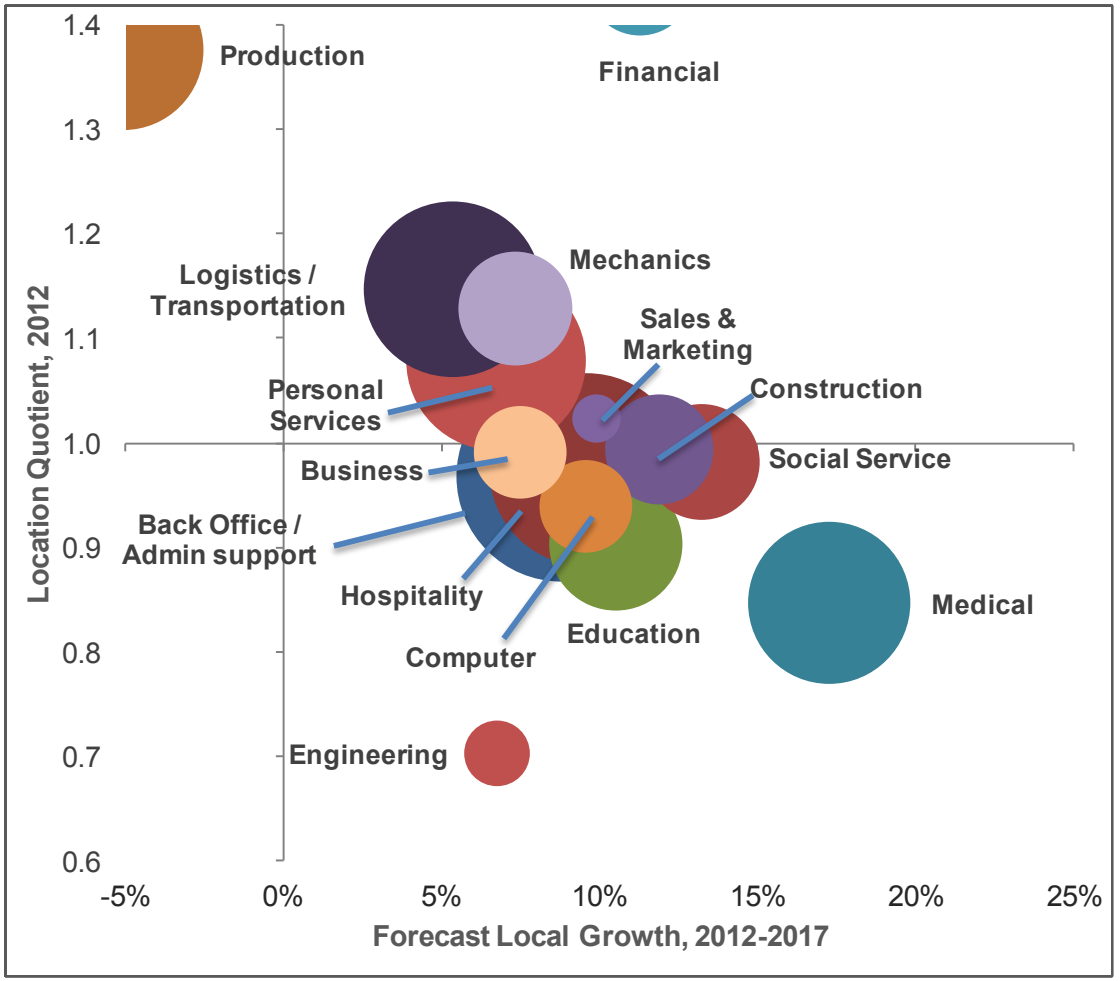
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Medical (17% forecast growth), Political (16%), and Performance (15%). *[Note: Forecasts from EconomicModeling.com]*

The region's **clusters with the highest concentration** (highest Location Quotient) are Financial (LQ=1.4), Logistics/Transportation (1.2), and Mechanics (1.1). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Math, Medical, and Political.

Declining clusters of the past 5 years include Production, which employs 96,000 workers, has an LQ of 1, and lost 23% of its employment base (29,000 jobs) in the last five years. Construction employs 45,100, LQ=1, and lost 29% (18,000 jobs). Logistics employs117,000, LQ=1, and lost 11% (13,800 jobs).

Occupation Clusters: Greater Charlotte



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Greater Charlotte Region

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	3,938	0.46	4.4%	165	296	7.5%	4.3%
Architecture	1,516	1.00	-22.9%	(451)	31	2.0%	4.4%
Back Office / Admin support	167,334	0.97	-4.6%	(8,002)	14,695	8.8%	4.1%
Business	32,246	0.99	-5.7%	(1,946)	2,407	7.5%	3.6%
Communications	3,787	0.70	-4.4%	(176)	312	8.2%	6.6%
Computer	32,307	0.94	3.2%	997	3,087	9.6%	7.7%
Construction	45,099	0.99	-28.5%	(18,014)	5,359	11.9%	5.8%
Design	5,467	0.80	-6.8%	(398)	306	5.6%	4.3%
Education	66,641	0.90	2.7%	1,721	7,015	10.5%	7.1%
Engineering	16,133	0.70	-5.2%	(885)	1,088	6.7%	5.5%
Financial	44,928	1.44	-2.9%	(1,347)	5,061	11.3%	6.8%
Geology	259	0.12	-29.2%	(107)	10	3.9%	2.5%
Hospitality	141,249	0.97	2.3%	3,168	13,547	9.6%	5.7%
Legal	7,162	0.70	-1.2%	(90)	622	8.7%	5.9%
Logistics / Transportation	116,679	1.15	-10.6%	(13,797)	6,243	5.4%	2.5%
Math	815	0.86	9.8%	73	99	12.1%	8.1%
Mechanics	48,281	1.13	-9.6%	(5,109)	3,539	7.3%	4.0%
Medical	99,054	0.85	10.7%	9,558	17,109	17.3%	12.2%
Manufacturing	2,708	0.90	-12.1%	(374)	(99)	-3.7%	3.3%
Military	7,220	0.41	-0.7%	(53)	40	0.6%	0.8%
Sales & Marketing	8,657	1.02	0.1%	8	855	9.9%	2.5%
Performance	3,426	0.81	6.4%	206	512	14.9%	8.6%
Political	605	0.64	4.7%	27	99	16.4%	8.0%
Production	96,235	1.38	-23.1%	(28,977)	(4,858)	-5.0%	-1.6%
Personal Services	121,352	1.08	-5.2%	(6,630)	8,178	6.7%	3.9%
Social Service	50,590	0.98	4.2%	2,040	6,691	13.2%	7.1%
All Occupations	1,123,206	1.00	-5.7%	(68,238)	92,289	8.2%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Centralina Region

The Centralina Region's three **largest clusters** by employment size are Back Office/Admin Support (136,000 employees), Hospitality (114,000), and Personal Services (96,000).

The region's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (12% growth, 8,400 new jobs), Education (5%, 2,200), and Social Service (5%, 1,900).

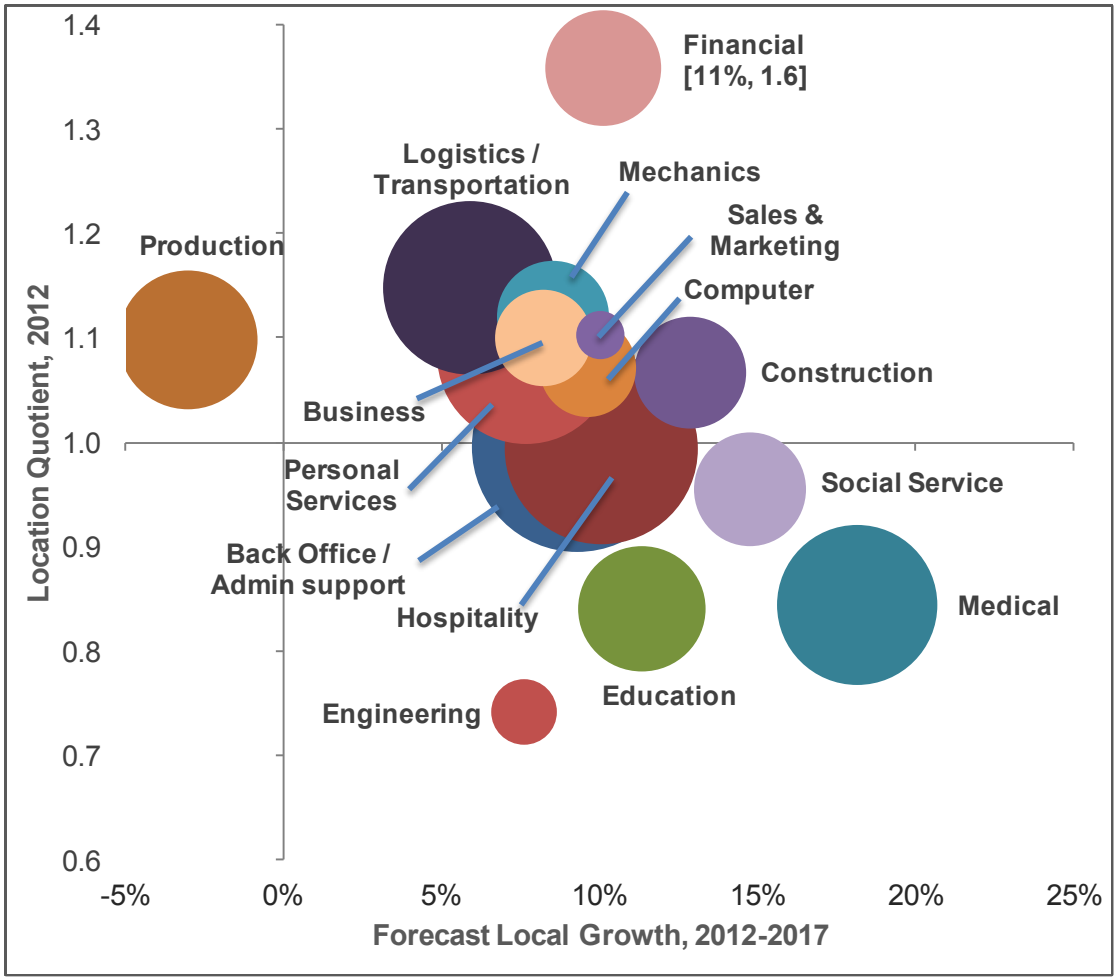
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Medical (18% forecast growth), Political (16%), and Performance (15%). *[Note: Forecasts from EconomicModeling.com]*

The region's **clusters with the highest concentration** (highest Location Quotient) are Financial (LQ=1.6), Logistics/Transportation (1.2), and Mechanics (1.1). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Education, Agriculture, and Political.

Declining clusters of the past 5 years include Production, which employs 61,000 workers, has an LQ of 1, and lost 22% of its employment base (17,100 jobs) in the last five years. Construction employs 38,000, LQ=1, and lost 29% (15,600 jobs). Logistics employs 92,000, LQ=1, and lost 11% (11,200 jobs), but is forecasted to rebound in the next five years.

Occupation Clusters: Centralina Region



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Centralina Region

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	2,700	0.40	-1.1%	(30)	328	12.1%	4.3%
Architecture	1,281	1.07	-26.0%	(449)	14	1.1%	4.4%
Back Office / Admin support	135,892	1.00	-4.6%	(6,481)	12,629	9.3%	4.1%
Business	28,226	1.10	-5.1%	(1,508)	2,319	8.2%	3.6%
Communications	3,444	0.81	-4.3%	(155)	286	8.3%	6.6%
Computer	29,092	1.07	2.9%	816	2,804	9.6%	7.7%
Construction	38,224	1.07	-28.9%	(15,557)	4,913	12.9%	5.8%
Design	4,647	0.86	-6.7%	(332)	251	5.4%	4.3%
Education	48,945	0.84	4.7%	2,209	5,547	11.3%	7.1%
Engineering	13,426	0.74	-4.1%	(572)	1,024	7.6%	5.5%
Financial	39,714	1.62	-3.6%	(1,471)	4,243	10.7%	6.8%
Geology	217	0.12	-29.3%	(90)	7	3.2%	2.5%
Hospitality	113,778	0.99	4.1%	4,438	11,455	10.1%	5.7%
Legal	5,910	0.73	-1.1%	(68)	544	9.2%	5.9%
Logistics / Transportation	92,243	1.15	-10.8%	(11,164)	5,463	5.9%	2.5%
Math	647	0.87	8.2%	49	78	12.1%	8.1%
Mechanics	37,804	1.12	-9.2%	(3,838)	3,219	8.5%	4.0%
Medical	78,036	0.84	12.0%	8,368	14,154	18.1%	12.2%
Manufacturing	1,617	0.68	-12.3%	(226)	(40)	-2.5%	3.3%
Military	4,788	0.35	-2.5%	(121)	26	0.5%	0.8%
Sales & Marketing	7,367	1.10	-1.9%	(143)	737	10.0%	2.5%
Performance	2,955	0.88	7.2%	198	455	15.4%	8.6%
Political	540	0.73	3.3%	17	88	16.3%	8.0%
Production	60,596	1.10	-22.0%	(17,105)	(1,830)	-3.0%	-1.6%
Personal Services	96,172	1.08	-6.1%	(6,231)	7,396	7.7%	3.9%
Social Service	38,872	0.95	5.1%	1,900	5,739	14.8%	7.1%
All Occupations	886,699	1.00	-5.1%	(47,463)	81,885	9.2%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Alexander County, NC

Alexander County's three **largest clusters** by employment size are Production (2,100 employees), Back Office/Admin Support (950), and Logistics/Transportation (900).

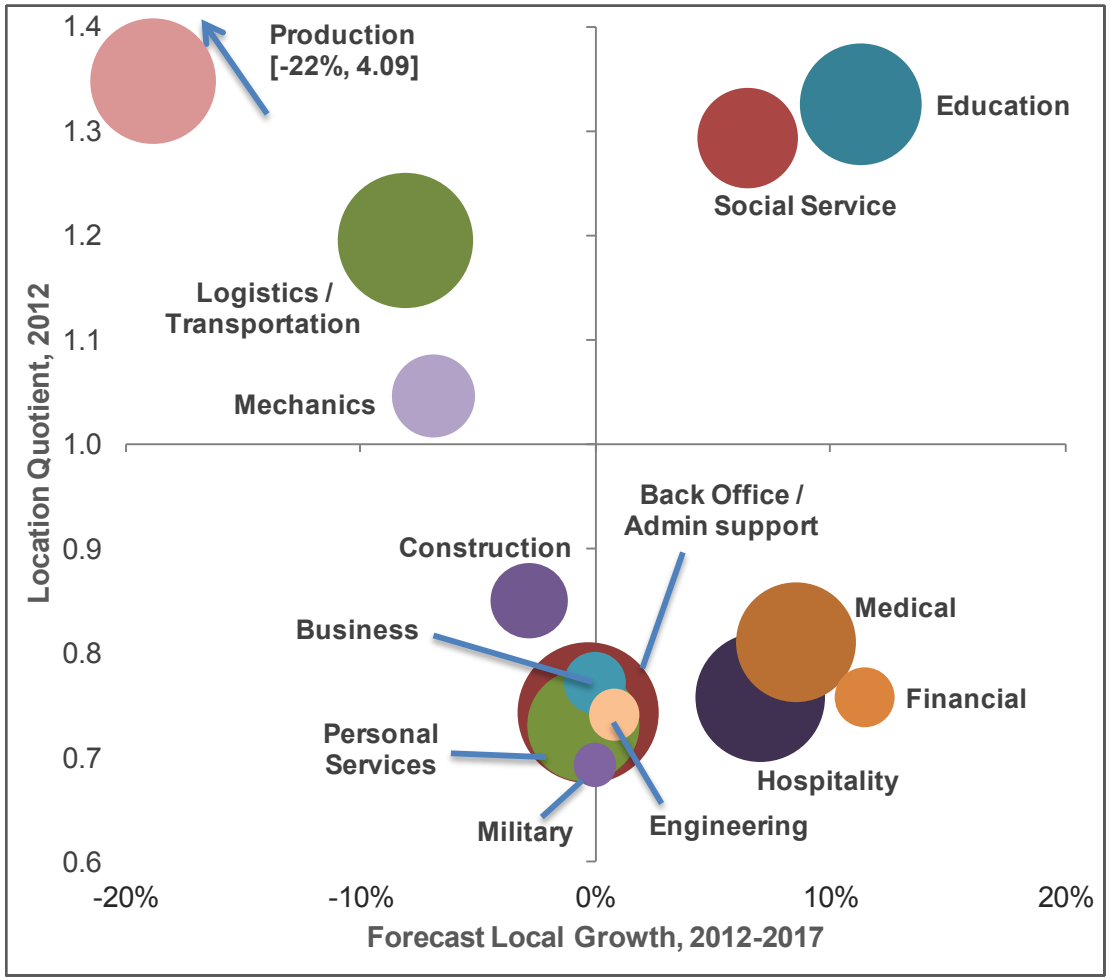
The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Social Service (10% growth, 40 new jobs), Financial (5%, 10), and Political (50%, 10).

The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Financial (11% forecast growth), Education (11%), and Medical (9%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Production (LQ=4.1), Math (2.9), and Political (2.2). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Financial, Legal, and Performance.

Declining clusters of the past 5 years include Production, which employs 2,100 workers, has an LQ of 4, and lost 33% of its employment base (1,100 jobs) in the last five years. Logistics & Transportation employs 900, LQ=1, and lost 19% (220 jobs). Hospitality employs 800, LQ=0.7, and lost 18% (180 jobs), but is forecasted to rebound in the next five years.



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Alexander County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	94	1.47	-6.0%	(6)	0	0.0%	4.3%
Architecture	15	1.34	0.0%	0	0	0.0%	4.4%
Back Office / Admin support	952	0.74	-13.1%	(144)	(3)	-0.3%	4.1%
Business	186	0.77	-18.8%	(43)	0	0.0%	3.6%
Communications	40	1.00	0.0%	0	0	0.0%	6.6%
Computer	72	0.28	-15.3%	(13)	1	1.4%	7.7%
Construction	286	0.85	-22.3%	(82)	(8)	-2.8%	5.8%
Design	66	1.31	-1.5%	(1)	(6)	-9.1%	4.3%
Education	726	1.32	-2.2%	(16)	82	11.3%	7.1%
Engineering	126	0.74	-13.7%	(20)	1	0.8%	5.5%
Financial	175	0.76	4.8%	8	20	11.4%	6.8%
Geology	0	0.00		0	5		2.5%
Hospitality	815	0.76	-17.7%	(175)	57	7.0%	5.7%
Legal	48	0.63	4.3%	2	1	2.1%	5.9%
Logistics / Transportation	902	1.19	-19.2%	(215)	(73)	-8.1%	2.5%
Math	20	2.85	0.0%	0	0	0.0%	8.1%
Mechanics	332	1.05	-18.0%	(73)	(23)	-6.9%	4.0%
Medical	703	0.81	-4.1%	(30)	60	8.5%	12.2%
Manufacturing	30	1.35	-14.3%	(5)	0	0.0%	3.3%
Military	90	0.69	-3.2%	(3)	0	0.0%	0.8%
Sales & Marketing	31	0.49	0.0%	0	(1)	-3.2%	2.5%
Performance	35	1.11	16.7%	5	0	0.0%	8.6%
Political	15	2.15	50.0%	5	0	0.0%	8.0%
Production	2,124	4.09	-33.4%	(1,067)	(468)	-22.0%	-1.6%
Personal Services	609	0.73	-16.6%	(121)	(3)	-0.5%	3.9%
Social Service	495	1.29	9.5%	43	32	6.5%	7.1%
All Occupations	8,338	1.00	-19.5%	(2,014)	(307)	-3.7%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Anson County, NC

Anson County's three **largest clusters** by employment size are Production (1,030 employees), Back Office/Admin Support (1.020), and Logistics /Transportation (930).

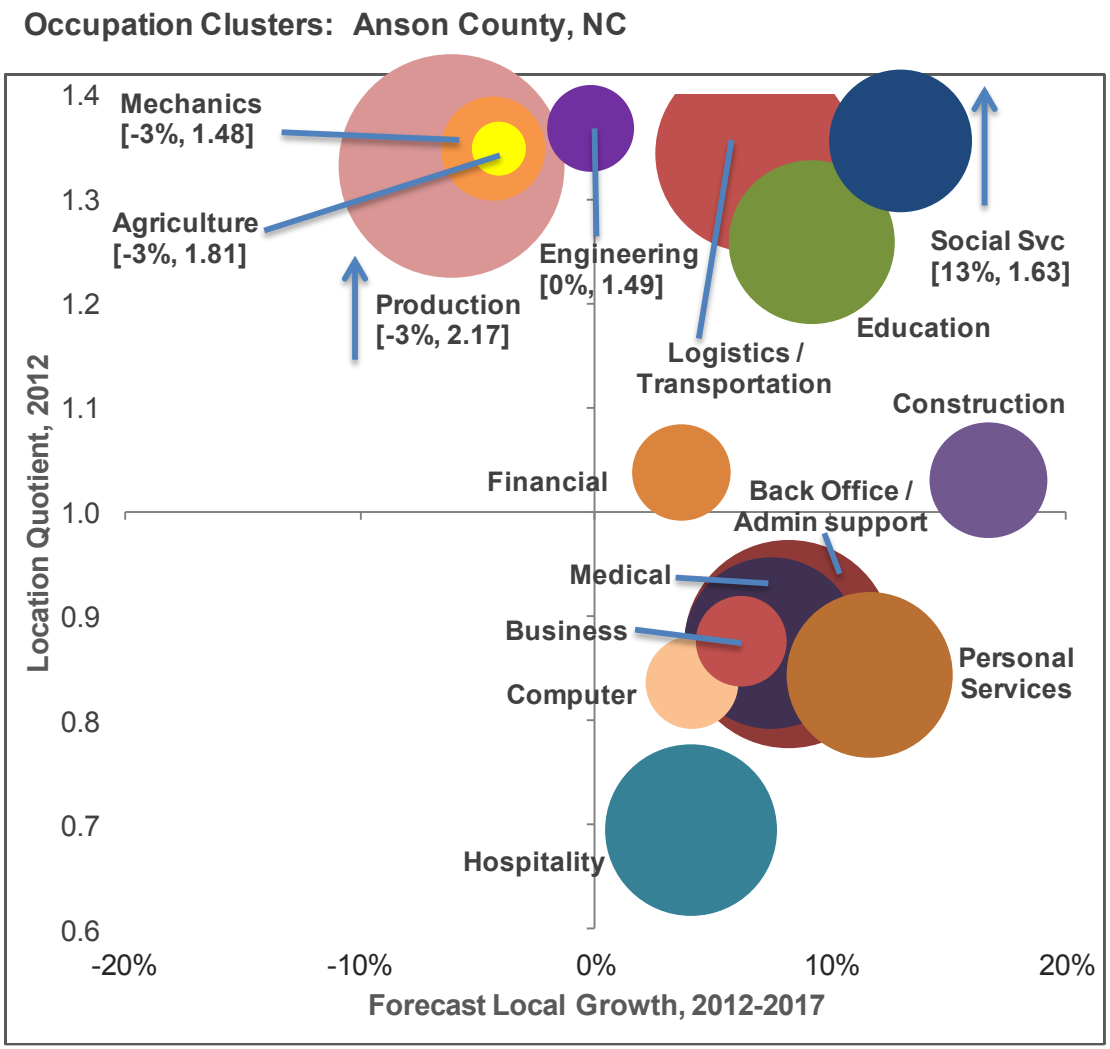
The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Education (36% growth, 170 new jobs), Hospitality (3%, 20), and Performance (20%, 10).

The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Construction (17% forecast growth), Social Service (13%), and Professional Services (12%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Political (LQ=2.4), Production (2.2), and Manufacturing (2.0). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Personal Services, Back Office, and Business.

Declining clusters of the past 5 years include Social Service, which employs 570 workers, has an LQ of 2, and lost 27% of its employment base (210 jobs) in the last five years. Medical employs 700, LQ=1, and lost 17% (140 jobs). Production employs 1,030, LQ=2, and lost 8% (90 jobs).



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Anson County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	106	1.81	-23.7%	(33)	(3)	-2.8%	4.3%
Architecture	20	1.95	0.0%	0	0	0.0%	4.4%
Back Office / Admin support	1,024	0.87	-2.8%	(29)	84	8.2%	4.1%
Business	193	0.88	-19.9%	(48)	12	6.2%	3.6%
Communications	45	1.23	0.0%	0	5	11.1%	6.6%
Computer	195	0.84	-8.0%	(17)	8	4.1%	7.7%
Construction	317	1.03	-8.9%	(31)	53	16.7%	5.8%
Design	65	1.41	8.3%	5	0	0.0%	4.3%
Education	630	1.26	35.5%	165	58	9.2%	7.1%
Engineering	231	1.49	-4.5%	(11)	(1)	-0.4%	5.5%
Financial	219	1.04	-11.7%	(29)	8	3.7%	6.8%
Geology	25	1.66	-16.7%	(5)	0	0.0%	2.5%
Hospitality	684	0.70	3.3%	22	28	4.1%	5.7%
Legal	80	1.15	-9.1%	(8)	4	5.0%	5.9%
Logistics / Transportation	926	1.34	-8.1%	(82)	63	6.8%	2.5%
Math	10	1.56	0.0%	0	0	0.0%	8.1%
Mechanics	430	1.48	-10.8%	(52)	(11)	-2.6%	4.0%
Medical	694	0.87	-16.8%	(140)	52	7.5%	12.2%
Manufacturing	40	1.97	0.0%	0	0	0.0%	3.3%
Military	60	0.51	-7.7%	(5)	0	0.0%	0.8%
Sales & Marketing	42	0.73	-2.3%	(1)	2	4.8%	2.5%
Performance	30	1.04	20.0%	5	0	0.0%	8.6%
Political	15	2.36	0.0%	0	0	0.0%	8.0%
Production	1,026	2.17	-8.2%	(92)	(32)	-3.1%	-1.6%
Personal Services	644	0.84	-7.9%	(55)	75	11.6%	3.9%
Social Service	570	1.63	-27.0%	(211)	74	13.0%	7.1%
All Occupations	7,612	1.00	-7.8%	(648)	425	5.6%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Cabarrus County, NC

Cabarrus County's three **largest clusters** by employment size are Hospitality (10,300 employees), Personal Services (8,800), and Back Office/Admin Support (7,200).

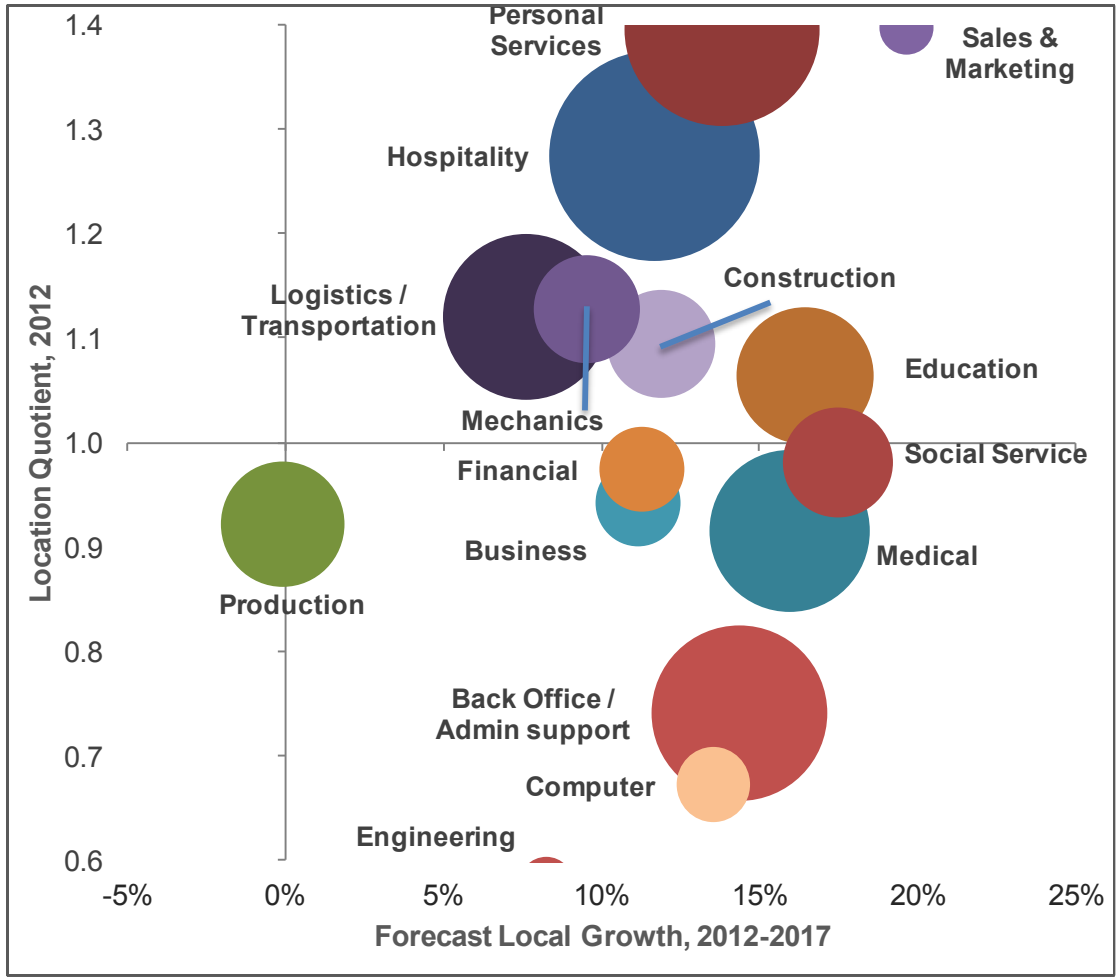
The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Hospitality (8% growth, 740 new jobs), Social Service (15%, 380), and Education (9%, 370).

The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Agriculture (26% forecast growth), Sales & Marketing (20%), and Communications (19%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Performance (LQ=1.5), Personal Services (1.4), and Sales & Marketing (1.4). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Agriculture, Communications, and Social Service.

Declining clusters of the past 5 years include Production, which employs 3,600 workers, has an LQ of .9, and lost 35% of its employment base (1,940 jobs) in the last five years. Construction employs 2,800, LQ=1, and lost 33% (1,400 jobs). Logistics/Transportation employs 6,400, LQ=1, and lost 13% (1,000 jobs).



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Cabarrus County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	173	0.36	22.7%	32	45	26.0%	4.3%
Architecture	74	0.87	-9.8%	(8)	11	14.9%	4.4%
Back Office / Admin support	7,167	0.74	-8.1%	(631)	1,029	14.4%	4.1%
Business	1,715	0.94	-11.4%	(221)	191	11.1%	3.6%
Communications	232	0.77	-10.4%	(27)	45	19.4%	6.6%
Computer	1,294	0.67	-5.1%	(69)	175	13.5%	7.7%
Construction	2,779	1.09	-33.2%	(1,383)	330	11.9%	5.8%
Design	329	0.86	-8.9%	(32)	48	14.6%	4.3%
Education	4,395	1.06	9.1%	367	722	16.4%	7.1%
Engineering	738	0.57	-15.1%	(131)	61	8.3%	5.5%
Financial	1,697	0.97	-8.7%	(162)	191	11.3%	6.8%
Geology	55	0.44	-15.4%	(10)	0	0.0%	2.5%
Hospitality	10,347	1.27	7.7%	743	1,206	11.7%	5.7%
Legal	290	0.51	1.8%	5	39	13.4%	5.9%
Logistics / Transportation	6,377	1.12	-13.4%	(987)	486	7.6%	2.5%
Math	24	0.45	0.0%	0	4	16.7%	8.1%
Mechanics	2,698	1.13	-15.0%	(477)	257	9.5%	4.0%
Medical	5,995	0.92	-2.9%	(182)	957	16.0%	12.2%
Manufacturing	126	0.75	-17.1%	(26)	5	4.0%	3.3%
Military	402	0.41	-4.1%	(17)	2	0.5%	0.8%
Sales & Marketing	662	1.40	9.2%	56	130	19.6%	2.5%
Performance	361	1.52	-5.2%	(20)	69	19.1%	8.6%
Political	33	0.63	6.5%	2	2	6.1%	8.0%
Production	3,606	0.92	-34.9%	(1,937)	(3)	-0.1%	-1.6%
Personal Services	8,788	1.40	-0.7%	(62)	1,213	13.8%	3.9%
Social Service	2,831	0.98	15.4%	377	494	17.4%	7.1%
All Occupations	62,863	1.00	-7.0%	(4,724)	7,743	12.3%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Catawba County, NC

Catawba County's three **largest clusters** by employment size are Production (14,700 employees), Logistics/Transportation (10,100), and Back Office/Admin Support (8,900).

The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (2% growth, 170 new jobs), Sales & Marketing (38%, 120), and Agriculture (58%, 100).

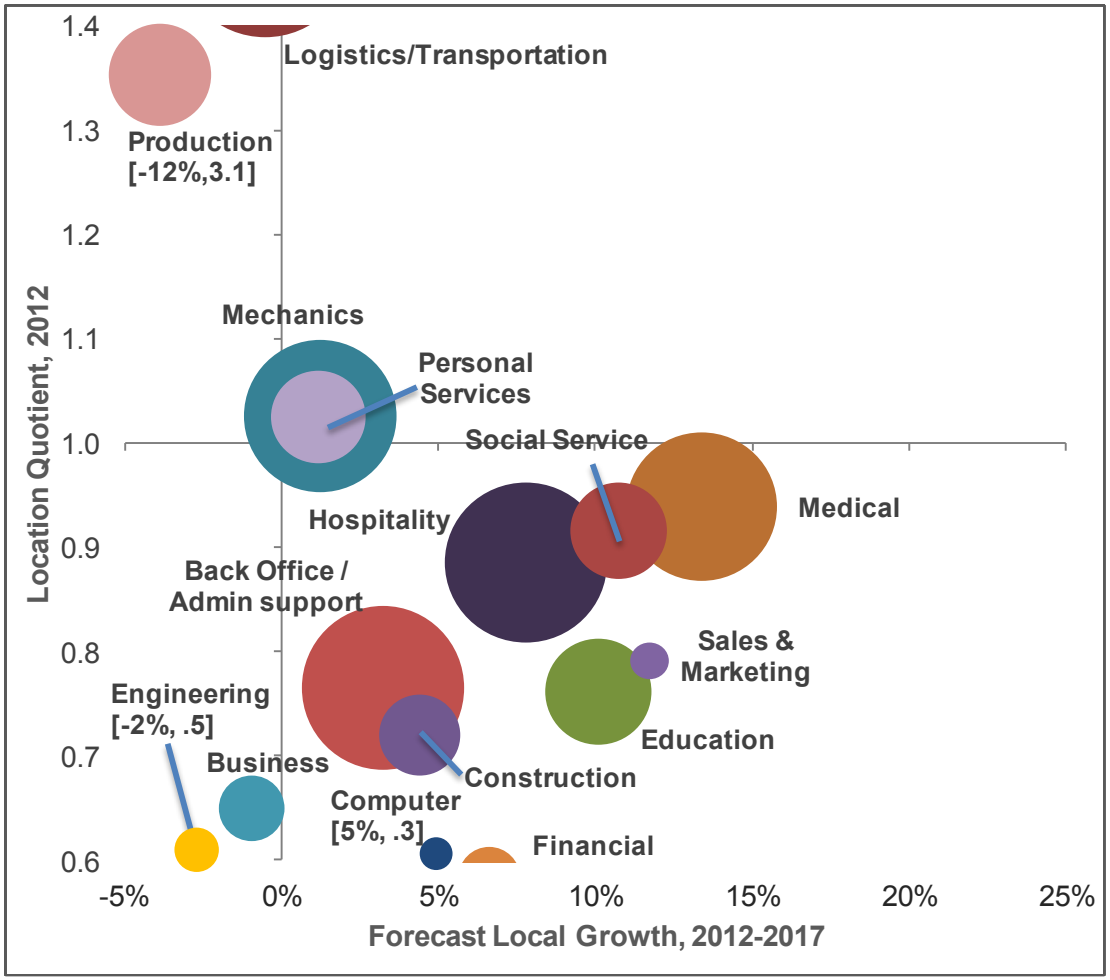
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Communications (14% forecast growth), Medical (13%), and Sales & Marketing (12%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Production (LQ=3.1), Logistics (1.5), and Manufacturing (1.4). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Education, Communications, and Sales.

Declining clusters of the past 5 years include Production, which employs 14,700 workers, has an LQ of 3, and lost 30% of its employment base (6,200 jobs) in the last five years. Logistics employs 10,100, LQ=1, and lost 18% (2,300 jobs). Back Office employs 8,900, LQ=.8, and lost 11% (1,100 jobs).

Occupation Clusters: Catawba County, NC



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Catawba County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	276	0.47	57.7%	101	4	1.4%	4.3%
Architecture	15	0.15	0.0%	0	0	0.0%	4.4%
Back Office / Admin support	8,935	0.77	-11.3%	(1,133)	288	3.2%	4.1%
Business	1,427	0.65	-14.9%	(250)	(14)	-1.0%	3.6%
Communications	146	0.40	-7.6%	(12)	21	14.4%	6.6%
Computer	708	0.31	1.1%	8	34	4.8%	7.7%
Construction	2,204	0.72	-22.2%	(629)	97	4.4%	5.8%
Design	366	0.80	-14.9%	(64)	17	4.6%	4.3%
Education	3,794	0.76	-5.3%	(214)	383	10.1%	7.1%
Engineering	843	0.54	-17.8%	(183)	(20)	-2.4%	5.5%
Financial	1,225	0.58	-10.5%	(144)	81	6.6%	6.8%
Geology	40	0.27	-20.0%	(10)	0	0.0%	2.5%
Hospitality	8,668	0.89	-10.4%	(1,005)	675	7.8%	5.7%
Legal	213	0.31	-6.2%	(14)	11	5.2%	5.9%
Logistics / Transportation	10,106	1.47	-18.3%	(2,265)	(56)	-0.6%	2.5%
Math	20	0.31	0.0%	0	0	0.0%	8.1%
Mechanics	2,957	1.03	-15.9%	(557)	35	1.2%	4.0%
Medical	7,418	0.94	2.4%	171	994	13.4%	12.2%
Manufacturing	282	1.40	-28.1%	(110)	(53)	-18.8%	3.3%
Military	394	0.33	-1.7%	(7)	2	0.5%	0.8%
Sales & Marketing	452	0.79	37.8%	124	53	11.7%	2.5%
Performance	149	0.52	2.8%	4	7	4.7%	8.6%
Political	51	0.81	0.0%	0	2	3.9%	8.0%
Production	14,682	3.11	-29.8%	(6,222)	(1,717)	-11.7%	-1.6%
Personal Services	7,789	1.03	-11.8%	(1,045)	97	1.2%	3.9%
Social Service	3,186	0.92	2.0%	61	342	10.7%	7.1%
All Occupations	75,769	1.00	-15.0%	(13,371)	1,291	1.7%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Chester County, SC

Chester County's three **largest clusters** by employment size are Production (1,500 employees), Logistics/Transportation (1,100), and Hospitality (900).

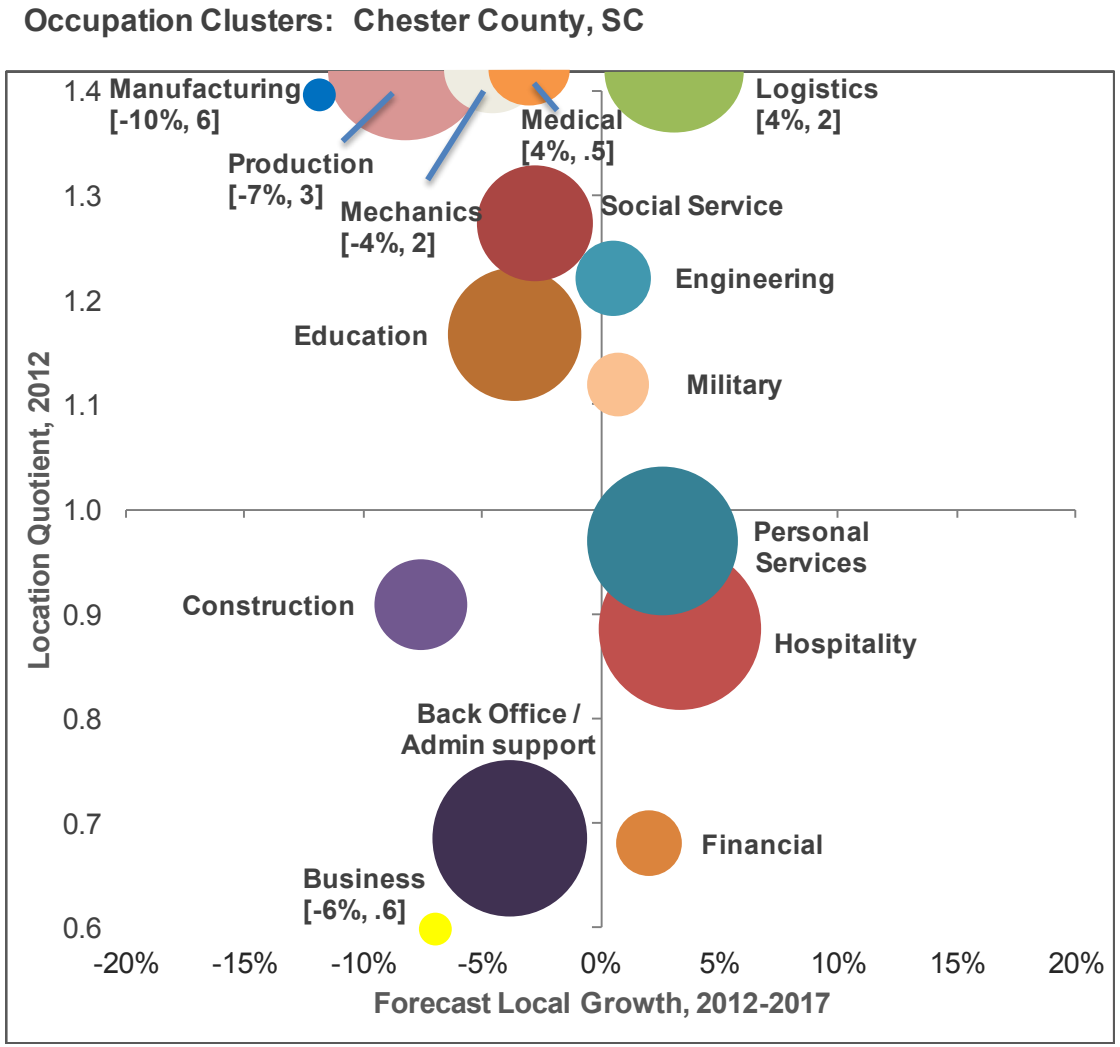
The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Agriculture (14% growth, 10 new jobs), Medical (2%, 10), and Military (2%, 2).

The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Medical (4% forecast growth), Logistics (4%), and Hospitality (3%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Manufacturing (LQ=5.8), Production (3.1), and Mechanics (1.6). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Hospitality, Medical, and Personal Services.

Declining clusters of the past 5 years include Production, which employs 1,500 workers, has an LQ of 3, and lost 28% of its employment base (600 jobs) in the last five years. Construction employs 300, LQ=.9, and lost 53% (320 jobs). Education employs 600, LQ=1, and lost 24% (200 jobs).



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Chester County, SC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	97	1.60	14.1%	12	(15)	-15.5%	4.3%
Architecture	5	0.47	0.0%	0	0	0.0%	4.4%
Back Office / Admin support	833	0.68	-17.3%	(174)	(32)	-3.8%	4.1%
Business	129	0.56	-22.8%	(38)	(8)	-6.2%	3.6%
Communications	35	0.92	0.0%	0	0	0.0%	6.6%
Computer	85	0.35	-17.5%	(18)	(13)	-15.3%	7.7%
Construction	290	0.91	-52.5%	(321)	(22)	-7.6%	5.8%
Design	35	0.73	0.0%	0	0	0.0%	4.3%
Education	606	1.17	-24.4%	(196)	(22)	-3.6%	7.1%
Engineering	197	1.22	-13.6%	(31)	1	0.5%	5.5%
Financial	149	0.68	-12.9%	(22)	3	2.0%	6.8%
Geology	0	0.00		0	0		2.5%
Hospitality	903	0.88	-12.4%	(128)	30	3.3%	5.7%
Legal	41	0.57	-4.7%	(2)	0	0.0%	5.9%
Logistics / Transportation	1,072	1.50	-8.8%	(103)	46	4.3%	2.5%
Math	5	0.75	0.0%	0	0	0.0%	8.1%
Mechanics	493	1.64	-23.4%	(151)	(19)	-3.9%	4.0%
Medical	444	0.54	1.6%	7	19	4.3%	12.2%
Manufacturing	122	5.79	-3.2%	(4)	(12)	-9.8%	3.3%
Military	138	1.12	1.5%	2	1	0.7%	0.8%
Sales & Marketing	16	0.27	-38.5%	(10)	0	0.0%	2.5%
Performance	20	0.67	0.0%	0	0	0.0%	8.6%
Political	5	0.76	0.0%	0	0	0.0%	8.0%
Production	1,522	3.10	-28.4%	(604)	(102)	-6.7%	-1.6%
Personal Services	767	0.97	-7.8%	(65)	20	2.6%	3.9%
Social Service	462	1.27	-2.3%	(11)	(13)	-2.8%	7.1%
All Occupations	7,900	1.00	-19.8%	(1,948)	(102)	-1.3%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Chesterfield County, SC

Chesterfield County's three **largest clusters** by employment size are Production (2,800 employees), Logistics/Transportation (2,000), and Hospitality (1,400).

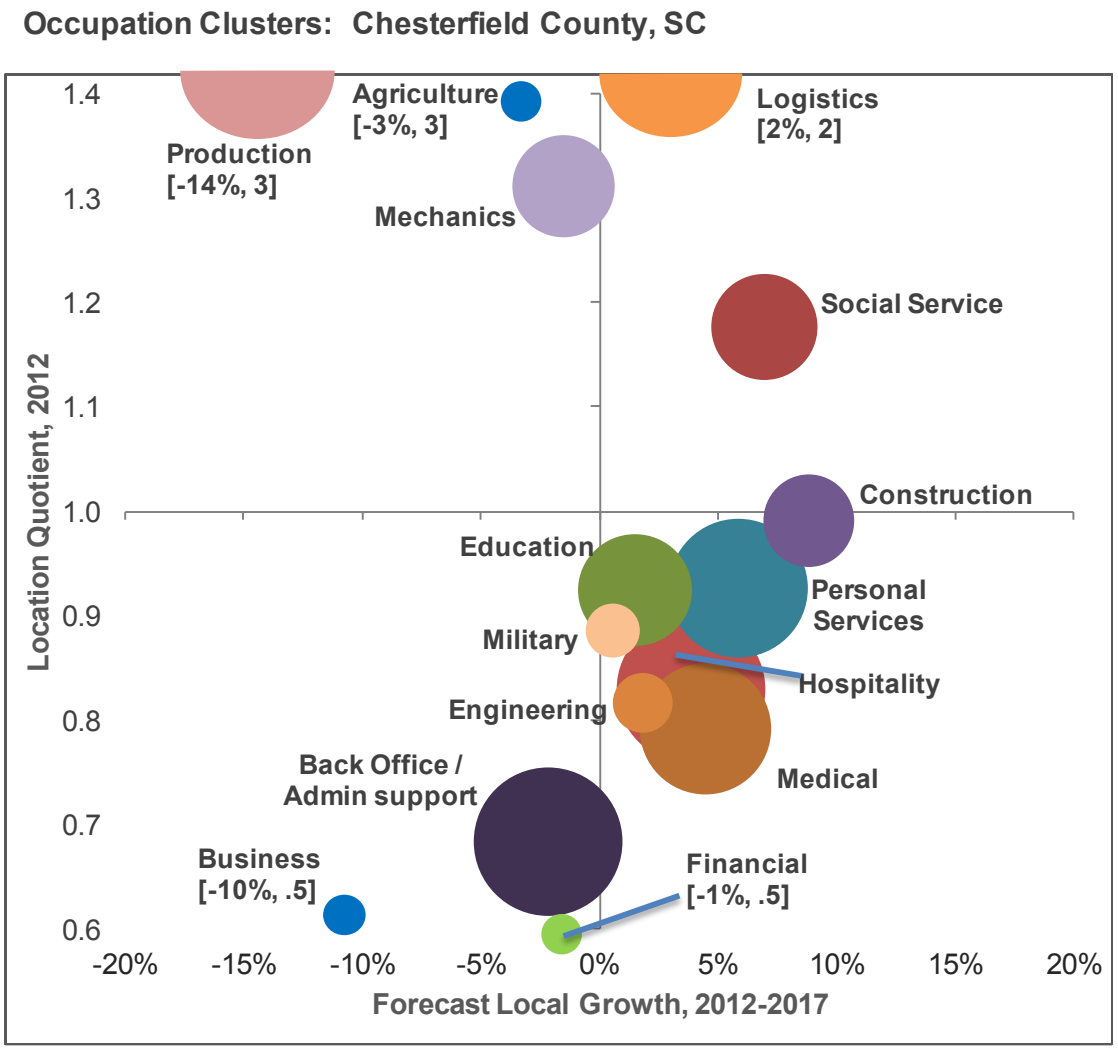
The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Agriculture (18% growth, 50 new jobs), Medical (4%, 40), and Computer (40%, 30).

The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Performance (13% forecast growth), Construction (9%), and Social Service (7%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Production (LQ=3.4), Agriculture (2.9), and Manufacturing (2.3). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Performance, Personal Services, and Construction.

Declining clusters of the past 5 years include Production, which employs 2,800 workers, has an LQ of 3, and lost 23% of its employment base (800 jobs) in the last five years. Back Office/Admin Support employs 1,400, LQ=.7, and lost 8% (120 jobs). Logistics employs 1,900, LQ=2, and lost 5% (110 jobs).



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Chesterfield County, SC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	296	2.89	17.9%	45	(10)	-3.4%	4.3%
Architecture	5	0.28	0.0%	0	0	0.0%	4.4%
Back Office / Admin support	1,403	0.68	-7.9%	(121)	(30)	-2.1%	4.1%
Business	175	0.45	-17.1%	(36)	(17)	-9.7%	3.6%
Communications	55	0.86	0.0%	0	(5)	-9.1%	6.6%
Computer	108	0.26	36.7%	29	2	1.9%	7.7%
Construction	533	0.99	-3.8%	(21)	47	8.8%	5.8%
Design	45	0.56	-10.0%	(5)	0	0.0%	4.3%
Education	809	0.92	-6.3%	(54)	12	1.5%	7.1%
Engineering	222	0.82	-0.9%	(2)	4	1.8%	5.5%
Financial	171	0.46	-3.4%	(6)	(1)	-0.6%	6.8%
Geology	0	0.00		0	0		2.5%
Hospitality	1,427	0.83	-5.7%	(86)	55	3.9%	5.7%
Legal	25	0.21	0.0%	0	0	0.0%	5.9%
Logistics / Transportation	1,937	1.61	-5.2%	(106)	44	2.3%	2.5%
Math	0	0.00		0	0		8.1%
Mechanics	665	1.31	-8.9%	(65)	(10)	-1.5%	4.0%
Medical	1,098	0.79	3.9%	41	49	4.5%	12.2%
Manufacturing	82	2.31	5.1%	4	5	6.1%	3.3%
Military	184	0.89	2.8%	5	1	0.5%	0.8%
Sales & Marketing	33	0.33	10.0%	3	0	0.0%	2.5%
Performance	40	0.80	-4.8%	(2)	5	12.5%	8.6%
Political	10	0.90	0.0%	0	0	0.0%	8.0%
Production	2,817	3.40	-22.5%	(818)	(394)	-14.0%	-1.6%
Personal Services	1,236	0.93	1.5%	18	72	5.8%	3.9%
Social Service	720	1.18	-4.3%	(32)	50	6.9%	7.1%
All Occupations	13,323	1.00	-8.5%	(1,244)	(128)	-1.0%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Cleveland County, NC

Cleveland County's three **largest clusters** by employment size are Medical (3,900 employees), Hospitality (3,800), and Logistics/Transportation (3,800).

The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (6% growth, 210 new jobs), Agriculture (20%, 20), and Computer (10%, 10).

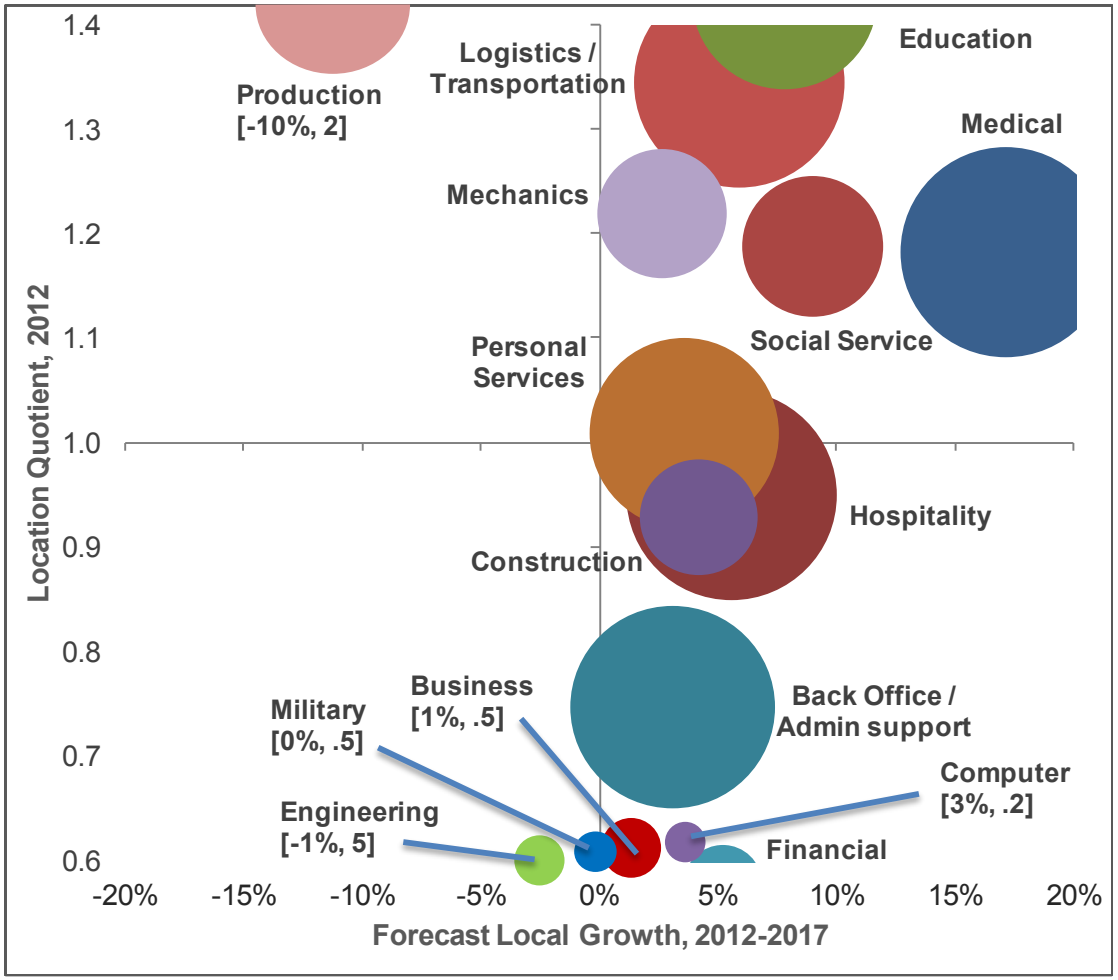
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Medical (17% forecast growth), Social Service (9%), and Education (8%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Production (LQ=1.9), Education (1.4), and Logistics (1.4). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Legal, Sales & Marketing, and Financial.

Declining clusters of the past 5 years include Production, which employs 3,700 workers, has an LQ of 2, and lost 28% of its employment base (1,400 jobs) in the last five years. Back Office/Admin Support employs 3,600, LQ=.8, and lost 11% (440 jobs). Construction employs 1,200, LQ=.9, and lost 23% (340 jobs).

Occupation Clusters: Cleveland County, NC



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Cleveland County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	137	0.57	20.2%	23	2	1.5%	4.3%
Architecture	31	0.74	-6.1%	(2)	1	3.2%	4.4%
Back Office / Admin support	3,596	0.75	-10.9%	(439)	111	3.1%	4.1%
Business	466	0.51	-14.7%	(80)	3	0.6%	3.6%
Communications	75	0.50	-8.5%	(7)	(1)	-1.3%	6.6%
Computer	162	0.17	9.5%	14	5	3.1%	7.7%
Construction	1,173	0.93	-22.5%	(340)	49	4.2%	5.8%
Design	142	0.75	-10.7%	(17)	2	1.4%	4.3%
Education	2,935	1.43	-8.8%	(284)	229	7.8%	7.1%
Engineering	315	0.49	-21.4%	(86)	(2)	-0.6%	5.5%
Financial	501	0.58	-3.1%	(16)	26	5.2%	6.8%
Geology	25	0.40	0.0%	0	0	0.0%	2.5%
Hospitality	3,837	0.95	-4.7%	(189)	214	5.6%	5.7%
Legal	99	0.35	6.5%	6	6	6.1%	5.9%
Logistics / Transportation	3,812	1.35	-1.1%	(44)	224	5.9%	2.5%
Math	5	0.19	-50.0%	(5)	0	0.0%	8.1%
Mechanics	1,452	1.22	-12.9%	(216)	38	2.6%	4.0%
Medical	3,856	1.18	5.7%	209	661	17.1%	12.2%
Manufacturing	111	1.33	-19.6%	(27)	(3)	-2.7%	3.3%
Military	254	0.52	0.8%	2	1	0.4%	0.8%
Sales & Marketing	93	0.39	-8.8%	(9)	5	5.4%	2.5%
Performance	89	0.75	-2.2%	(2)	4	4.5%	8.6%
Political	25	0.96	0.0%	0	0	0.0%	8.0%
Production	3,744	1.92	-27.9%	(1,449)	(380)	-10.1%	-1.6%
Personal Services	3,162	1.01	-7.6%	(261)	113	3.6%	3.9%
Social Service	1,706	1.19	-8.7%	(162)	153	9.0%	7.1%
All Occupations	31,290	1.00	-9.6%	(3,332)	1,445	4.6%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Gaston County, NC

Gaston County's three **largest clusters** by employment size are Hospitality (8,700 employees), Back Office/Admin Support (7,500), and Medical (7,500).

The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Hospitality (4% growth, 340 new jobs), Medical (3%, 230), and Education (4%, 180).

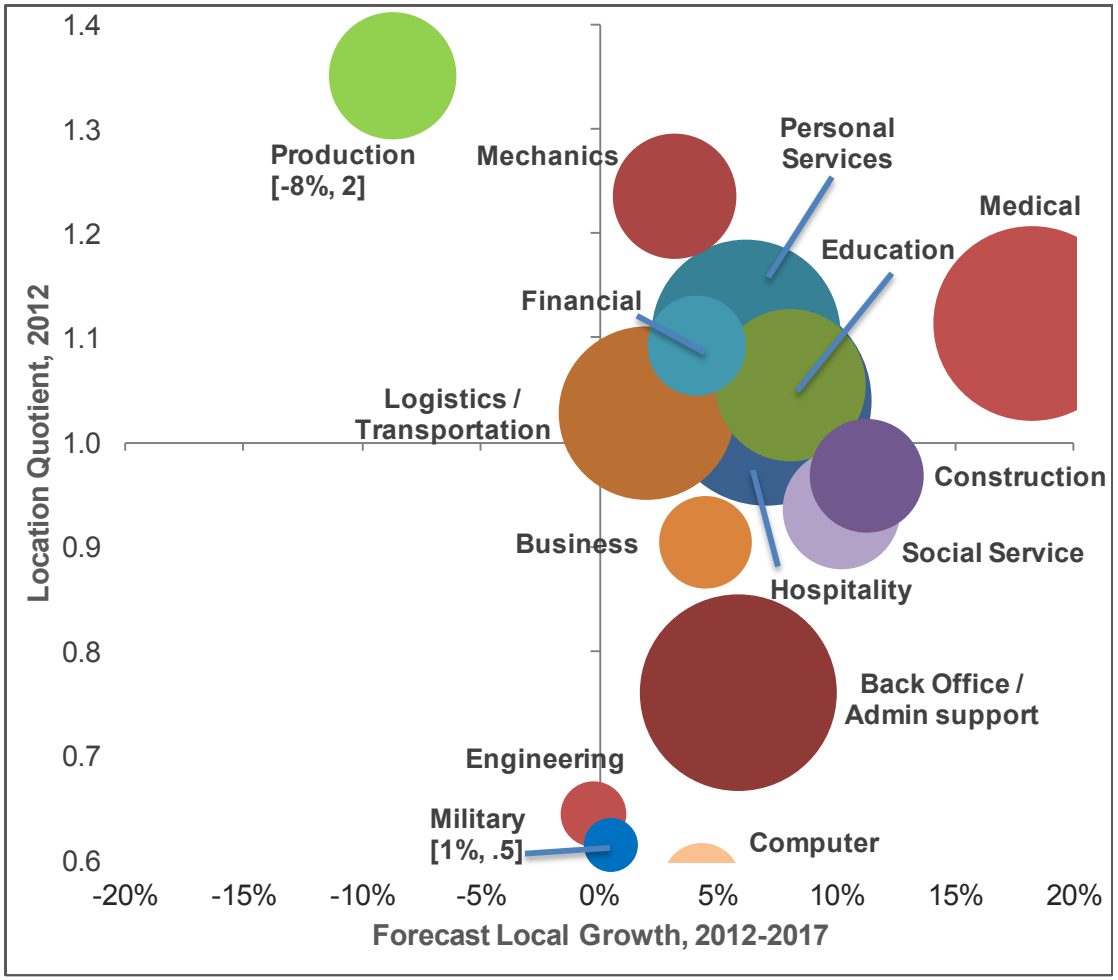
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Math (30% forecast growth), Medical (18%), and Communications (17%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Production (LQ=1.8), Mechanics (1.2), and Medical (1.1). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Math, Communications, and Social Service.

Declining clusters of the past 5 years include Production, which employs 7,400 workers, has an LQ of 2, and lost 29% of its employment base (3,000 jobs) in the last five years. Logistics/Transportation employs 6,000, LQ=1, and lost 14% (1,000 jobs). Construction employs 2,500, LQ=1, and lost 23% (750 jobs).

Occupation Clusters: Gaston County, NC



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Gaston County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	81	0.16	3.8%	3	0	0.0%	4.3%
Architecture	52	0.60	-16.1%	(10)	(1)	-1.9%	4.4%
Back Office / Admin support	7,549	0.76	-5.6%	(445)	442	5.9%	4.1%
Business	1,689	0.90	-12.7%	(245)	75	4.4%	3.6%
Communications	223	0.72	9.9%	20	37	16.6%	6.6%
Computer	1,145	0.58	-3.3%	(39)	49	4.3%	7.7%
Construction	2,523	0.97	-22.9%	(751)	285	11.3%	5.8%
Design	291	0.74	-1.7%	(5)	11	3.8%	4.3%
Education	4,471	1.05	4.1%	178	359	8.0%	7.1%
Engineering	848	0.64	-9.2%	(86)	(2)	-0.2%	5.5%
Financial	1,953	1.09	-10.0%	(217)	80	4.1%	6.8%
Geology	50	0.39	-9.1%	(5)	5	10.0%	2.5%
Hospitality	8,663	1.04	4.1%	342	612	7.1%	5.7%
Legal	283	0.48	-6.6%	(20)	7	2.5%	5.9%
Logistics / Transportation	6,003	1.03	-14.0%	(981)	121	2.0%	2.5%
Math	20	0.37	5.3%	1	6	30.0%	8.1%
Mechanics	3,034	1.24	-18.2%	(674)	96	3.2%	4.0%
Medical	7,488	1.11	3.1%	228	1,365	18.2%	12.2%
Manufacturing	164	0.95	-10.4%	(19)	(19)	-11.6%	3.3%
Military	497	0.49	-4.4%	(23)	3	0.6%	0.8%
Sales & Marketing	381	0.78	-10.6%	(45)	9	2.4%	2.5%
Performance	137	0.56	3.0%	4	8	5.8%	8.6%
Political	40	0.74	-2.4%	(1)	1	2.5%	8.0%
Production	7,375	1.84	-28.7%	(2,964)	(594)	-8.1%	-1.6%
Personal Services	7,123	1.10	-6.4%	(486)	440	6.2%	3.9%
Social Service	2,769	0.93	-2.0%	(57)	283	10.2%	7.1%
All Occupations	64,501	1.00	-8.8%	(6,217)	3,668	5.7%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Iredell County, NC

Iredell County's three **largest clusters** by employment size are Hospitality (8,700 employees), Back Office/Admin Support (8,300), and Production (7,800).

The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (7% growth, 390 new jobs), Computer (36%, 180), and Back Office (2%, 140).

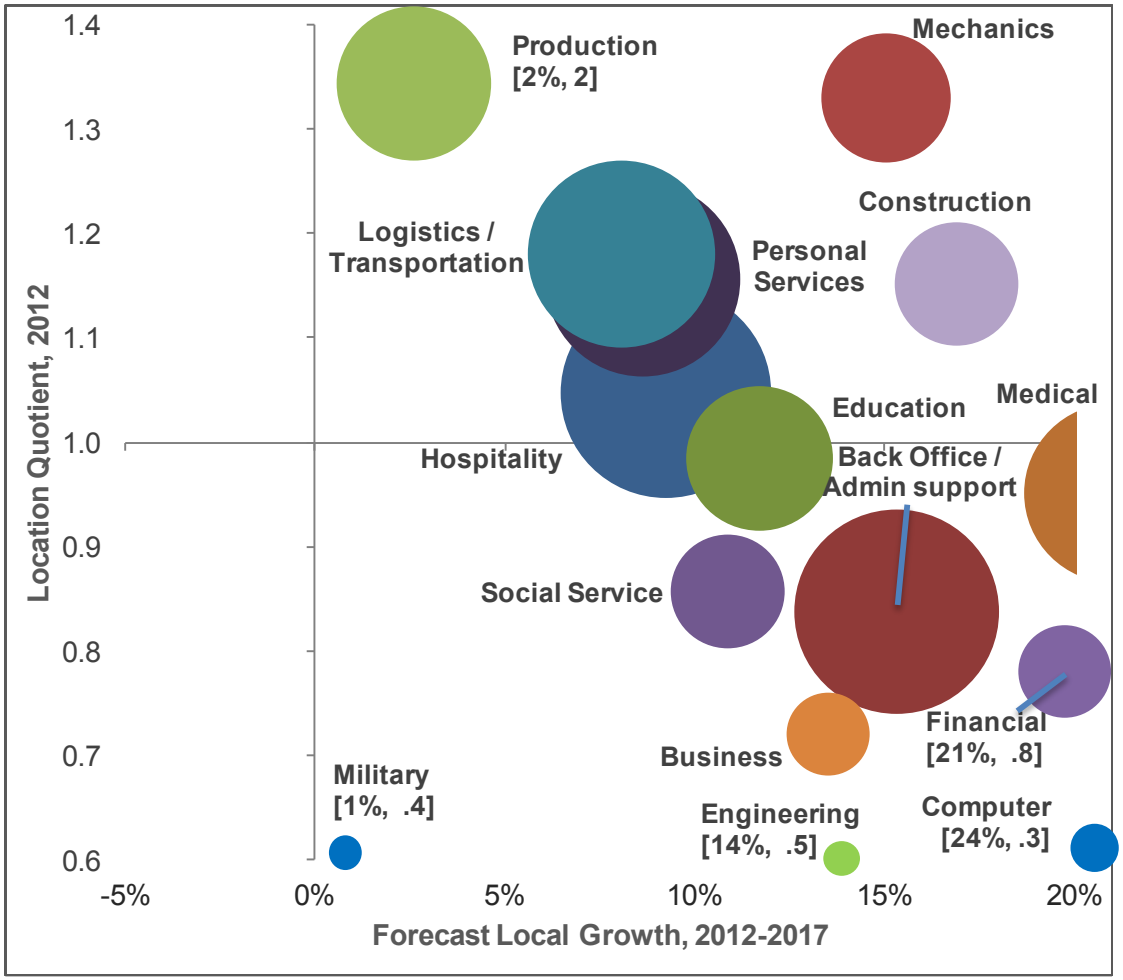
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Computer (24% forecast growth), Financial (21%), and Communications (21%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Production (LQ=1.9), Performance (1.3), and Mechanics (1.3). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Financial, Communications, and Computer.

Declining clusters of the past 5 years include Production, which employs 7,800 workers, has an LQ of 2, and lost 18% of its employment base (1,700 jobs) in the last five years. Construction employs 3,000, LQ=1, and lost 17% (630 jobs). Personal Services employs 7,400, LQ=1, and lost 7% (560 jobs).

Occupation Clusters: Iredell County, NC



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Iredell County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	342	0.69	7.5%	24	4	1.2%	4.3%
Architecture	56	0.65	-9.7%	(6)	5	8.9%	4.4%
Back Office / Admin support	8,277	0.84	1.8%	144	1,268	15.3%	4.1%
Business	1,338	0.72	0.8%	11	181	13.5%	3.6%
Communications	143	0.46	2.1%	3	30	21.0%	6.6%
Computer	670	0.34	35.6%	176	160	23.9%	7.7%
Construction	2,989	1.15	-17.4%	(630)	506	16.9%	5.8%
Design	246	0.63	-3.5%	(9)	25	10.2%	4.3%
Education	4,156	0.98	-1.7%	(72)	487	11.7%	7.1%
Engineering	661	0.50	-3.8%	(26)	93	14.1%	5.5%
Financial	1,358	0.76	9.3%	116	290	21.4%	6.8%
Geology	42	0.33	2.4%	1	3	7.1%	2.5%
Hospitality	8,682	1.05	-1.5%	(132)	801	9.2%	5.7%
Legal	176	0.30	15.0%	23	23	13.1%	5.9%
Logistics / Transportation	6,863	1.18	-6.2%	(457)	554	8.1%	2.5%
Math	5	0.09	0.0%	0	0	0.0%	8.1%
Mechanics	3,253	1.33	-8.6%	(307)	489	15.0%	4.0%
Medical	6,366	0.95	6.5%	389	1,340	21.0%	12.2%
Manufacturing	196	1.14	-2.0%	(4)	35	17.9%	3.3%
Military	406	0.41	4.4%	17	3	0.7%	0.8%
Sales & Marketing	309	0.64	11.2%	31	64	20.7%	2.5%
Performance	322	1.33	-13.7%	(51)	62	19.3%	8.6%
Political	35	0.65	0.0%	0	3	8.6%	8.0%
Production	7,751	1.94	-18.1%	(1,718)	173	2.2%	-1.6%
Personal Services	7,443	1.16	-7.0%	(563)	643	8.6%	3.9%
Social Service	2,527	0.86	3.1%	77	275	10.9%	7.1%
All Occupations	64,209	1.00	-4.3%	(2,914)	7,534	11.7%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Lancaster County, SC

Lancaster County's three **largest clusters** by employment size are Back Office/Admin Support (2,200 employees), Hospitality (2,100), and Production (1,900).

The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (36% growth, 430 new jobs), Hospitality (12%, 220), and Social Service (17%, 140).

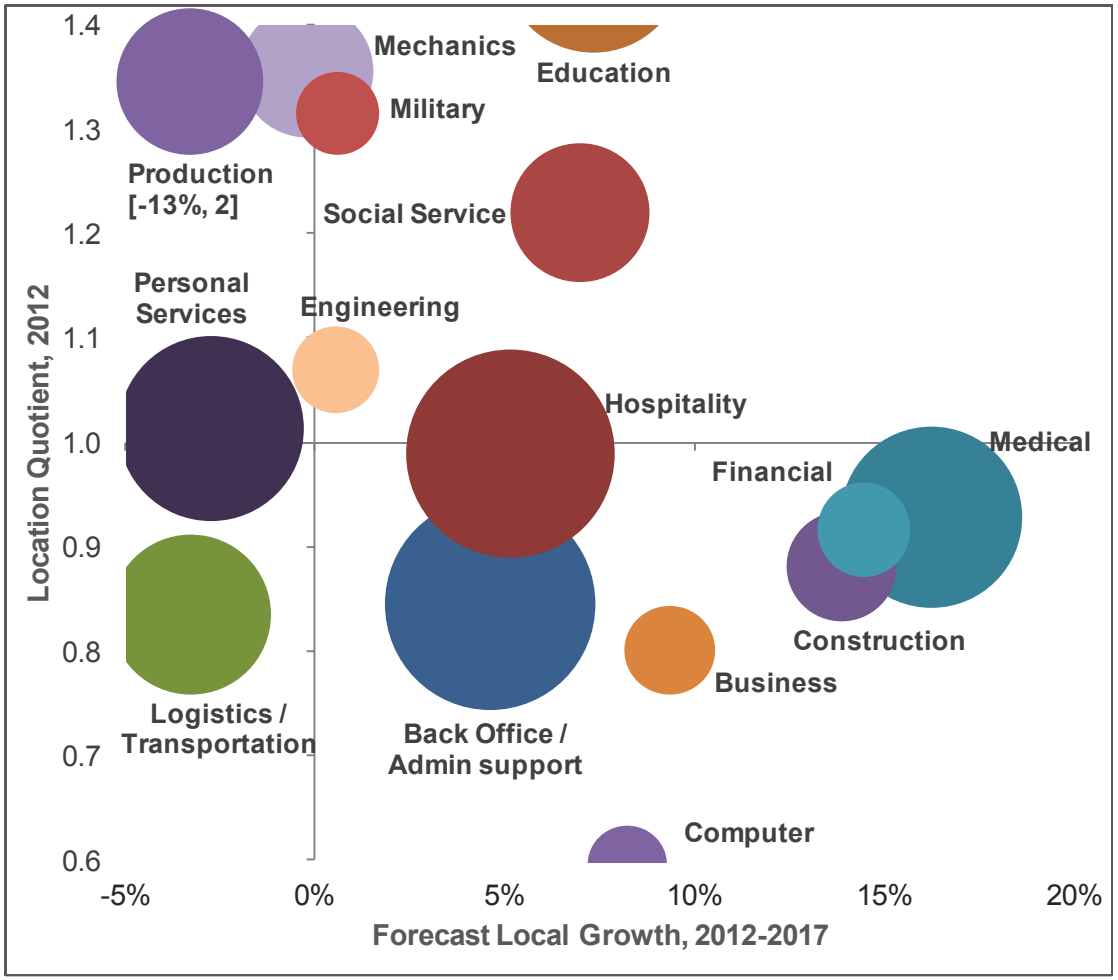
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Math (100% forecast growth), Medical (16%), and Design (15%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Manufacturing (LQ=2.5), Production (1.8), and Education (1.5). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Math, Construction, and Sales & Marketing.

Declining clusters of the past 5 years include Production, which employs 1,900 workers, has an LQ of 2, and lost 32% of its employment base (890 jobs) in the last five years. Construction employs 600, LQ=.9, and lost 31% (270 jobs). Mechanics employs 860, LQ=1, and lost 13% (130 jobs).

Occupation Clusters: Lancaster County, SC



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Lancaster County, SC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	55	0.43	-17.9%	(12)	5	9.1%	4.3%
Architecture	5	0.22	0.0%	0	0	0.0%	4.4%
Back Office / Admin support	2,162	0.84	-0.7%	(15)	100	4.6%	4.1%
Business	385	0.80	22.2%	70	36	9.4%	3.6%
Communications	50	0.62	8.7%	4	2	4.0%	6.6%
Computer	303	0.60	18.8%	48	25	8.3%	7.7%
Construction	591	0.88	-31.2%	(268)	82	13.9%	5.8%
Design	99	0.98	41.4%	29	15	15.2%	4.3%
Education	1,596	1.46	2.1%	33	117	7.3%	7.1%
Engineering	363	1.07	11.3%	37	2	0.6%	5.5%
Financial	422	0.92	-8.5%	(39)	61	14.5%	6.8%
Geology	10	0.30	0.0%	0	(5)	-50.0%	2.5%
Hospitality	2,123	0.99	11.7%	222	109	5.1%	5.7%
Legal	99	0.65	-15.4%	(18)	(1)	-1.0%	5.9%
Logistics / Transportation	1,257	0.84	-7.4%	(100)	(41)	-3.3%	2.5%
Math	5	0.36	0.0%	0	5	100.0%	8.1%
Mechanics	858	1.36	-13.2%	(130)	(2)	-0.2%	4.0%
Medical	1,606	0.93	36.0%	425	261	16.3%	12.2%
Manufacturing	110	2.48	0.9%	1	3	2.7%	3.3%
Military	341	1.32	10.7%	33	2	0.6%	0.8%
Sales & Marketing	73	0.58	17.7%	11	9	12.3%	2.5%
Performance	56	0.89	0.0%	0	8	14.3%	8.6%
Political	15	1.08	0.0%	0	0	0.0%	8.0%
Production	1,868	1.81	-32.0%	(881)	(244)	-13.1%	-1.6%
Personal Services	1,687	1.01	-4.0%	(71)	(46)	-2.7%	3.9%
Social Service	931	1.22	17.4%	138	65	7.0%	7.1%
All Occupations	16,621	1.00	-2.3%	(388)	524	3.2%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Lincoln County, NC

Lincoln County's three **largest clusters** by employment size are Production (3,300 employees), Hospitality (2,800), and Personal Services (2,300).

The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (10% growth, 150 new jobs), Hospitality (4%, 120), and Personal Services (3%, 70).

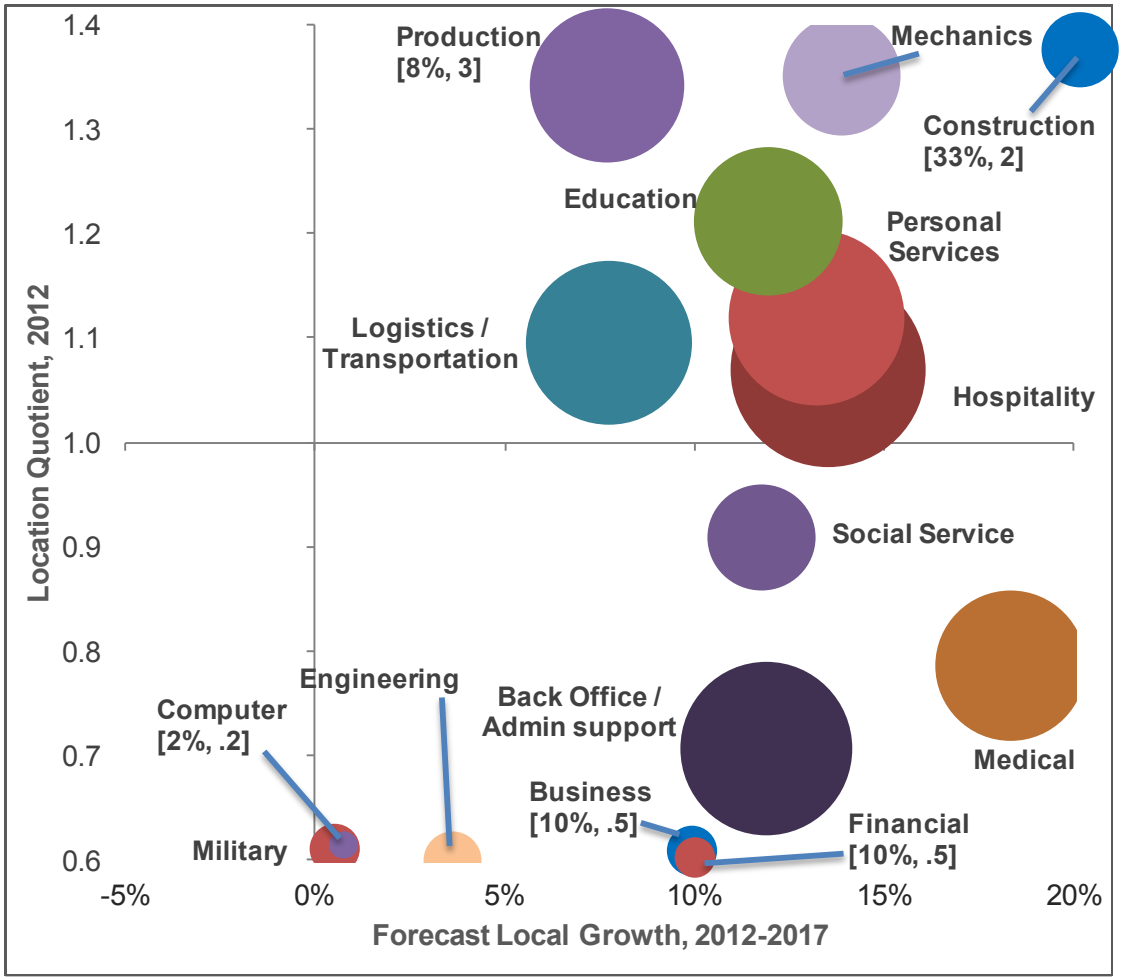
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Construction (33% forecast growth), Medical (18%), and Communications (15%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Production (LQ=2.6), Construction (1.6), and Manufacturing (1.6). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Communications, Financial, and Medical.

Declining clusters of the past 5 years include Production, which employs 3,300 workers, has an LQ of 3, and lost 31% of its employment base (1,400 jobs) in the last five years. Logistics/Transportation employs 2,000, LQ=1, and lost 20% (490 jobs). Construction employs 1,300, LQ=2, and lost 24% (420 jobs).

Occupation Clusters: Lincoln County, NC



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Lincoln County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	69	0.44	25.5%	14	1	1.4%	4.3%
Architecture	20	0.74	0.0%	0	0	0.0%	4.4%
Back Office / Admin support	2,194	0.71	-14.9%	(385)	261	11.9%	4.1%
Business	314	0.54	-19.1%	(74)	30	9.6%	3.6%
Communications	40	0.41	-13.0%	(6)	6	15.0%	6.6%
Computer	103	0.17	-2.8%	(3)	2	1.9%	7.7%
Construction	1,340	1.64	-23.9%	(420)	438	32.7%	5.8%
Design	92	0.75	-20.7%	(24)	3	3.3%	4.3%
Education	1,607	1.21	-0.7%	(12)	192	11.9%	7.1%
Engineering	247	0.60	-13.0%	(37)	9	3.6%	5.5%
Financial	269	0.48	-19.9%	(67)	28	10.4%	6.8%
Geology	25	0.63	-19.4%	(6)	0	0.0%	2.5%
Hospitality	2,788	1.07	4.4%	117	377	13.5%	5.7%
Legal	69	0.37	6.2%	4	5	7.2%	5.9%
Logistics / Transportation	2,002	1.10	-19.5%	(485)	155	7.7%	2.5%
Math	5	0.29	0.0%	0	0	0.0%	8.1%
Mechanics	1,038	1.35	-11.2%	(131)	144	13.9%	4.0%
Medical	1,652	0.79	9.8%	147	303	18.3%	12.2%
Manufacturing	85	1.58	-2.3%	(2)	6	7.1%	3.3%
Military	192	0.61	2.7%	5	1	0.5%	0.8%
Sales & Marketing	70	0.46	-9.1%	(7)	1	1.4%	2.5%
Performance	66	0.87	-2.9%	(2)	6	9.1%	8.6%
Political	15	0.89	0.0%	0	0	0.0%	8.0%
Production	3,258	2.59	-30.5%	(1,432)	252	7.7%	-1.6%
Personal Services	2,262	1.12	3.3%	72	299	13.2%	3.9%
Social Service	842	0.91	1.9%	16	99	11.8%	7.1%
All Occupations	20,182	1.00	-11.5%	(2,634)	2,683	13.3%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Mecklenburg County, NC

Mecklenburg County's three **largest clusters** by employment size are Back Office/Admin Support (96,100 employees), Hospitality (68,500), and Personal Services (58,300).

The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (18% growth, 6,900 new jobs), Hospitality (5%, 3,200), and Social Service (8%, 1,800).

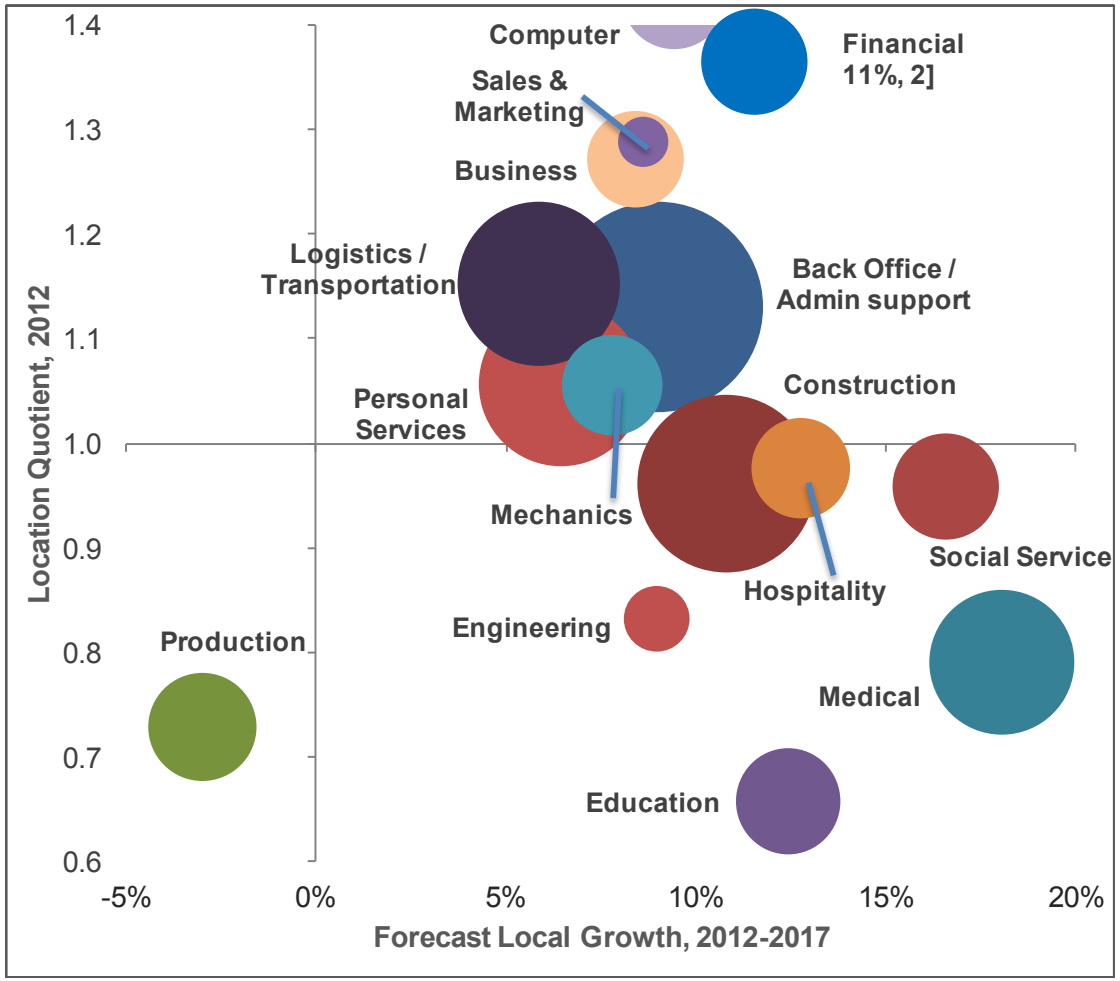
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Political (19% forecast growth), Medical (18%), and Agriculture (17%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Financial (LQ=2.1), Computer (1.4), and Sales & Marketing (1.3). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Agriculture, Political, and Medical.

Declining clusters of the past 5 years include Construction, which employs 21,700 workers, has an LQ of 1, and lost 28% of its employment base (8,400 jobs) in the last five years. Logistics/Transportation employs 57,600, LQ=1, and lost 11% (6,800 jobs). Production employs 25,000, LQ=.7, and lost 16% (4,700 jobs).

Occupation Clusters: Mecklenburg County, NC



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Mecklenburg County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	1,171	0.28	0.3%	3	199	17.0%	4.3%
Architecture	908	1.22	-30.9%	(406)	(4)	-0.4%	4.4%
Back Office / Admin support	96,060	1.13	-3.9%	(3,920)	8,648	9.0%	4.1%
Business	20,317	1.27	-3.0%	(626)	1,707	8.4%	3.6%
Communications	2,534	0.95	-5.8%	(157)	131	5.2%	6.6%
Computer	24,120	1.43	3.2%	740	2,275	9.4%	7.7%
Construction	21,733	0.98	-28.0%	(8,444)	2,773	12.8%	5.8%
Design	3,353	1.00	-6.8%	(243)	135	4.0%	4.3%
Education	23,824	0.66	7.8%	1,724	2,964	12.4%	7.1%
Engineering	9,373	0.83	-2.7%	(263)	842	9.0%	5.5%
Financial	31,427	2.06	-3.0%	(977)	3,413	10.9%	6.8%
Geology	89	0.08	-24.6%	(29)	4	4.5%	2.5%
Hospitality	68,473	0.96	5.0%	3,246	7,397	10.8%	5.7%
Legal	4,689	0.93	-2.0%	(94)	430	9.2%	5.9%
Logistics / Transportation	57,569	1.15	-10.5%	(6,772)	3,376	5.9%	2.5%
Math	565	1.22	7.4%	39	62	11.0%	8.1%
Mechanics	22,176	1.06	-6.1%	(1,452)	1,732	7.8%	4.0%
Medical	45,456	0.79	17.9%	6,907	8,206	18.1%	12.2%
Manufacturing	759	0.52	-16.0%	(145)	(36)	-4.7%	3.3%
Military	2,245	0.26	-4.3%	(100)	13	0.6%	0.8%
Sales & Marketing	5,354	1.29	-2.6%	(143)	461	8.6%	2.5%
Performance	1,870	0.90	17.7%	281	262	14.0%	8.6%
Political	388	0.84	2.1%	8	73	18.8%	8.0%
Production	24,989	0.73	-15.9%	(4,721)	(749)	-3.0%	-1.6%
Personal Services	58,345	1.06	-7.3%	(4,617)	3,770	6.5%	3.9%
Social Service	24,292	0.96	7.9%	1,779	4,027	16.6%	7.1%
All Occupations	551,707	1.00	-3.2%	(18,316)	52,150	9.5%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Rowan County, NC

Rowan County's three **largest clusters** by employment size are Back Office/Admin Support (5,700 employees), Production (5,600), and Logistics/Transportation (5,500).

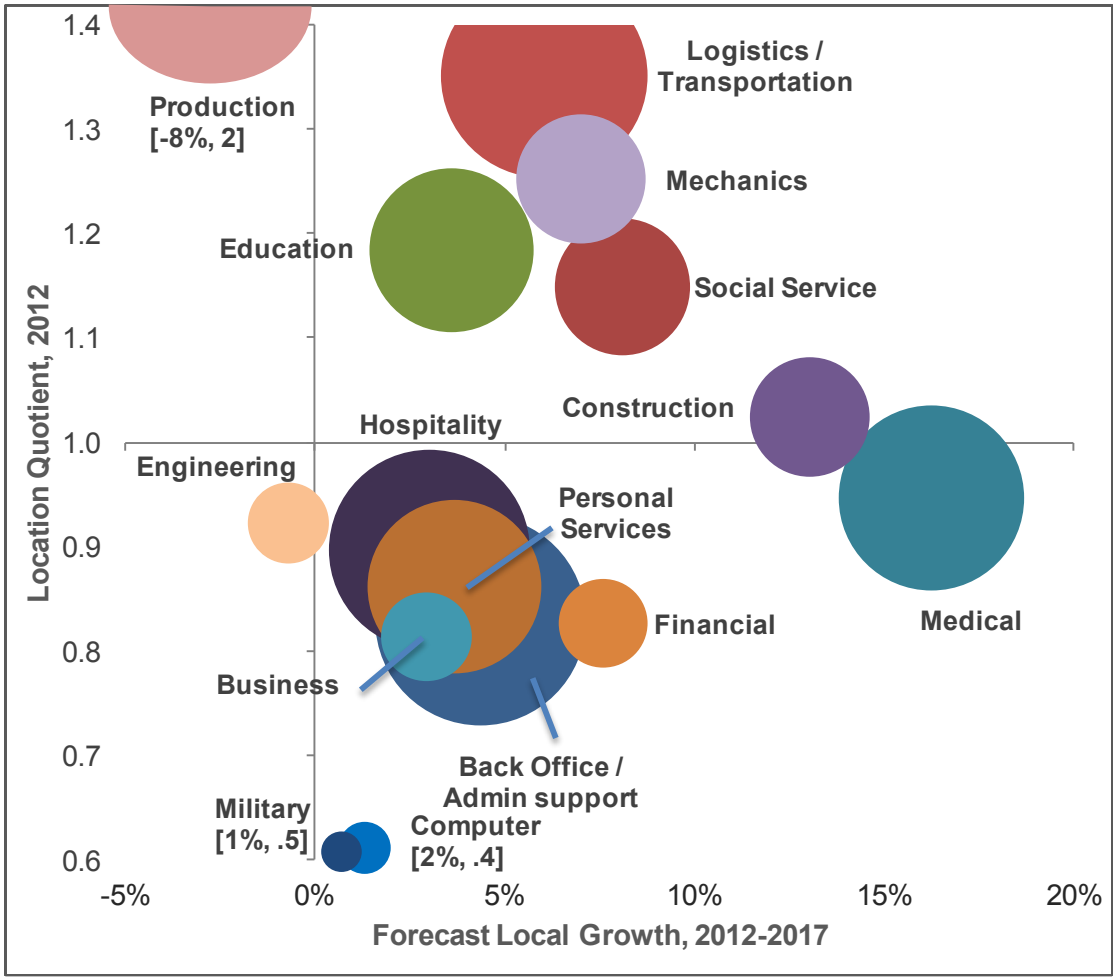
The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (7% growth, 300 new jobs), Engineering (4%, 30), and Social Service (1%, 20).

The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Agriculture (17% forecast growth), Medical (16%), and Construction (13%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Production (LQ=2.0), Manufacturing (1.4), and Logistics/Transportation (1.4). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Agriculture, Sales & Marketing, and Political.

Declining clusters of the past 5 years include Production, which employs 5,600 workers, has an LQ of 2, and lost 21% of its employment base (1,500 jobs) in the last five years. Logistics/Transportation employs 5,500, LQ=1, and lost 18% (480 jobs). Construction employs 1,900, LQ=1, and lost 19% (440 jobs).



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Rowan County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	248	0.72	-4.6%	(12)	42	16.9%	4.3%
Architecture	74	1.22	7.2%	5	3	4.1%	4.4%
Back Office / Admin support	5,732	0.83	-6.3%	(387)	249	4.3%	4.1%
Business	1,058	0.81	-5.7%	(64)	31	2.9%	3.6%
Communications	108	0.50	-3.6%	(4)	10	9.3%	6.6%
Computer	491	0.36	1.4%	7	12	2.4%	7.7%
Construction	1,858	1.02	-19.1%	(438)	242	13.0%	5.8%
Design	157	0.58	-14.7%	(27)	8	5.1%	4.3%
Education	3,494	1.18	-5.2%	(192)	126	3.6%	7.1%
Engineering	847	0.92	4.2%	34	(6)	-0.7%	5.5%
Financial	1,029	0.83	-0.4%	(4)	78	7.6%	6.8%
Geology	42	0.47	-19.2%	(10)	(3)	-7.1%	2.5%
Hospitality	5,205	0.90	-3.0%	(159)	157	3.0%	5.7%
Legal	165	0.40	7.8%	12	9	5.5%	5.9%
Logistics / Transportation	5,497	1.35	-8.0%	(475)	333	6.1%	2.5%
Math	10	0.26	100.0%	5	0	0.0%	8.1%
Mechanics	2,141	1.25	-10.5%	(251)	150	7.0%	4.0%
Medical	4,428	0.95	7.1%	294	720	16.3%	12.2%
Manufacturing	173	1.44	-18.4%	(39)	(31)	-17.9%	3.3%
Military	359	0.51	0.8%	3	2	0.6%	0.8%
Sales & Marketing	182	0.54	-5.2%	(10)	20	11.0%	2.5%
Performance	127	0.75	-2.3%	(3)	12	9.4%	8.6%
Political	30	0.80	11.1%	3	3	10.0%	8.0%
Production	5,622	2.01	-21.4%	(1,532)	(464)	-8.3%	-1.6%
Personal Services	3,878	0.86	-7.4%	(310)	143	3.7%	3.9%
Social Service	2,370	1.15	0.9%	22	192	8.1%	7.1%
All Occupations	44,922	1.00	-7.3%	(3,518)	2,023	4.5%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Stanly County, NC

Stanly County's three **largest clusters** by employment size are Hospitality (2,400 employees), Medical (2,200), and Personal Services (2,200).

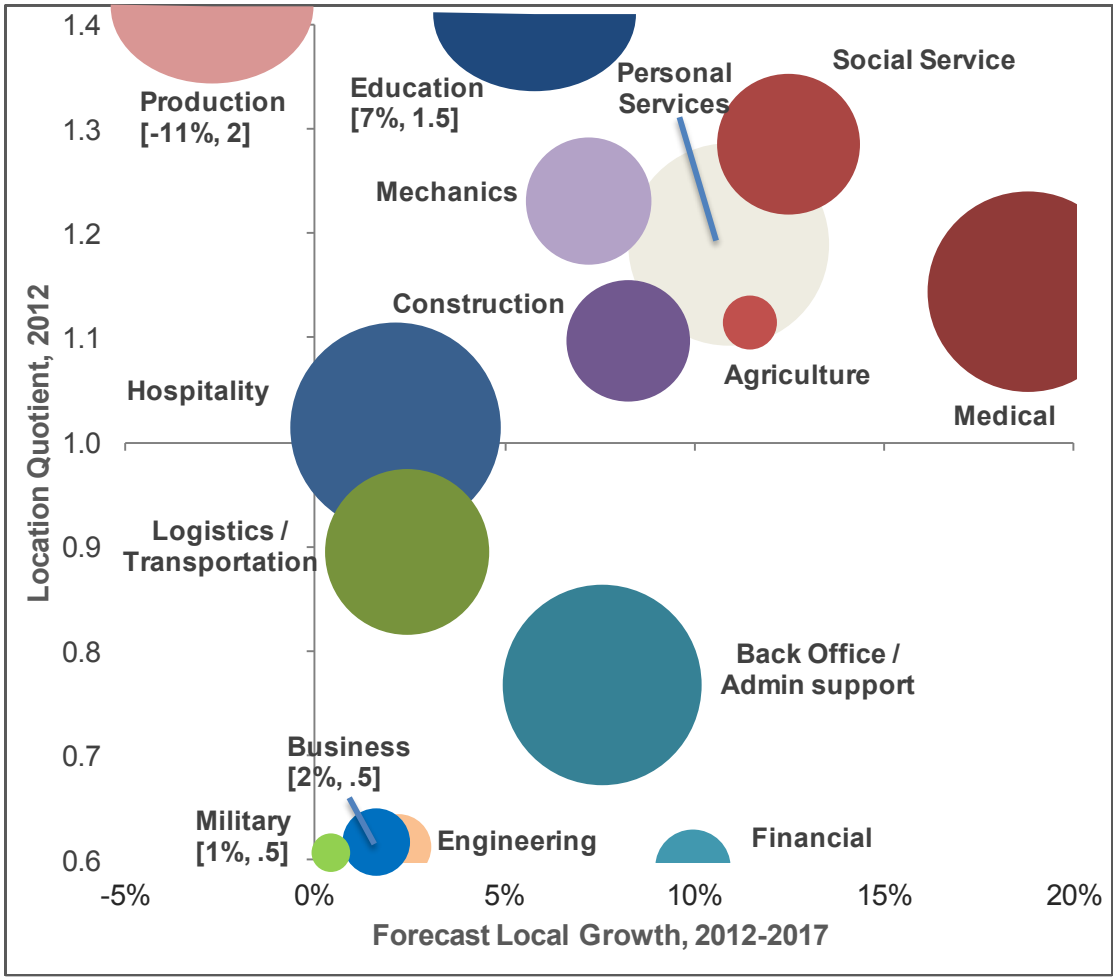
The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (14% growth, 300 new jobs), Agriculture (14%, 20), and Engineering (6%, 10).

The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Medical (19% forecast growth), Social Service (13%), and Agriculture (12%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Production (LQ=1.9), Education (1.5), and Manufacturing (1.3). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Financial, Back Office/Admin Support, and Legal.

Declining clusters of the past 5 years include Production, which employs 2,200 workers, has an LQ of 2, and lost 33% of its employment base (1,100 jobs) in the last five years. Construction employs 800, LQ=1, and lost 31% (370 jobs). Logistics/Transportation employs 1,500, LQ=.9, and lost 19% (360 jobs).



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Stanly County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	157	1.11	13.8%	19	18	11.5%	4.3%
Architecture	26	1.05	0.0%	0	0	0.0%	4.4%
Back Office / Admin support	2,164	0.77	-4.2%	(94)	164	7.6%	4.1%
Business	279	0.53	-16.7%	(56)	6	2.2%	3.6%
Communications	51	0.58	2.0%	1	2	3.9%	6.6%
Computer	122	0.22	-0.8%	(1)	0	0.0%	7.7%
Construction	812	1.10	-31.2%	(368)	67	8.3%	5.8%
Design	128	1.15	0.0%	0	0	0.0%	4.3%
Education	1,793	1.49	-2.1%	(38)	119	6.6%	7.1%
Engineering	229	0.61	6.0%	13	5	2.2%	5.5%
Financial	301	0.59	-5.3%	(17)	30	10.0%	6.8%
Geology	20	0.55	-20.0%	(5)	0	0.0%	2.5%
Hospitality	2,399	1.01	-4.5%	(112)	51	2.1%	5.7%
Legal	72	0.43	2.9%	2	3	4.2%	5.9%
Logistics / Transportation	1,484	0.89	-19.4%	(358)	36	2.4%	2.5%
Math	5	0.32	0.0%	0	0	0.0%	8.1%
Mechanics	859	1.23	-11.7%	(114)	62	7.2%	4.0%
Medical	2,187	1.14	14.3%	274	411	18.8%	12.2%
Manufacturing	64	1.31	1.6%	1	3	4.7%	3.3%
Military	155	0.54	0.6%	1	1	0.6%	0.8%
Sales & Marketing	56	0.41	-13.8%	(9)	2	3.6%	2.5%
Performance	73	1.06	19.7%	12	6	8.2%	8.6%
Political	20	1.31	0.0%	0	0	0.0%	8.0%
Production	2,181	1.91	-33.1%	(1,080)	(243)	-11.1%	-1.6%
Personal Services	2,184	1.19	0.3%	6	238	10.9%	3.9%
Social Service	1,082	1.29	1.3%	14	135	12.5%	7.1%
All Occupations	18,327	1.00	-9.3%	(1,890)	1,201	6.6%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Union County, NC

Union County's three **largest clusters** by employment size are Hospitality (6,700 employees), Back Office/Admin Support (5,900), and Logistics/Transportation (5,800).

The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (14% growth, 500 new jobs), Hospitality (5%, 300), and Education (1%, 70).

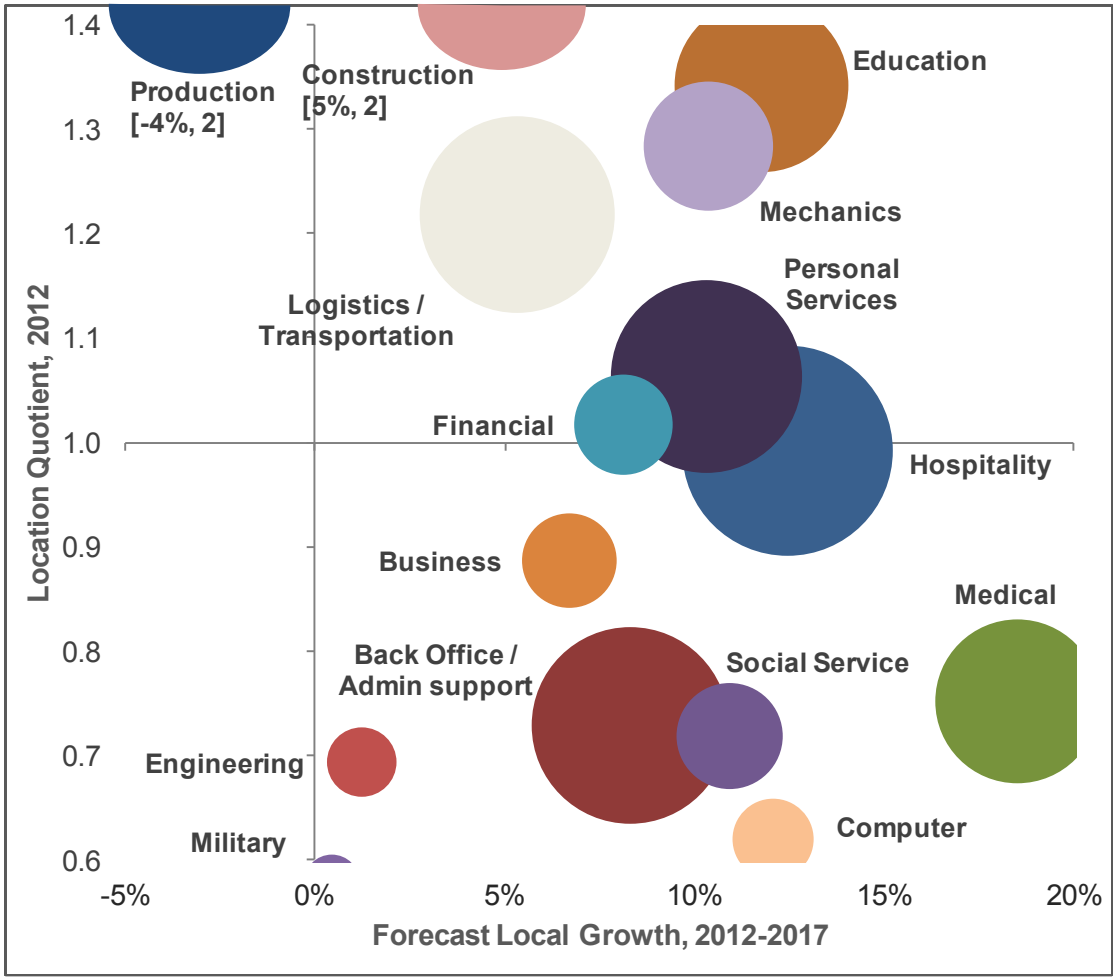
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Math (19% forecast growth), Medical (19%), and Political (16%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Construction (LQ=1.9), Production (1.6), and Education (1.3). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Math, Communication, and Computer.

Declining clusters of the past 5 years include Construction, which employs 4,100 workers, has an LQ of 2, and lost 44% of its employment base (3,200 jobs) in the last five years. Production employs 5,100, LQ=1, and lost 25% (1,700 jobs). Back Office employs 5,900, LQ=.7, and lost 11% (740 jobs).

Occupation Clusters: Union County, NC



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Union County, NC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	447	1.11	-13.7%	(71)	17	3.8%	4.3%
Architecture	61	0.86	-27.4%	(23)	(2)	-3.3%	4.4%
Back Office / Admin support	5,877	0.73	-11.1%	(735)	488	8.3%	4.1%
Business	1,344	0.89	-13.0%	(200)	90	6.7%	3.6%
Communications	117	0.46	3.5%	4	17	14.5%	6.6%
Computer	994	0.62	1.4%	14	120	12.1%	7.7%
Construction	4,060	1.92	-43.9%	(3,172)	202	5.0%	5.8%
Design	222	0.70	-9.4%	(23)	16	7.2%	4.3%
Education	4,619	1.34	1.4%	65	543	11.8%	7.1%
Engineering	742	0.69	-12.7%	(108)	9	1.2%	5.5%
Financial	1,476	1.02	-8.3%	(134)	120	8.1%	6.8%
Geology	45	0.43	-34.8%	(24)	0	0.0%	2.5%
Hospitality	6,712	0.99	5.2%	333	836	12.5%	5.7%
Legal	194	0.41	-4.4%	(9)	20	10.3%	5.9%
Logistics / Transportation	5,779	1.22	-9.0%	(572)	307	5.3%	2.5%
Math	26	0.59	30.0%	6	5	19.2%	8.1%
Mechanics	2,559	1.28	-12.1%	(353)	265	10.4%	4.0%
Medical	4,101	0.75	13.8%	497	759	18.5%	12.2%
Manufacturing	90	0.64	7.1%	6	0	0.0%	3.3%
Military	472	0.58	-0.4%	(2)	2	0.4%	0.8%
Sales & Marketing	335	0.85	-4.3%	(15)	42	12.5%	2.5%
Performance	118	0.60	-19.2%	(28)	11	9.3%	8.6%
Political	45	1.03	9.8%	4	7	15.6%	8.0%
Production	5,118	1.57	-24.7%	(1,675)	(205)	-4.0%	-1.6%
Personal Services	5,578	1.06	-4.0%	(235)	576	10.3%	3.9%
Social Service	1,728	0.72	-7.1%	(132)	189	10.9%	7.1%
All Occupations	52,376	1.00	-11.2%	(6,602)	4,456	8.5%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

Union County, SC

Union County's three **largest clusters** by employment size are Production (1,000 employees), Hospitality (800), and Back Office/Admin Support (700).

The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Medical (11% growth, 70 new jobs), Personal Services (5%, 30), and Communications (14%, 10).

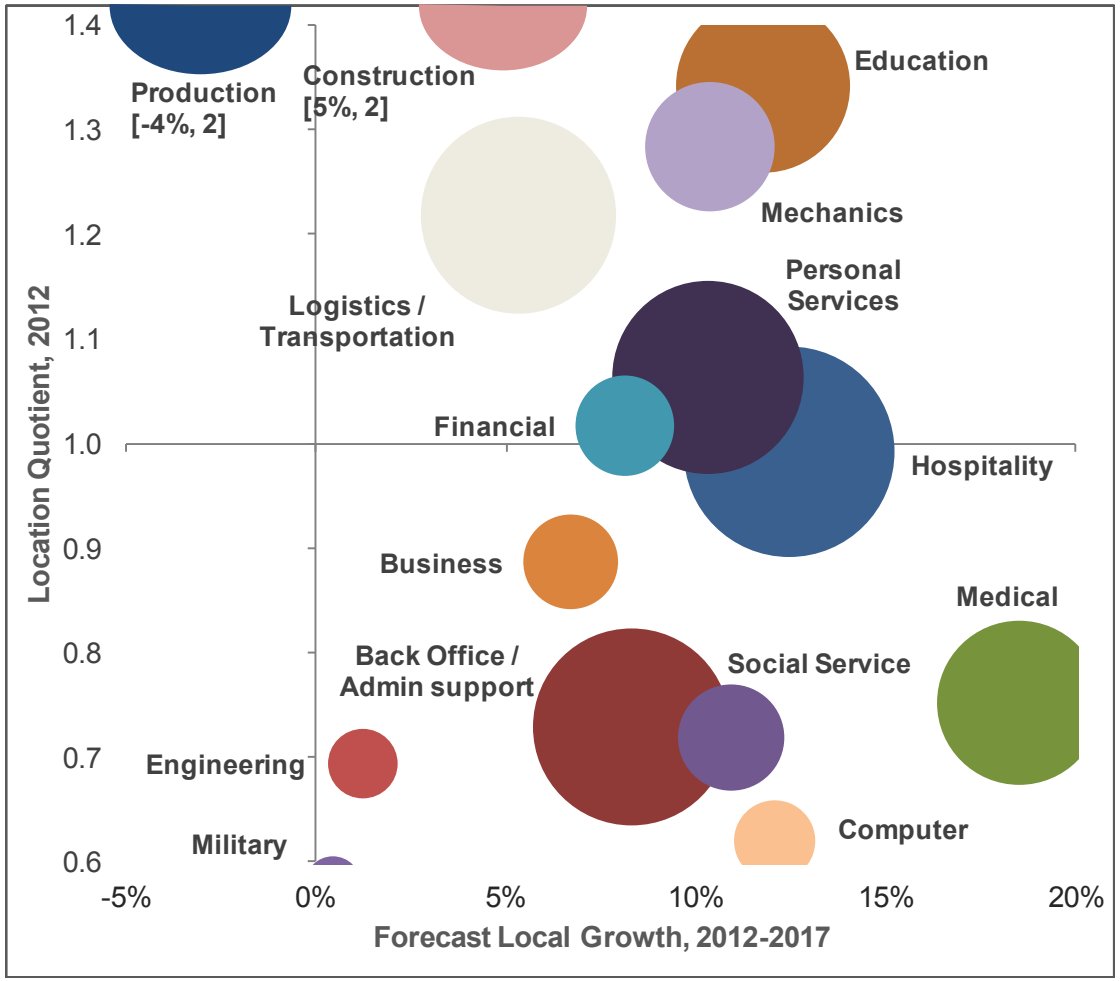
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Math (100% forecast growth), Engineering (12%), and Design (11%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Manufacturing (LQ=3.9), Production (2.7), and Agriculture (1.9). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Math, Business, and Construction.

Declining clusters of the past 5 years include Production, which employs 1,000 workers, has an LQ of 3, and lost 36% of its employment base (560 jobs) in the last five years. Back Office/Admin Support employs 700, LQ=.7, and lost 20% (180 jobs). Logistics/Transportation employs 500, LQ=.9, and lost 22% (140 jobs).

Occupation Clusters: Union County, SC



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

Union County, SC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	86	1.85	-12.2%	(12)	(6)	-7.0%	4.3%
Architecture	5	0.61	0.0%	0	0	0.0%	4.4%
Back Office / Admin support	690	0.74	-20.4%	(177)	12	1.7%	4.1%
Business	103	0.59	-28.0%	(40)	10	9.7%	3.6%
Communications	40	1.37	14.3%	5	0	0.0%	6.6%
Computer	75	0.41	-10.7%	(9)	(3)	-4.0%	7.7%
Construction	242	0.99	-12.3%	(34)	19	7.9%	5.8%
Design	45	1.23	12.5%	5	5	11.1%	4.3%
Education	565	1.42	-17.0%	(116)	23	4.1%	7.1%
Engineering	160	1.30	-18.4%	(36)	19	11.9%	5.5%
Financial	134	0.80	-19.8%	(33)	6	4.5%	6.8%
Geology	0	0.00		0	0		2.5%
Hospitality	791	1.01	-5.8%	(49)	(7)	-0.9%	5.7%
Legal	35	0.64	0.0%	0	0	0.0%	5.9%
Logistics / Transportation	501	0.92	-21.8%	(140)	(16)	-3.2%	2.5%
Math	5	0.98		5	5	100.0%	8.1%
Mechanics	351	1.53	-16.8%	(71)	5	1.4%	4.0%
Medical	686	1.09	10.5%	65	61	8.9%	12.2%
Manufacturing	64	3.97	-34.0%	(33)	(12)	-18.8%	3.3%
Military	118	1.25	1.7%	2	1	0.8%	0.8%
Sales & Marketing	20	0.44	0.0%	0	0	0.0%	2.5%
Performance	20	0.88	-23.1%	(6)	0	0.0%	8.6%
Political	5	0.99	0.0%	0	0	0.0%	8.0%
Production	996	2.65	-35.9%	(558)	(14)	-1.4%	-1.6%
Personal Services	657	1.09	5.1%	32	23	3.5%	3.9%
Social Service	388	1.40	-3.2%	(13)	6	1.5%	7.1%
All Occupations	6,043	1.00	-18.3%	(1,357)	132	2.2%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)

Occupation Clusters

York County, SC

York County's three **largest clusters** by employment size are Back Office/Admin Support (13,100 employees), Personal Services (9,300), and Hospitality (9,200).

The county's three **fastest growing clusters of the past 5 years** (2007 to 2012) were Personal Services (14% growth, 1,100 new jobs), Back Office (6%, 700), and Logistics/Transportation (8%, 400).

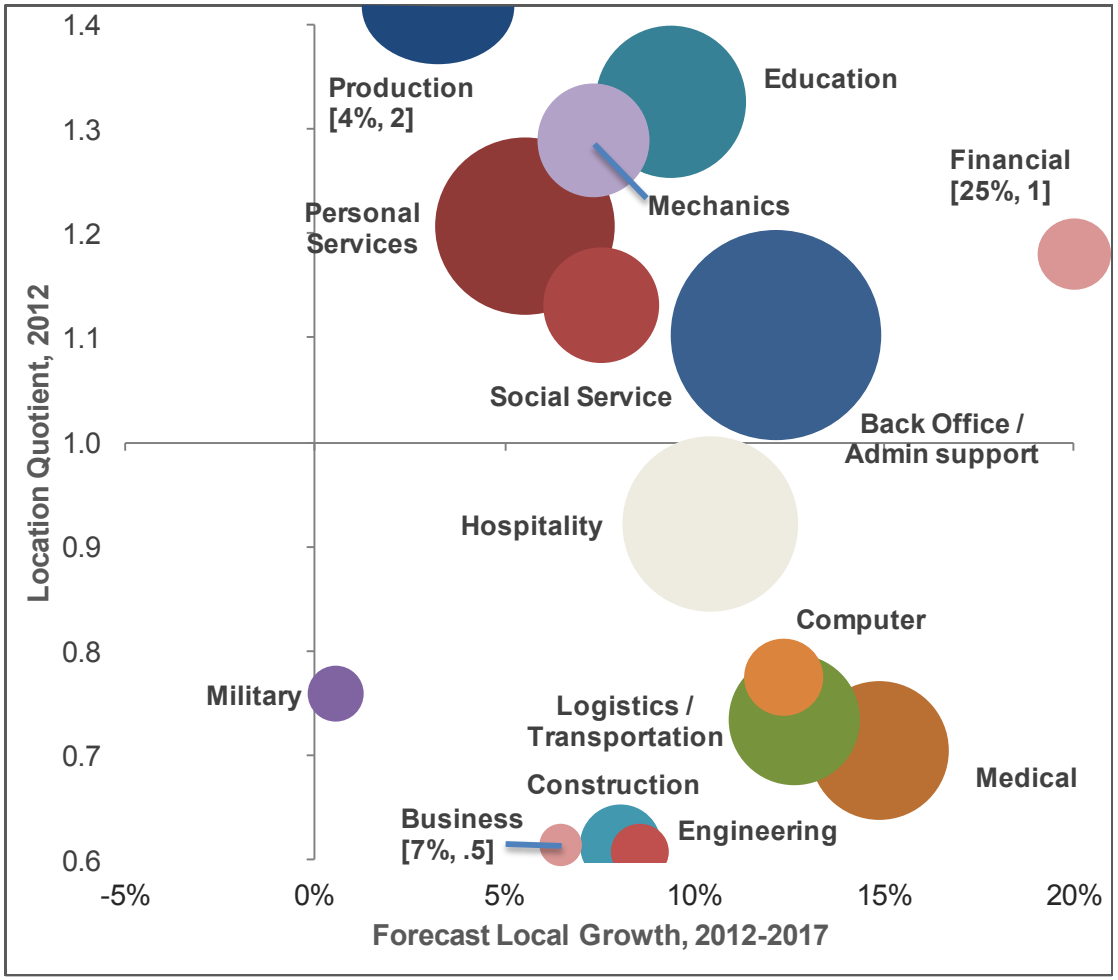
The three **fastest forecasted growth clusters** (2012 to 2017) for the county are: Financial (25% forecast growth), Performance (17%), and Medical (15%). *[Note: Forecasts from EconomicModeling.com]*

The county's **clusters with the highest concentration** (highest Location Quotient) are Math (LQ=2.3), Manufacturing (2.0), and Architecture (1.8). These clusters represent the areas of greatest specialization and competitiveness for the county.

Small, **emerging clusters** – those with a low LQ but forecasted high growth rates – include Communications, Performance, and Computer.

Declining clusters of the past 5 years include Construction, which employs 1,900 workers, has an LQ of .6, and lost 27% of its employment base (720 jobs) in the last five years. Production employs 8,400, LQ=2, and lost 3% (230 jobs). Business employs 1,200, LQ=.5, and lost 3% (40 jobs).

Occupation Clusters: York County, SC



Source: Avalanche Consulting using data from EMSI

Note: Largest 15 by Employment Size (Bubble Size)

Occupation Cluster Competitiveness

York County, SC

Cluster	2012 Employment	2012 LQ	2007-2012 Job Creation		Forecast, '12-'17 Growth		
			Growth	New Jobs	New Jobs	Local %	US %
Agriculture	365	0.62	19.3%	59	(11)	-3.0%	4.3%
Architecture	183	1.76	1.1%	2	14	7.7%	4.4%
Back Office / Admin support	13,114	1.10	5.7%	702	1,595	12.2%	4.1%
Business	1,163	0.52	-2.9%	(35)	78	6.7%	3.6%
Communications	39	0.10	11.4%	4	5	12.8%	6.6%
Computer	1,832	0.77	7.9%	134	226	12.3%	7.7%
Construction	1,915	0.61	-27.2%	(715)	154	8.0%	5.8%
Design	253	0.54	0.4%	1	21	8.3%	4.3%
Education	6,732	1.33	5.7%	363	631	9.4%	7.1%
Engineering	958	0.61	3.5%	32	82	8.6%	5.5%
Financial	2,532	1.18	15.9%	348	627	24.8%	6.8%
Geology	45	0.29	0.0%	0	5	11.1%	2.5%
Hospitality	9,187	0.92	1.6%	149	958	10.4%	5.7%
Legal	729	1.04	0.8%	6	65	8.9%	5.9%
Logistics / Transportation	5,129	0.73	8.3%	392	649	12.7%	2.5%
Math	148	2.28	20.3%	25	19	12.8%	8.1%
Mechanics	3,789	1.29	-0.7%	(28)	278	7.3%	4.0%
Medical	5,673	0.70	4.4%	239	843	14.9%	12.2%
Manufacturing	401	1.95	5.8%	22	9	2.2%	3.3%
Military	914	0.76	4.0%	35	5	0.5%	0.8%
Sales & Marketing	622	1.07	7.6%	44	60	9.6%	2.5%
Performance	210	0.72	10.5%	20	36	17.1%	8.6%
Political	10	0.15	100.0%	5	0	0.0%	8.0%
Production	8,398	1.75	-2.6%	(226)	363	4.3%	-1.6%
Personal Services	9,344	1.21	13.7%	1,127	517	5.5%	3.9%
Social Service	4,010	1.13	3.4%	132	303	7.6%	7.1%
All Occupations	77,222	1.00	3.9%	2,878	7,549	9.8%	5.2%

Source: Avalanche Consulting using data and forecasts from EMSI (EconomicModeling.com)