FAST GROWTH OCCUPATIONS

A collaboration among Geisinger Commonwealth School of Medicine, Keystone College, King’s College, Lackawanna College, Luzerne County Community College, Marywood University, Misericordia University, Penn State Scranton, Penn State Wilkes-Barre, The Wright Center, University of Scranton & Wilkes University
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Introduction

Throughout Northeastern Pennsylvania, as well as throughout the United States, unemployment and other occupation-related issues sit at the forefront of citizens’ and policymakers’ minds. A July 2016 poll from Pew Research Center found that the economy was the top issue American voters were considering in the 2016 presidential election – 84 percent of voters rated it as “very important” when they were considering their upcoming vote.¹

However, as we move into the next decade, other issues such as an aging population and the further proliferation of technology in our lives also must be addressed. What sorts of jobs will Northeastern Pennsylvania require in the coming years, and how can our community ensure that these positions are filled? This analysis, an effort by the Institute for Public Policy and Economic Development’s Education and Workforce Development Task Force, identifies ten “high growth occupations,” or occupations that already employ a sizable number of people and are projected to grow at a fast rate in Northeastern Pennsylvania over the next ten years.

The first five occupations are in the medical or health sector. Each of these occupations has the following:

- A projected annual growth rate of 2.3 percent or greater over the next ten years
- At least 200 employees currently in Lackawanna and Luzerne counties combined
- A positive average annual percent change in employment in Lackawanna and Luzerne counties over the past ten years (first quarter of 2007 to first quarter of 2017)

The remaining five occupations studied are in the non-medical or health sector jobs. Each of these occupations has the following:

- A projected annual growth rate of 1.5 percent or greater over the next ten years
- At least 68 employees currently in Lackawanna and Luzerne counties combined
- An average annual percent change in employment in Lackawanna and Luzerne counties over the past ten years (first quarter of 2007 to first quarter of 2017) of no lower than -4.4 percent

These criteria were chosen in order to address jobs that have both a significant number of employees currently and have a high projected annual growth rate. This is to ensure that the jobs studied are not those that will employ few people (for example, a job that has one employee in 2017 and is projected to have two employees in 2027 will have a very high projected growth rate of 100 percent). Additionally, the jobs selected have had low or negative levels of job loss over the past decade. This ensures that the job fields studied are sustainable, and will employ many citizens in future decades to come. While there are other medical or health sector jobs that also fit the criteria below, only the top five were studied. The other five non-medical or health sector occupations were chosen in order to study jobs in high demand that lay outside of that specific sector.

Among these ten occupations, there is a varied degree of experience and education needed, demonstrating the need for workforce development at all levels.

For each occupation, a job description, career path outline, job skills list, educational credentials list, and examples of employers list are included. Additionally, some occupations have occupation-specific case studies included that briefly describe workforce development efforts for that specific career. Some occupations, especially those that require higher levels of education, do not have established workforce development efforts outside of existing programs at educational institutions. However, as jobs such as these increase in demand over the next decade and beyond, the definition of “workforce development” may alter to encompass these occupations requiring higher levels of education.

The data gathered was taken from JobsEQ, a subscription-based labor market data software. The data reflects the forecasted replacement and growth demand from the first quarter of 2017. The data represents Lackawanna and Luzerne counties.

¹ References
Executive Summary

Per the data, the five occupations with the highest projected annual growth rate are all in the medical or health sector. These five occupations have a projected annual growth rate of at least 2.3 percent, or the addition of 200 employees, for the next ten years. These occupations are listed below, with their annual projected growth over the next ten years in parentheses.

1. Home Health Aides (2.7%)
2. Nurse Practitioners (2.5%)
3. Emergency Medical Technicians and Paramedics (2.4%)
4. Physical Therapists (2.4%)
5. Health Technologists and Technicians, All Other (2.3%)

Below are the top five non-medical or health sector occupations by projected annual growth rate.
1. Operations Research Analysts (1.8%)
2. Personal Financial Advisors (1.8%)
3. Interpreters and Translators (1.7%)
4. Web Developers (1.7%)
5. Brickmasons and Blockmasons (1.5%)
Home Health Aides

Job Description
Home health aides help people who have a disability, chronic illness, or cognitive impairment with activities of daily living. They often help older adults who need assistance. They assist clients in daily personal tasks (bathing, dressing, etc.), provide basic health-related services (administer prescribed medications at scheduled times, check vital signs, etc.), do light housekeeping, schedule appointments for the client and arrange transportation to doctors’ offices or for other kinds of outings, shop for groceries and prepare meals that meet the client’s dietary specifications, and help keep clients engaged in their social networks and communities. They keep records of services performed and clients’ conditions and progress, and then report changes in clients’ conditions to supervisors or case managers.

Career Path
Home health aides typically work for certified home health or hospice agencies that receive government funding. They work under the direct supervision of medical professionals, usually nurses but sometimes for therapists or other medical staff. After working as a home health aide for many years, there are often opportunities to move into supervisory and mentor roles that involve overseeing and educating other home health care aides. With a high school diploma, training and education can be furthered to become medical assistants, nurses, or other health care professionals.

Job Skills
“Soft Skills:” Listening, Verbal Communication, Interpersonal Skills, Emotional Control, Dependability, Health Promotion and Maintenance, Physical Strength
“Hard Skills:” Basic Nursing Skills, Patient Services, Basic Housekeeping Tasks

Educational Credentials
There are no formal education requirements, but a high school diploma is recommended. CNA (Certified Nursing Assistant) certification is sometimes preferred. However, a standardized test must be passed and a formal training course must be completed. In Pennsylvania, they must have completed an approved program of training that includes hands-on experiences and classroom instruction prior to, or during the first three months of employment at a state certified home health aide agency.

Types of Employers
Senior Living Centers, Assisted Living Facilities for the Elderly, Continuing Care Retirement Communities, Home Health Care Services, Individual and Family Services, Rehabilitation Care Centers, Residential Intellectual and Developmental Disability Facilities, Mental Health Facilities, Psychiatric and Substance Abuse Hospitals, Hospice Centers
Occupational Case Studies

Waverly Care Academy – Gladwyne, PA and Radnor, PA

Waverly Care Academy offers continuing education to caregivers and the public.\textsuperscript{2} Certificates of completion for courses are given to those who demonstrate proficiency on the topic after the course. Course offerings include: Chronic Disease Management, Managing Cardiac Disease, Managing Pulmonary Diseases, Parkinson’s & Stroke, Falls Prevention and Safety Assessment, Dehydration and Malnutrition, Managing Skin Integrity, Incontinence, and Urinary Tract Infection.

PHI Quality Care Through Quality Jobs

PHI offers a variety of services to help create strong relationships between direct care workers and clients.\textsuperscript{3} A sampling of these services are listed below:

Advanced Roles: PHI supports long-term care providers in the creation of internal career ladders for their direct care workforce. Some prior example of advanced roles for direct care workers include assistant trainers, peer mentors, and assistant coordinators.

Curriculum Design: PHI is working to develop an online learning curriculum for direct workers, focusing on conditions that account for the highest number of hospital readmissions and emergency room use among long-term care clients (such as diabetes, dementia, hypertension, and others).

Recruitment and Retention: Recruitment services offered by PHI help long-term care employers better attract and hire the candidates who are best suited to provide quality service to long-term care patients.

\textbf{Job Outlook, 2014-2024: 38\%} \hspace{1cm} \textbf{Number of Jobs: 913,500 (2014); 814,300 (May 2016)}
Nurse Practitioners

Career Path
The specialty chosen during clinical training often determines a nurse practitioner’s career path. In order to become a nurse practitioner, one must choose a field in which he or she wants to specialize. Examples of career paths for nurse practitioners include children’s health care, acute care nursing, and family nurse practitioner.

Job Skills
"Soft Skills:" Compassion, Ethics, Verbal communication, Listening Skills, Interpersonal Skills, Collaborative, Confidence, Critical Thinking, Attention to Detail, Adaptability, Stamina, Leadership Skills, Time Management, Organizational Skills

"Hard Skills:" Advanced Practice Skills, Clinical Skills, Starting Peripheral Intravenous (IV) Lines, Inserting Urinary Catheters, Administering Injections, Checking Vital Signs, Performing Dressing Changes

Educational Credentials
Master’s degree in one of the APRN roles is required. Nurse practitioners must also be licensed in their state and pass a national certification exam. In Pennsylvania, 45 hours of coursework must be in pharmacology and at least 16 hours must be completed in the two-year period preceding application.

Types of Employers
General Medical and Surgical Hospitals, Physicians’ Offices, Home Health Care Services, Elementary and Secondary Schools, Colleges, Universities, Professional Schools, Health Clinics, Outpatient Care Centers, Specialty Hospitals except Psychiatric and Substance Abuse Hospitals), Personal Care Services, Medical and Diagnostic Laboratories,

Job Description
Nurse Practitioners coordinate patient care and may provide primary and specialty health care. The scope of practice varies from state to state. For more information on the scope of practice for nurse practitioners in Pennsylvania, see http://www.pacode.com/secure/data/049/chapter21/s21.282a.html.

Job Outlook, 2014-2024: 31%  Number of Jobs: 170,400 (2014); 150,230 (May 2016)
Emergency Medical Technicians and Paramedics

Job Description
Emergency medical technicians (EMT) and paramedics care for the sick or injured in emergency medical settings. They respond to emergency calls, perform medical services, and transport patients to medical facilities.

Career Path
A person can begin as an EMT-Basic and eventually be classified as an EMT-Intermediate upon additional training and licensing requirements. It is possible to move from an EMT to a paramedic. There are also many bridge programs to help paramedics become nurses. With a lot of experience, EMT’s or paramedics can become emergency medical services educators or managers. EMTs and paramedics also have the skills that can help them be admitted into medical schools to become physicians.

Job Skills
“Soft Skills:” Decision-Making, Social Perceptiveness, Interpersonal Skills, Listening Skills, Communication Skills to Give Orders in a Stressful Environment, Ability to Work in a Stressful Environment, Monitoring and Assessing Situations, Complex Problem-Solving Skills, Compassion, Physical Strength
“Hard Skills:” Assessing Patients’ Conditions, Dealing With Trauma and Cardiac Emergencies, Stitching Wounds, Administer Intravenous Medications, Clearing Obstructed Airways, Using Field Equipment, Handling Emergencies. (EMTs might also be required to use complex airway devices, intravenous fluids, and some medications.)

Educational Credentials
High school diploma or equivalent and a cardiopulmonary resuscitation (CPR) certification are required. EMTs and paramedics also must complete a postsecondary educational program in emergency medical technology, which is usually a non-degree award program that often takes less than a year and no longer than two years. Sometimes an associate’s degree is required for paramedics.

Types of Employers
General Medical and Surgical Hospitals, Occupational Health Service Companies, Outpatient Care Centers, Ambulatory Health Care Services, Medical Transportation Services, Local Government

Occupational Case Studies
Emergency Medical Technicians and Paramedics Apprenticeship Program
Operated by the Cetronia Ambulance Corps and Eastern Pennsylvania EMS Council, this program is Pennsylvania’s first four-year emergency medical technician/paramedic apprenticeship program. This program allows participants to be trained at a company and gain on-the job experience, with the potential to gain employment with that company after successful completion of the program. EMT apprentices attend class in the evenings twice a week and one weekend a month while working side-by-side with EMTs and paramedics. Paramedics get more training and work on rotation with various hospital units, such as emergency rooms and operating rooms. Apprentices work full-time and are paid while they are in the program: $12/hour for EMTS in training while on paratransit; $13/hour for EMTs on ambulances; and $21.05 for paramedics.

Job Outlook, 2014-2024: 24%
Number of Jobs: 241,200 (2014); 244,960 (May 2016)
Physical Therapists

Job Description

Physical therapists help injured or ill people improve their movement and manage their pain. These therapists are often an integral part of the rehabilitation and treatment, and with the prevention of chronic conditions, illnesses, or injuries.

Career Path

Physical therapists can apply to and complete a clinical residency program upon college graduation to receive additional training and experience in specialty areas of care. After completing one of these clinical residency programs, therapists can complete a fellowship in an advanced clinical area to further specialize. After gaining work experience and completing a certification program, physical therapists can become board-certified specialists in one of eight clinical areas.

Job Skills

“Soft Skills:” Compassion, Interpersonal Skills, Physical Stamina, Resourcefulness, Attentive to Detail, Active Learning, Critical Thinking

“Hard Skills:” Operate Medical Diagnostic Equipment, Treat Physical or Mental Problems

Educational Credentials

Must possess a Doctor of Physical Therapy (DPT) degree and be licensed.

Types of Employers

Nursing Homes, Continuing Care Retirement Communities, Assisted Living Facilities for the Elderly, General Medical and Surgical Hospitals, Physicians’ Offices, Sports Clinics, Therapeutic Offices, Home Health Care Services, Skilled Nursing Care Facilities, Specialty Hospitals (except Psychiatric and Substance Abuse Hospitals), Outpatient Care Centers

Job Outlook, 2014-2024: 34%

Number of Jobs: 210,900 (2014); 216,920 (May 2016)
Health Technologists and Technicians, All Other

Job Description
Health technologists and technicians have many similar, and sometimes overlapping, tasks. Technologists focus more on problem-solving, interpreting data, cross matching blood samples, and establishing and monitoring programs. Technicians focus more on preparing specimens, operating automated analyzers, and performing detailed, manual tests.

Career Path
Health technologists often act as project managers and can advance their careers by continuing to take education courses.

Job Skills
“Soft Skills:” Analyzing Information, Attention to Detail, Problem-Solving, Verbal Communication Skills, Ability to Perform Complex Procedures
“Hard Skills:” Use of Medical Technologies, Performing Diagnostic Procedures, Technical Understanding, Proficient with Computer Technology, Ability to Analyze Samples,

Educational Credentials
Health technologists must have an associate’s degree in a program that stresses practical skills, or have a degree in another field and take a one-year certificate program. Health technologists require a bachelor’s degree in medical technology or life sciences. Licensing laws differ between states for both health technologists and health technicians in the all other category.

Types of Employers
General Medical Surgical Hospitals, Outpatient Care Centers, Offices of Physicians, Offices of Other Health Practitioners, Federal Executive Branch (OES Designation), Medical and Diagnostic Laboratories, Ambulatory Health Care Services, Health Clinics, Specialty Hospitals (except Psychiatric and Substance Abuse Hospitals), Individual and Family Services

Job Outlook, 2014-2024: 16%  Number of Jobs, 2016: 12,170
Operations Research Analysts

Job Description
Operations research analysts use advanced mathematical and analytical methods to help organizations investigate complex issues, identify and solve problems, and make better decisions.

Career Path
Few colleges offer degree programs in operations research so many students get degrees in related fields, such as in mathematics or computers.

Job Skills
“Soft Skills:” Analyzing Information, Communication, Interpersonal Skills, Critical Thinking, Complex Problem-Solving, Decision-Making, Ingenuity
“Hard Skills:” Mathematics, Writing, Data Analysis, Ability to Develop Business Methods and Procedures, Ability to Design, Conduct, and Evaluate Experimental Models

Educational Credentials
Bachelor’s degree is required for many entry-level positions, but many employers prefer to hire operational research analysts who have a master’s degree. Coursework must include statistics, calculus, linear algebra, and computer science.

Types of Employers

Job Outlook, 2014-2024: 30%                  Number of Jobs: 91,300 (2014), 109,150 (May 2016)
Personal Financial Advisors

Job Description

Personal financial advisors provide advice on investments, insurance, mortgages, college saving, estate planning, taxes, and retirement to help individuals manage their finances.

Career Path

Chances for advancement in this occupation to managerial positions is improved with a master’s degree and certification.

Job Skills

“Soft Skills:” Analyzing Information, Verbal Communication, Active Listening, Interpersonal Skills, Critical Thinking, Ingenuity, Problem-Solving, Decision-Making, Ability to Handle Stress, Attention to Detail, Organizational Skills, Passion, Negotiation

“Hard Skills:” Sales Skills, Mathematics, Writing, Data Analysis,

Educational Credentials

Bachelor’s degree is required.

Types of Employers

Financial Institutions, Financial Planners, Financial Aid Specialists, Banks, Securities and Commodity Contracts Intermediation and Brokerage, Insurance Companies, Agencies, and Brokerages, Securities and Commodity Exchanges, Depository Credit Intermediation, Corporations and other Businesses, Labor Organizations, Political Organizations, Professional, Scientific, and Technical Services, Other Financial Investment Services, Other Investment Pools and Funds

Occupational Case Studies

Vanguard Financial Advisor Development Program (FADP)

The Vanguard Financial Advisor Development Program (FADP) is a two-year rotational program that helps prepare participants for a career with Vanguard’s Personal Advisor Services (PAS). Under the supervision and mentorship of a Certified Financial Planner (CFP), participants are able to develop the skills they will need in their future as a financial advisor. Some of the skills focused on include managing relationships with clients, methodology, and consultative sales skills.

Job Outlook, 2014-2024: 30%  Number of Jobs: 249,400 (2014), 201,850 (May 2016)
Interpreters and Translators

Job Description
Interpreters and translators convert information from one language into another language. Interpreters work in spoken or sign language; translators work in written language.

Career Path
With increasing globalization trends and various industries requiring translators and interpreters, there is a wide range of job opportunities available for interpreters and translators.

Job Skills
“Soft Skills”: Interpersonal Skills, Verbal Communication Skills, Attentive to Detail, Non-Judgmental, Organization Skills, Confidentiality

“Hard Skills”: Simultaneous Interpretation, Linguistic Competence, Cultural Competency, Ability to Accurately Transfer Style, Tone, and Cultural Elements, IT skills (especially Microsoft Office and Computer Assisted Translation tools)

Educational Credentials
Bachelor’s degree is typically required. Must also possess native-level proficiency in English and at least one other language. There are often job-specific training programs that must be completed as well.

Types of Employers
Translating and Interpreting Services, Elementary and Secondary Schools, Colleges, Universities, Professional Schools, Junior Colleges, Courtrooms, General Medical and Surgical Hospitals, Community Food and Housing, Emergency, and Other Relief Services, Conference Centers, Self-Employment, Corporations and Other Businesses

Occupational Case Studies
American Translator Association’s School Outreach Program
This program allows professional linguists to go into schools to give presentations to students of all ages about what it’s like to work as an interpreter or translator. The ATA provides resources and tips regarding how to build a relationship with schools, how to create presentations, and more.

Job Outlook, 2014-2024: 29%  Number of Jobs: 61,000 (2014), 51,350 (May 2016)
Web Developers

Job Description
Web developers design, create, and modify websites. They are responsible for the site’s appearance and technical aspects, such as its performance and capacity. They must implement website content, graphics, performance, and capacity. They may also integrate websites with other computer applications and may convert written, graphic, audio, and video components to compatible web formats with appropriate software.

Career Path
Although a large percentage of web developers are self-employed, experienced web developers who can make themselves stand out, can work for large corporations or organizations and receive higher salaries.

Job Skills
“Soft Skills:” Visual Design, Knowledge on User Experience, Knowledge on Search Engine Optimization, Commitment to Constant Learning, Communication Skills, Listening Skills

“Hard Skills:” Mathematics, Programming, Server Administration, Ability to use Design Software (Photoshop, Illustrator, etc.), Ability to use Coding Software (HTML, CSS, etc.), Ability to Add Interactivity to a Website (such as with JavaScript or jQuery), Marketing, Knowledge of Social Media, Business Skills

Educational Credentials
Typically, an associate’s degree in web design or related field is required. Web designers must have both programming and graphic design knowledge.

Types of Employers

Job Outlook, 2014-2024: 27%  
Number of Jobs: 148,500 (2014), 129,540 (May 2016)
Brickmasons and Blockmasons

Career Path
Those who have a good job history and experience in construction are the most likely to be hired as brickmasons and blockmasons.

Job Skills
“Soft Skills:” Physical Stamina, Physical Strength, Visualization, Hand-Eye Coordination
“Hard Skills:” Lay and Bind Building Materials

Educational Credentials
Most masons have a high school diploma or equivalent. Masons can learn on the job, through an apprenticeship program, or through one to two year masonry programs at technical schools. Most masons learn the trade through a three to four year apprenticeship.

Types of Employers
Construction (especially of new schools, hospitals, and apartment buildings and to restore a growing number of brick buildings), Foundation, Structure, and Building Exterior Contractors, Nonresidential Building Construction, Building Finishing Contractors, Residential Building Construction, Other Specialty Trade Contractors, Highway, Street, and Bridge Construction, Local Government

Occupational Case Studies
Cement Masons and Plasterers Local 592 Apprenticeship Program – Philadelphia, PA
The apprenticeship program combines on-the-job training with academic instruction for those wishing to enter the field of masonry. Participants are required to be of legal working age, have a high school diploma or equivalent, and be in good physical condition. Apprentices must participate in the program for a minimum of three years and complete 3,000 (cement masons) or 6,000 (plasterers) apprenticeship hours, in addition to completing all required in-house instruction.

Job Outlook, 2014-2024: 19% Number of Jobs: 59,240 (May 2014); 64,370 (May 2016)
Literature Review

The identified high growth occupations in Northeastern Pennsylvania include home health aides, nurse practitioners, EMT’s, paramedics, health technicians and technologists, operations research analysts, personal finance advisors, interpreters and translators, web designers, and brick masons and block masons. Ideally, filling these job positions with employees that have the proper skills will begin a chain reaction that allows the regional economy as a whole to improve. Upon examining what the current literature states about the possible outcomes of ignoring the problem and analyzing the potential implications that these political analysts and economists believe can result from filling these positions, several solutions must be examined in the literature to determine what next steps should be taken by regional policymakers to encourage workforce development in Northeastern Pennsylvania.

Statistically, Northeastern Pennsylvania needs to make improvements to help match employers with men and women who are looking for work. While many businesses are having a difficult time finding enough employees with the proper skills to fill vital positions, there is a large amount of people currently looking for work who cannot find it. The U.S. Bureau of Labor Statistics reports that the unemployment rate in May 2017 for the Scranton, Wilkes-Barre, and Hazleton area was 5.9 percent, which is higher than the national unemployment rate of 4.3 percent and the state unemployment rate of 5 percent for that same month. There is a general consensus among analysts that this gap is caused by a workforce lacking the skills that are the most important for today's employers. Several researchers and analysts have examined this issue of a “skills gap” on both the national and the state level, and most have agreed that the economy is suffering as a result.

One important aspect that analysts have considered is the relationship between the amount of people with the proper skills applying for jobs and the hiring rates of employers. Brian Gottlob, who writes for the New Hampshire Business Review, states that if the working age population has a low growth rate, it is imperative for the labor force to have a high participation rate. He believes that the United States on average has seen slower population growth in both the working age population and the labor force population, which hinders the American economy from growing. Jim Ryan examines this issue at the state level and believes that the problem in Pennsylvania is not caused by a small labor force population, but by a poor performing economy. Ryan reports in 2013 that Pennsylvania had a labor force of 6.5 million, but employed only 6 million people. As a result, he says that employment gains are counteracted and unemployment rate reduction is slowed. So while Gottlob believes that America as a whole needs to encourage more people to join the workforce, especially those who have the proper skills and education that employers are seeking, Ryan suggests that Pennsylvania needs to first improve its economy and that more jobs would be created as a result. Although filling high growth occupations to reduce the skills gap would be beneficial to the economy, Jim Ryan says that its improvements would be limited by poor GDP growth, decreased consumer spending, and hiring freezes in Pennsylvania. However, these slight improvements that would result from filling these high growth positions should not be ignored. Employers are more likely to try to hire more workers when they are presented with more applicants with the necessary skills and education. Thus, by training more people in the workforce to have the skills and education sought
by businesses, employers are more likely to increase their workforce, which would lower the unemployment rate and benefit the economy. Ryan also believes that the skills gap can be reduced if employers would consider hiring a wider range of the population because some people with the proper skills are overlooked because they have a criminal background. It should be noted, however, that while employers’ reluctance to hire people with criminal backgrounds is an issue for the economy, the majority of high growth jobs in Luzerne and Lackawanna counties are in the health care sector and most require higher education, which is less common for former criminals to have received.

Researchers and analysts have also examined both the benefits of filling these fast growing positions with trained employees, as well as the negative aspects that come with failing to do so. Nicholas Wells concluded in his analysis of his research that filling some of the top growth jobs of New York City helped improve the city’s economy. Some of these occupations are similar to the high growth jobs in Northeastern Pennsylvania, including software developers, the financial sector, interpreters and translators, and health services. These industries were provided with an ample supply of well-trained employees allowing their businesses to flourish in New York in 2015, leading to better-than-expected hiring and rapid wage growth for the city. Both Jim Ryan and Gene Barr discuss interesting statistics as well. Ryan cites a survey conducted by a staffing and consulting firm, ManpowerGroup, which states that 72 percent of Pennsylvania’s firms did not plan on adding employees in 2013, which Ryan believed was due to a poor economy with minimal GDP growth. Gene Barr, who is the president and CEO of the Pennsylvania Chamber of Business and Industry, addresses a survey by the Pennsylvania Chamber Foundation that found that 72 percent of Pennsylvania employers have difficulty finding workers with sufficient skills in 2014. These similar statistics suggest that the poor economic growth in Pennsylvania may be the result of the skills gap. By applying Wells’ theory in New York’s top growth industries to the similar industries in Pennsylvania, it would be likely that eliminating the skills gap would result in employers beginning to hire more employees, thus improving Pennsylvania’s GDP. Barr believes that Pennsylvania governments need to help lower-skilled workers receive the necessary training to gain the skills employers are seeking. By eliminating this skills gap, high growth occupations can be filled more easily, and the economy would undergo immediate stimulation.

In addition to increasing the number of skilled workers in the area, political scientists have also examined the impact that job creation by specific industries could have on the economy. Alan C. Walker, former Secretary of the Pennsylvania Department of Community and Economic Development, and Julia K. Hearthway, former Secretary of the Pennsylvania Department of Labor and Industry, believe that Pennsylvania’s economy flourished between 2011 and 2013 not directly because of a reduced skills gap, but because of job creation. They believe that Pennsylvania’s economy is in a secure position because of the diversity in industries seeing job growth, including manufacturing, energy, and health care. The health care sector had the highest direct job growth, accounting for 40 percent of all jobs added between January 2011 and October 2013. Alan and Hearthway believe that a growing workforce is what allowed these industries to further develop because with more skilled workers, employers had the tools they needed to expand their businesses. As a result, Walker and Hearthway would also be likely to agree that eliminating the skills gap to fill high growth jobs, such as those in the health sector, would improve the economy in Pennsylvania because it will create more opportunities for businesses to develop larger workforces.

Many political analysts and researchers have examined the effects of filling high growth positions in Pennsylvania’s health care field, which is projected to undergo
the most growth in the next ten years. For example, home health aides, which are at the top of the list of high-growth occupations in the Luzerne and Lackawanna counties, is a faster growing industry in Pennsylvania than in the United States as a whole. The 11th annual Genworth Financial Inc. Cost of Care Survey in 2014 showed that home health aides had large increases in Pennsylvania, despite the United States seeing dramatic increases in facility based care and moderate increases in the price to receive care at home. Genworth President, Tom McInerney, believes that “long term care is one of the most important social issues of our time” because “the number of Americans over 65 [is] projected to double over the next 40 years.”

According to the survey, home health aides had large increases in Pennsylvania, despite the United States seeing dramatic increases in facility based care and moderate increases in the price to receive care at home. McInerney believes that by filling high growth positions in the health care sector, such as home health aides, the cost of long term care can be reduced to make it more affordable for those who require it, in turn helping the economy grow by increasing consumer spending.

In addition to nurse practitioners and physician assistants being in high demand, Jason Scott and Vicki Hoak believe that it is critical for more home health aides to be available to consumers. Scott argues that the health care industry requires a larger skilled workforce to help the Pennsylvania economy grow. Because Pennsylvania does not tax retirement income, the state is an attractive retirement destination for many baby boomers. This fact has helped make home health services in Pennsylvania to be predicted to have 69 percent growth between 2010 and 2020. Vicki Hoak, CEO of the Pennsylvania Homecare Association, also states that the need for home health aides in Pennsylvania is likely to increase because many current nurses are approaching retirement age. Additionally, Hoak believes that nursing home services are transforming into rehabilitation-based centers that send people home as opposed to keeping them in facilities indefinitely. By rehabilitating and allowing many people to return home after admittance into nursing homes, many people require someone to assist them in their houses. The problem, according to Hoak, is that although home health services have been gaining market shares, there are still far fewer nurses employed in home health than there are in nursing homes and hospitals.

Because the health care industry is continuing to greatly help improve Northeastern Pennsylvania’s economy, there is also a need for more hospital work-
ers, as PR Newswire reports. The author of this article states that Geisinger Health System, which has locations across Pennsylvania and in southern New Jersey, announced a recruitment effort to hire over 1,500 more physicians, advanced practitioners, nurses, and support staff. Additionally, Geisinger Health System leverages an approximate $8.9 billion positive impact on Pennsylvania’s economy, which Julene Campion, the vice president of talent management at Geisinger believes to be a result of its well-trained and dedicated employees. For Geisinger to accomplish this goal, which the author of this article suggests would benefit the region’s economy, Northeastern Pennsylvania must offer a large workforce or men and women who have the skills and education necessary to fill these positions.

There are also analysts who believe that the benefits of filling these high growth occupations is not only seen in health care, but in the interpreting and translating industries. Commissioner Ian Harlow of the Bureau of Professional and Occupational Affairs (BPOA) believes that by filling more interpreter and translator positions, more Pennsylvanians can “easily navigate through the process of obtaining and maintaining their professional license.” This would help accomplish the goal of the BPOA’s recent launch of an interpreter service for professional and occupational licensees and applicants with limited English proficiency. However, if these positions cannot be filled because of a lack of skilled workers in this field in Northeastern Pennsylvania, the business would not be able to reach its potential impact with its service, and the region would lose the economic benefits that the BPOA has to offer.

In order to improve the economy in the region, many research analysts have concluded that the most beneficial solution would be to better train potential employees by working with their potential employers. Timm Boettcher believes that the economy can’t be helped by filling the skills gap yet because in order expand the workforce, the stigma of choosing a Career and Technical Education (CTE) pathway must be eliminated. He believes that the best method to accomplish this task would be to offer more internships, student tours, and on-the-job experiences for students who attend colleges that partner with major industry experts. Sandra Himes, the former executive director of the Lehigh Career and Technical Institute, believes that companies will relocate to regions where they have more opportunities to find skilled workers. This was certainly the case for Socafe, the coffee manufacturer and distributor that relocated from New Jersey to Lackawanna County in 2017. Joseph Fernandes III, Socafe’s vice-president, was quoted as saying that “state and local pro-business governmental philosophies and the available work force” helped finalize the company’s decision to relocate to Northeastern Pennsylvania, and that the company was “confident [that] this is not only going to be a positive move for our business, but also for the residents of Lackawanna County and the surrounding area.” One of the biggest stories of 2017 in the business world was Amazon’s announcement of their plan to build a second North American headquarters. Across the U.S., metropolitan areas compiled project proposals to bring the multibillion dollar company to their city. One of the key items addressed in Amazon’s Request for Proposal (RFP) was the available labor force in the respective cities. Due to the nature of the job positions in the proposed headquarters, Amazon sought out a “highly educated labor pool” as well as a regional “strong university system.” In other words, a city that sought to be considered for the new Amazon headquarters would need to have an existing work force with certain skills and trainings.

In order to prevent major businesses from leaving Northeastern Pennsylvania, Bryan Albrecht argues that there needs to be a stronger link between education and industry in the area by bringing companies and community colleges together. This would not only allow students to get hands on experience with industry-current equipment, but also would help future workers gain the specific skills these industries expect them to have. Timm Boettcher takes this solution a step farther by pushing for industry experts to assist in developing local programs to ensure all specific needs of the industry are met. Albrecht also hopes that there will be more training partnerships with companies and schools, as this would be “a major step in technical training in the United States.”

Economic development researchers have also come up with solutions to improve the economy through implementing policies in the region based on programs
that have already been proven to be beneficial. For ex-
ample, Jeremy Rose believes that America should copy the
European model of apprenticeships.\textsuperscript{53} Apprenticeships are
“highly regarded career mover[s]” in Europe and are
viewed as another option for continuing education as an alter-
native to college.\textsuperscript{54} Rose says that schools need to
show students the benefits of apprenticeships, which are
a major stepping stone for economic security for both the
employer and the employee.\textsuperscript{55} Anderson also offers his
opinion on how to improve the economy through his view
of the nursing sector. He believes that the state’s Depart-
ment of Employment and Economic Development (DEED)
plan give a grant that would allow several dozen low in-
come trainees to enroll in training programs to become
training assistants and home health aides.\textsuperscript{56} By imple-
menting programs similar to DEED in Northeastern Penn-
sylvania, the benefits that Anderson sees in Minnesota’s
economy would also be felt in Pennsylvania’s economy.

After examining the works of key researchers in the politi-
cal science and economic development fields, it is clear
that there is a general consensus that Northeastern Penn-
sylvania’s economy can be improved by filling the so
called “skills-gap.” Although Jim Ryan believes that these
benefits would be limited by the decrease in consumer
spending and slow GDP growth, he agrees with Brian
Gottlob and Nicholas Wells that increasing the number of
applicants who have the proper skills sought by employers
will lead to increased hiring rates, thus filling high-growth
positions. By filling these positions, Alan Walker and Julia
Hearthway believe that the economy would see significant
growth. However, their analysis suggests that a variety of
industries must continue to grow to maintain economic
security in the region. While many analysts have focused
on the health care sector, only one examined the conse-
quences of not filling jobs in a non-health related industry
– Ian Harlow, who concentrated on the interpreter and
translator industry. However, this warning by Walker and
Hearthway should not underscore the importance of filling
high growth jobs in the health industry. Tom McInerney,
Melanie Evans, Rachel Landen, Brent Burkey, Jason Scott,
Vicki Hoak, and the author of the PR Newswire article
about the Geisinger Health System all agree that it is vital
for high-growth occupations in the health care sector to
be filled not only to create a more vibrant economy, but
also to guarantee high-quality health care for the region’s
inhabitants. As Melanie Evans and Rachel Landen suggest,
if employers cannot find enough skilled employees, the
health care industry will suffer and the region’s economy
will suffer. As a result of this consensus on the importance
of filling these high growth positions through fixing the
skills-gap, the only debate on this issue is on choosing the
best method to achieve this shared goal, as illustrated by
Timm Boettcher and Sandra Hime’s ideas.

Upon determining which occupations in Northeastern
Pennsylvania require the highest growth in filling jobs, this
literature review suggests that it is imperative for the re-

region’s health care industry to have a large pool of appli-
cants available with the proper skills required by these
employers. The vast majority of high-growth occupations
in Northeastern Pennsylvania lie within the health sector,
and there appears to be a consensus that filling these posi-
tions will greatly improve the economy. The literature
also offers a few limitations, however, with filling these
positions. Poor GDP growth, little consumer spending, and
a small workforce can limit the potential impact on the
region’s economy if these positions were filled. There is
also a much smaller projected growth for non-health indus-
tries over the course of the next ten years, so if these
health care jobs cannot be filled, there will be few other
industries to compensate for that loss. The current litera-
ture suggests that the best course of action for Northeast-
ern Pennsylvania policy makers would be to find ways to
fill all necessary positions in the health care sector while
coming up with possible solutions to help other industries
grow over the course of the next several years.
Case Studies

Ohio Apprenticeships

Ohio has an Ohio State Apprenticeship Council which approves apprenticeships for the state. On average, apprentices who complete their program earn an annual salary of approximately $60,000 upon graduation. There are over 900 registered apprenticeship programs in Ohio, each requiring at least 2,000 hours of on-the-job training and 144 hours per year of related classroom instruction. One example is the Home Health Aides apprenticeship in Montgomery County, which allows apprentices to dress wounds, apply topical medications, monitor and report changes in patients’ health status, and provide personal care to patients. The number of apprentices available is determined by the apprenticeship provider and is based on industry demand. A high school diploma or GED is also required.

While the apprenticeship program is available throughout all of Ohio, many of the apprenticeships in the health care industry are located in Montgomery County. According to the Census, Montgomery County has a population of 531,239, very near that of Luzerne and Lackawanna counties’ combined population of 531,548. Montgomery County has a similar percentage of the population under the age of 5 and over the age of 65 as Luzerne and Lackawanna counties, as well. However, there is a significantly smaller percentage of the population in Montgomery County who is white as compared to Luzerne and Lackawanna counties (73.6 percent versus 89.5 percent). Montgomery County also has a similar percentage of the population with at least a high school degree and with at least a bachelor’s degree as Luzerne and Lackawanna counties. The per capita income and the percent of persons living in poverty is also very similar in Montgomery County as in Luzerne/Lackawanna counties.

Being that Montgomery County, Ohio has very similar demographics as Luzerne and Lackawanna counties, promoting more apprenticeships in the Northeastern Pennsylvania region would likely benefit the economy. With the average apprentice making an annual salary of $60,000 upon completing apprenticeship programs, more workers would get the skills they need to have successful careers while making enough money to provide for themselves and their families. Jeremy Rose, an economic development researcher, notes that apprenticeships are commonplace in Europe and are viewed as an alternative to college for many graduating high school students. By applying similar programs in Luzerne and Lackawanna counties, the industries that need a larger skilled workforce would be able to advertise their own apprenticeships and determine how many slots to make available based on industry needs. As a result, the unemployment rate would not only go down in the region, but these industries can expand their businesses and create more jobs in Northeastern Pennsylvania.
Anoka County, Minnesota Partnerships

The Minnesota Department of Employment and Economic Development (DEED) gave a $99,000 Low Income Worker Training Program grant to help create a partnership between Anoka County Job Training Center, Anoka County Technical College, and the Minnesota Job Skills Partnership (MJSP) program. The goal of this partnership, with the help of the grant from DEED, helped provide training to nursing assistants and home health aides in Anoka County, Minnesota. The health care industry was a high demand, high growth industry in Anoka County, so this partnership was started to train students to help them earn a Nursing Assistant Credential, Basic Life Support, and other necessary certifications. They offer clinical training in addition to two weeks of classes for a total of 42 hours in reading, math, computer skills, and medical terminology to assist with receiving these certificates. Additionally, the county offers a program to train disconnected and vulnerable young adults, especially high school dropouts, so they can successfully find employment.

The Anoka County Job Training Center provides individual meetings with clients who are looking for work, recommendations of workshops, and referrals to Dress for Success for interview clothing, polishing resumes, networking, creative job search, and assistance with interview skills. The Minnesota Job Skills partnership (MJSP) program works with “businesses and educational institutions to train or retrain workers, expand work opportunities, and keep high-quality jobs in the state.” This partnership also works with Anoka County Technical College.

As of 2014, Anoka County had a population of 341,864 people, which was similar to Luzerne County’s population of 318,829 people. Luzerne County has a similar level of education as Anoka County, except Anoka County has a slightly higher percentage of people who have had at least some college education or have completed a bachelor’s program. Anoka County also has a similar per capita income and similar makeup of racial characteristics as Luzerne County. Although Anoka County has a larger percentage of people over the age of 65 as Luzerne County, they also have a slightly smaller percentage of people under the age of 18. These statistics came from the US Census Bureau and from a booklet published by the Anoka County Community Health and Environmental Services.

Being that Luzerne County has a similar demographic makeup as Anoka County and both counties are witnessing much growth in the health care industry, the Anoka County workforce development efforts could be replicated in this region. It would be beneficial for Luzerne and Lackawanna counties to have a partnership with organizations who have a shared goal of helping capable people who are looking for work receive the education they need to gain the skills in growing industries that they have an interest in. This partnership should also offer assistance in granting necessary certifications for these future workers. Through partnering with an educational institution such as Luzerne County Community College, these organizations would be able to help create a workforce that meets the needs of the health care industry in Luzerne and Lackawanna Counties.

Luzerne County Community College PATH Program

The Pennsylvania Advanced Training and Hiring (PATH) program at Luzerne County Community College (LCCC) in Nanticoke, Pennsylvania works to ensure that students have the necessary skills and training experience needed in order to find jobs after graduation and fill gaps in the workforce. Currently, LCCC has three programs: Diesel Truck Technology, Engineering Design and Manufacturing, and Welding. These three programs directly involve regional employers in a mutually
beneficial way, allowing them to add input on curriculum while offering internships, apprenticeships, and potentially career placement to program participants.\textsuperscript{64}

The PATH program is a result of a $10 million federal grant component of the Trade Adjustment Assistance Community College and Career Training (TAACCCT) Initiative. The Initiative, created by the U.S. Department of Labor, allocated funding to community colleges to develop a stronger workforce by creating partnerships with local employers. At LCCC, the grant award also helped to fund the 2015 renovation of a campus technology center.\textsuperscript{65} The three programs are targeted towards new students as well as workers who are unemployed or underemployed and are seeking to learn a new trade.\textsuperscript{66}

Oklahoma Works Initiatives and Collaborations

The Oklahoma Works initiative has the goal “not only [to] meet industry needs, but also [to] educate tomorrow’s workforce on wealth-generating careers.”\textsuperscript{67} The need for this initiative arose from the low unemployment rate in the state, in addition to employers’ concerns regarding finding enough skilled workers. With the lack of skilled workers in a regional economy, employers cannot expand in that state. Oklahoma Works trains Oklahomans for quality employment by creating a coalition of state agencies, educational institutions, businesses, and other partners to connect students and workers with training for employer’s needs.

Oklahoma also already had a few collaborations before the Oklahoma Works initiative, including a MidAmerica Delivers program that works with the MidAmerica Industrial Park and the Mayes County schools to create a collaborative effort between the high schools, technical center, and state universities. Public Service Company of Oklahoma (PSO) offers workshops, initiatives, and educational resources for high school students. Additionally, Tulsa Community College invested $3 million to help expand STEM classes in high schools that could count toward college credit.

Tulsa County – one of the counties in Oklahoma being helped by these initiatives and the location of the Tulsa Community College that is a part of this partnership - has a population of 642,940 people (2016), which is similar to Luzerne and Lackawanna counties’ combined population of 531,548. Tulsa County also has a similar percentage of people with at least a high school education as Luzerne and Lackawanna counties. Tulsa County has a similar percentage of people under the age of 18, but a slightly smaller percentage of people over the age of 65 as compared to Luzerne and Lackawanna counties. However, Tulsa County has a much smaller percentage of people who are white (73.1 percent as compared to 91 percent in Luzerne County and 88 percent in Lackawanna County). Tulsa County has a similar per capita income and similar percentage of persons in poverty as Luzerne and Lackawanna Counties. Information came from the U.S. Census Bureau for Tulsa County, Luzerne County, and Lackawanna County. Mayes County, which includes schools that worked with the MidAmerica Industrial Park through the MidAmerica Delivers program, has a population under 100,000, which is much smaller than Luzerne and Lackawanna counties’ populations and thus may not be the ideal case study. However, the program is still worth considering because of the implications it could have in Luzerne and Lackawanna counties.

Despite the lack of a demographic comparison for Mayes County, Luzerne and Lackawanna counties would likely benefit from a partnership amongst local colleges and local industrial parks, such as those in Hanover Township and Pittston. Additionally, local colleges and universities can follow Tulsa Community College’s lead and invest money into high school programs that are related to high-growth jobs, which in Luzerne and Lackawanna counties would be those related to health care. By educating high school students and helping them to receive more college credits during high school that would assist them in completing health-care programs in colleges, the health care industry’s skilled workforce could expand. A coalition of state agencies, educational institutions, businesses, and other organizations, which would be similar to that of the Oklahoma Works initiative, could also help connect employers with potential skilled employees to give these companies the tools they need to expand their businesses and create more jobs.
New Hampshire Partnerships

New Hampshire has a program in which technology firms meet “to spark industry-led efforts backed by state support to address a skills gap that threatens to slow growth across industries.” Because New Hampshire is becoming a technology state with its tech sector growth, businesses are beginning to partner with the community college system to hold training events partially funded by a Training Grant. This partnership set up by the state’s Department of Resources and Economic Development (DRED), also has plans to launch similar initiatives for the health care and hospitality industries.

This program in New Hampshire helps people who live in all of New Hampshire, including those in Hillsborough and Rockingham Counties, which both have similar demographics as Luzerne County. These similar demographics include percentage of population that is white, percentage of persons in poverty, percentages of people under the age of 18 and over the age of 65, and percentage of people who have completed at least a high school degree. The per capita income is much higher in Rockingham County and slightly higher in Hillsborough County as compared to Luzerne and Lackawanna counties.

As seen above, many of the fastest-growing careers in Luzerne and Lackawanna counties are in the health care or medical sectors. Just as New Hampshire is becoming a technology state because of its technology sector growth, Pennsylvania is becoming a “health care state” with its health care industry’s projected growth and the rise in its elderly population.

Recommendations

1. Encourage partnerships between local businesses and educational institutions to help meet the workforce needs of the region.

As mentioned in the above case study, the PATH program at Luzerne County Community College works with local employers to train workers in three specific trade-based career fields. Fostering the relationship between educational institution and employer allows for professional input on program curriculum as well as internship, apprenticeship or employment opportunities for students.

Expanding on this type of collaboration at other regional colleges, universities, and technical schools can help the region ensure that the workforce needs of the next decade are met. Receiving input from local employers will allow educational institutions to ensure that the material their students are learning is relevant to the respective field. Employers can offer internships or apprenticeships to students, and potentially offer further career opportunities after graduation. This can be dually beneficial to employers who may be struggling to find qualified candidates to fill open positions. Additionally, it offers a partial solution to help education institutions keep their graduates from moving out of the region after graduation.

2. Promote recruiting and promotional initiatives within higher education institutions for advanced career workforce development.

As stated in the introduction, many of the high-growth occupations that require advanced levels of education (such as nurse practitioners and physical therapists) do not have prevalent workforce development efforts in the same way that many other career options do. To ensure that the workforce needs for these careers are still being met, workforce development can happen within institutions of higher learning. Systems can be implemented for certain undergraduate degree programs that will allow students to learn about different career options that they can achieve with their degree. For example, biology or chemistry students can receive presentations that expose them to the career possibilities that come with being a physical therapist. Computer science or engineering students can learn about what an operations research analyst does, and nursing students can learn more about the options available to them with further education, such as becoming a nurse practitioner.

Additionally, colleges and universities can implement steps that make it easier for students to receive the additional education needed in order to gain employment in these high-growth occupations. This can come in the form of scholarship programs, or through pipelines that ensure automatic acceptance to graduate school. For example, students applying to an undergraduate nursing program are both accepted to the undergraduate program and guaranteed a seat in the school’s nurse practitioner program after they receive their bachelor’s degree. Many schools do not offer the necessary master’s or doctor-
ate level programs needed for some of the high-growth occupations; in this case, partnerships between schools with relevant graduate programs and undergraduate schools with relevant majors can ensure that students have a guaranteed seat in a graduate program once they receive their bachelor’s degree.

3. Continue and create new STEM programs at the elementary through high school levels.

A majority of the fast growing occupations studied involve STEM (science, technology, engineering, and mathematics) knowledge and skills. In order to ensure that open positions are filled, those who enter the workforce must have the proper skills needed for these careers. While some of these occupations require college degrees, others do not. Therefore, the teaching of STEM classes at the elementary, middle, and high school levels is essential. Programs in schools that focus on STEM can be strengthened through increased funding, and policies can be written and advocated for that help to increase the level of STEM in public school curriculum.

In addition to the structured teaching of STEM, students should be exposed to STEM and STEM-related careers starting at a young age. This will help to foster a sense of curiosity and passion towards STEM that will help students in the future when they are making a career choice. School districts can build on existing partnerships with their local Career and Technical Centers (CTC) and invite CTC students to give presentations on their program to elementary and middle school students. This way, younger students can learn about career and education options that will be available to them later on, and CTC students will have a chance to work with their community.

In prior research, The Institute has advocated for comprehensive career readiness programming beginning in elementary school using Chapter 339 plans as a tool for school districts to meet state plan mandates, but also address the deficiency in this critical areas of workforce development.

4. Continuing education for families and policymakers

Over the past three decades, post secondary options meant college. High school graduates were either on track for a four year (mostly due to parental influence) or they proceeded to the workforce. Perception has been that a four year degree is a requirement regardless of a student’s interest or capacity. It is the only route to a higher salary. This has led to the current workforce situation where there are shortages in the trades, in STEM fields requiring industry credentialing and certification and technical skills. This skills mismatch or gap can be alleviated with the understanding that careers of the present and future do require post secondary training of all types and that regardless of the field of study, lifelong learning – through education – is a necessity.

Policymakers need to recognize that Pre K – 12 education determines the economic strength of a community or region. Education is the premier economic development tool that has not been a part of the workforce economic development conversation. At the state level, a marriage of the education, workforce development, and economic development agencies would likely lead to enhance synergies and more impact outcomes over time.

Conclusion

The misalignment between workforce and education is a national and regional challenge. Success in the New Economy measured the ratio of jobs in the 1:2:7 range for every occupation that requires a bachelor degree, two require a master’s degree and seven require a one year certification or two year degree. The original assessment was created in 1960 and measured again in jobs in 2018, while the scale has changed, the ratio has not. Therefore, reaching the students at risk for dropping out and high school only educated individuals and focusing on self and career exploration is critical. Regardless of education attainment, it is imperative that “employability skills” are a part of every education program.
Endnotes


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