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PARTNERS

REGIONAL ASSET INVENTORY AND READINESS ANALYSIS

ALLEN COUNTY, OHIO

A Report of the Task Force LIMA Defense Initiative



April 2015

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PREPARED BY:



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1.0 INTRODUCTION

Allen County, located in Northwestern Ohio has long been synonymous with economic progress and resilience in challenging times. From the perspective of the casual observer, it may be argued that the region, including the City of Lima has experienced a period of at least three major “boom and bust” cycles since its founding and multiple reorganizations in the 1850’s. However, a closer examination of the key dynamics underlying the Allen County economy points to a pattern of consistency punctuated by periods of near-exponential growth. The fact that each wave of growth in the region has been succeeded by new industries and innovations stands as a hallmark to the strength and perseverance of the region and its population.

The county, and by extension the broader region of Northwestern Ohio has faced a number of seemingly unprecedented challenges since the 1980’s due to a series of periods of deindustrialization and outmigration. A review of the region’s history again demonstrates that such patterns of death and rebirth is more common here, thereby reinforcing the resiliency narrative. This is an area that has been defined by flux and change. Comeback stories are relatively common here, and the region is poised to begin writing a new one.

1.1 HISTORY

Allen County began its life on the frontier of a new nation’s westward expansion but did not truly find its place on the map of the nation’s consciousness until the mid-1850’s when the rail industry began to make a lasting impression on its landscape and workforce. The blip that appeared on the map became a beacon after 1885 when the discovery of oil would bring the first proper industrial boom to the region. The attention, investment, and prosperity brought by the intersection of transportation and commerce over the next twenty five years would define much of the region for the last century.

The transition of the Lima Agricultural Works to the Lima Machine Works and later the Lima Locomotive Works marked the growth of heavy industry in the area, paving the way for other prominent manufacturers such as the Ohio Power Shovel Company and Superior Coach in the 1920’s and the Lima Tank Plant in 1942. These industrial giants, along with strong regional ties to agriculture and the automotive industry defined the landscape of the region’s economy throughout much of the twentieth century. While many of these large firms closed during a period of industrial decline in the 1970’s and 1980’s, the region still boasts a strong and proud manufacturing base through the presence of global firms such as Ford, Proctor-Gamble, and Potash.

The legacy of these predecessor firms defined much of the civic investment in the county’s communities and supported a number of cultural amenities, such as the Lima Symphony Orchestra that may seem out of place in a region of this size. References to the county’s cultural and economic history can also be seen in the architecture of downtown Delphos and Lima. Rather than viewing this as a vestige to the past, community leaders are now embracing the potential of the built environment for preservation and redevelopment.



1.2 THE ROLE OF THE JOINT SYSTEMS MANUFACTURING CENTER (LIMA TANK PLANT)

The Joint Systems Manufacturing Center, or JSMC, which had started its life first as the Lima Tank Depot upon its opening in 1942 and later as the Lima Tank Plant between 1976 and 2004 is the principal focus of Future iQ Partners' engagement in the Allen County region, as well as the subject of the U.S. Department of Defense Office of Economic Adjustment grant funding this initiative. The plant has held a unique position both in the regional economy as well as in the United States' defense industrial infrastructure. As the only Government-Owned, Contractor-Operated (GOCO) facility in the Department of Defense's property inventory, it stands as somewhat of an enigma. The mere operation of the facility is dependent on effective collaboration between the U.S. Military and General Dynamics Land Systems, which has been the private contractor for the plant since 1982. Its history has also closely mirrored that of the Allen County region as a whole as it has experienced several periods of growth and decline.

The early history of the Lima Tank Depot closely mirrors periods of significant military engagement. The depot and its 5,000 workers provided parts for and assembly of more than 100,000 combat vehicles during World War II. The plant was the region's largest employer during this period and a source of intense local pride, a tradition that would persist for the next seven decades. The depot was effectively "mothballed" between 1946 and 1951, reopened to meet vehicle needs for the Korean conflict, and then entered into a period of sixteen years of inactivity where the facilities were leased for commercial use. The plant was reopened for military use in 1976 to upgrade more than 12,000 M880 commercial trucks.

The plant entered its most current period of activity in August 1976, when it was selected as the production site for the XM-1 (later M1 Abrams) heavy combat tank. As the first tank rolled off the assembly floor on February 28, 1980, the plant entered into a second era of prominence, as 30 tanks were produced per month until August 1985, when the introduction of the M1A1 variant of the Abrams platform increased production levels to 120 a month. This cycle would lead to a second peak of employment in the mid 2000's as production of a Mine-Resistant, Armor-Plated utility vehicle joined Abrams and Stryker platforms in assembly.

Over the course of the last fifteen years, the JSMC has continued production and refurbishment of a number of Abrams variants, as well as production of the Stryker combat platform for the U.S. Marine Corps, the MK46 Naval Gun system, and the Namer-Merkava Armored Personnel Carrier for the Israeli Defense Force. This has coincided with the expansion of production capabilities at the plant, as well as service to all five branches of the U.S. Military.

Despite the expansion of the product lines currently manufactured at the JSMC, overall production and staffing levels have decreased over the last decade. This is the consequence of a number of failed and cancelled projects, including the Crusader and Future Combat Systems heavy weapons programs for the U.S. Army and the Expeditionary Fighting Vehicle Program for the U.S. Marines. If approved, the work associated with the combination of these three programs among others would have allowed GDLS to maintain peak staffing levels for the next several years. Their cancellation, however has cast doubt on the future viability of the JSMC and its role in Allen County.

The community and business leaders of Allen County are familiar with the particulars of the Base Realignment and Adjustment Criteria analysis of the JSMC conducted in 2003 and 2004. Changes in military alignment and spending over the last twenty-five years has resulted in calls from both the Department of Defense and Congress to consider the consolidation or closure of what are viewed as surplus military assets. Community leaders were alarmed when it was announced in 2003 that the JSMC would be included in a round of Base Realignment and Closure (BRAC) analysis that would conclude with a series of recommendations in 2005.



While the initial review and recommendations called for the realignment and idling of the JSMC, the proactive outreach coordinated by GDLS and Task Force LIMA, a coalition of local, state and federal elected officials, economic development and business associations, labor organizations, media, and other community leadership effectively advocated for the facilities removal from the recommended actions list. This presented the JSMC with a reprieve, but also cast local and national light both on the facility and its importance as a key defense asset.

Subsequent actions by Task Force LIMA, coupled with engagement by Ohio's congressional delegation has resulted both in the extension of the M1 Abrams program, as well as a recent decision by the Department of Defense to commit \$2.3 million in additional capital upgrades. The JSMC and Allen County were also identified by the U.S. Department of Defense Office of Economic Adjustment as the recipient of one in a series of Defense Industry Adjustment (DIA) action planning grants. The intent of these grants is to provide communities affected by changes in defense procurement activity with resources to both strategically address these changes as well as to develop proactive strategies to both diversify local industries and workforce opportunities.

1.3 ASSET INVENTORY AND READINESS ASSESSMENT ROLE AND FORMAT

The asset inventory and readiness assessment presented in the following section represents one of the key deliverables in Future IQ Partners role in this initiative to guide the region through a strategic action planning process. The intent is that the dialogue conducted through this process will both identify and align the strategic community resources already active in the areas of community, economic and workforce development to first identify the key needs facing the JSMC and the region's other major employers and then to craft an agenda of pragmatic actions to both address these immediate needs and to develop sustainable partnerships to respond to future challenges.

This report traces its origins to a statewide assessment of defense assets prepared by CBD Advisors in 2014. This comprehensive study produced a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis of four regions of Ohio and their military installations and assets. This assessment was further measured against the ten-criteria community analysis prepared through the BRAC process. This analysis considered a number of current and historical demographic, economic, and community indicators, including:

- Demographics
- Childcare
- Cost of Living
- Education
- Employment
- Housing
- Medical Providers
- Safety/Crime
- Transportation
- Utilities



These indicators provide a comprehensive portfolio of the community assets and services deemed essential to ensure continued operation of each facility under review. The findings of this analysis, which was conducted in 2003 and is included as Appendix 1 to this report shows that the JSMC and Allen County was competitive in a number of key areas, such as the availability of educational facilities and medical services, but lagged behind its peers in other areas such as unemployment and the availability of childcare facilities.

The BRAC analysis presents a mixed image of Allen County and its local assets. It reveals a number of opportunities for future alignment and collaboration. The intent of the current analysis is to extend these findings in a number of notable ways.

The asset inventory and readiness analysis follows along five specific topic areas:

- Demographic and Population Trends
- Workforce Dynamics
- Industry Growth and Needs
- Income Dynamics
- Community Assets

Much of the content included in these topics echoes and updates a number of the indicators in the included analysis. Others are unaltered as conditions have not changed appreciably since the initial review. The intent is to both reexamine those critical factors necessary to support the local economic base, but to also highlight the potential challenges facing the region in this regard.

The asset inventory and readiness analysis also expands upon the community analysis presented in the BRAC process by also highlighting a number of significant concerns that have been identified by key partnerships that have formed in the region in the last twelve years. A host of organizations and community leaders have joined to address key workforce and industry needs that extend beyond issues of worker availability to include questions of workforce quality. Parallel conversations have also emerged around issues of industry growth and innovation.

The format of the analysis to follow will generally present those key indicators associated with each of the five topic areas, compare those indicators to historic and statewide trends, and identify potential challenges and opportunities associated with each. The analysis will conclude with a discussion of the initiatives that currently active in Allen County and how each may play a critical role in the future growth and operation of the JSMC and the regional economy.



2.0 ALLEN COUNTY REGIONAL ASSEST INVENTORY

2.1 POPULATION AND DEMOGRAPHIC TRENDS

One of the most frequent concerns voiced in conversations with community leaders in Future iQ Partners time in the region has been the state of the local population. Leaders speak with pride over the quality and engagement of local residents. However, there is also a growing concern over the possibility of demographic stagnation or decline, as suggested by recent projections.

2.1.1 HISTORIC POPULATION GROWTH

The population of Allen County is estimated at 105,298 in 2013. This represents a slight decline from the last three years, but the county's population has decreased even more dramatically over the last thirty years. Between 1980 and 2013, Allen County's population shrank by 6.2%. To put this in comparison, the state of Ohio's population increased by 7.2% over the same period, or a swing of more than thirteen percent.

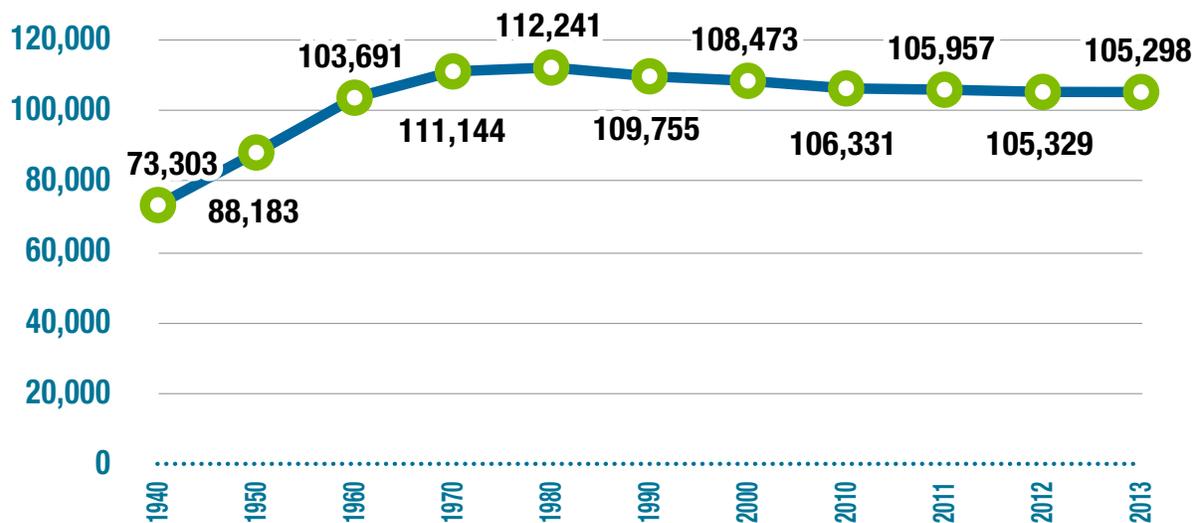


Figure 1: Historic Population Growth 1940-2013

As we can see, the county's population grew at a precipitous pace in the first three decades following World War II. This period coincided with the Baby Boom in the United States as well as a period of general economic prosperity in the region. This population growth stabilized to a great extent during the 1970's and has slowly decreased since. Allen County's population trends closely with the periods of industrial growth and decline that have occurred since 1980, as decreasing employment opportunities have resulted in fewer residents.



Another interesting phenomenon appears to be missing in the chart above. Many regions of the United States have experienced two periods of higher population growth since the end of the Baby Boom in 1964. The period between 1976 and 1984 is generally referred to as the Baby Boom Echo as the children of the Baby Boom generation began forming families of their own. Similarly, birth rates have also grown since 1990 with the arrival of the so-called "Millennial Generation." It is projected that the sum of population in this generation will come close to, if not surpass the Baby Boom generation.

Neither of these more generalizable trends is readily apparent in the historical population trend in Allen County. There are a number of possible explanations for the population decline that has occurred. Many of these are again tied to the state of the regional economy as family formation may be delayed due to diminished economic opportunity. It is also possible that the county's younger populations are more likely to move in search of greater opportunity is relatively more mobile. This is demonstrated in data from the U.S. Census Bureau which suggests that the median age of residents moving either to a new county or state between 2008 and 2012 was 24.5 years old.

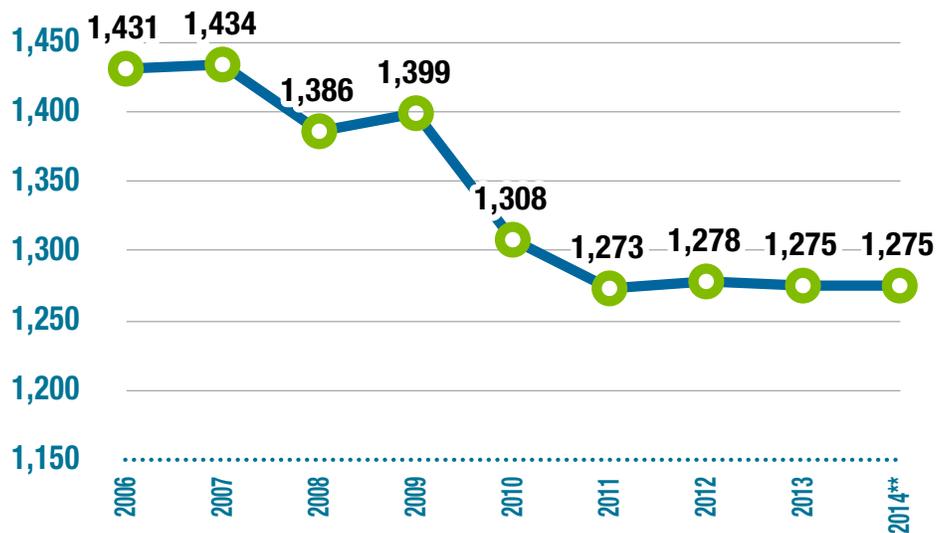


Figure 2: Birth Rates by Year 2006-2014

The chart above reinforces the impact of population mobility as birth rates in Allen County have decreased by 12.2 percent between 2006 and 2014. This correlates with a more generalized state trend as the birth rate has declined by 9.3 percent over this same period. The fact that the most significant decline occurred between 2008 and 2010 confirms the economic opportunity hypothesis posited earlier as those states that were most strongly affected by the most recent recession also experienced significant decreases in their average birth rates.

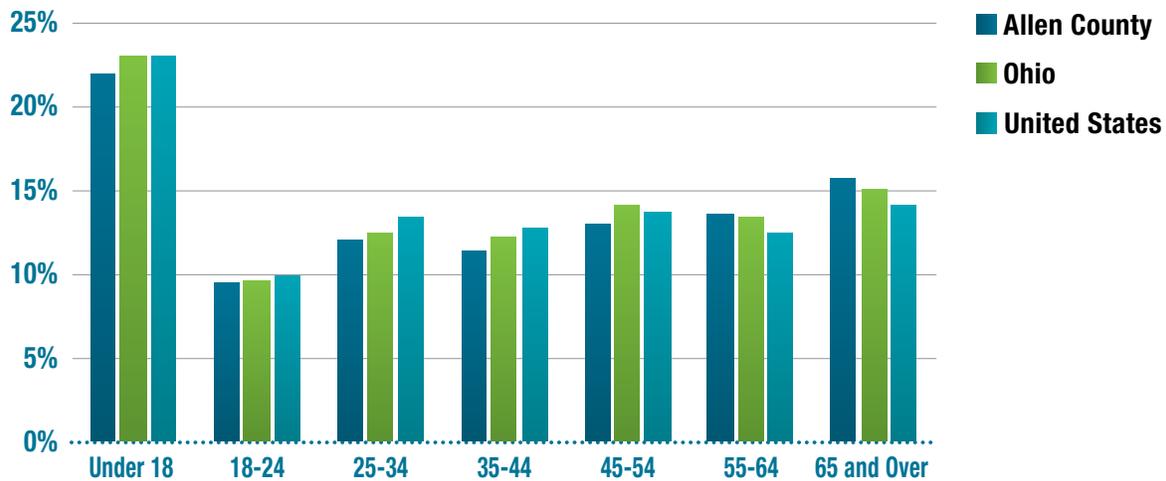


Figure 3: Population by General Age Group, 2013

The composition of the Allen County population can be further decomposed by age group, as presented in the chart above. What is immediately apparent again is the fact that both Allen County and Ohio have lower percentages of their population in young age cohorts, principally those under age 44, and a higher share of residents over the age of 45. This correlates to slightly higher median ages of 38.1 years in Allen County and 39 years in Ohio, as compared to a national median of 37.3 years. The current age distribution of the population both explains the current state as well as predicts future growth patterns.

2.1.2 FORECASTED POPULATION GROWTH

We have observed that the Allen County population has experienced a pattern of slight decline over the last thirty years, largely in response to changes in the regional economy. This has created a demographic profile that is generally older than the nation, as a whole. The current age distribution is expected to intensify over the next several decades if the trend of outmigration by younger residents continues.

The factors discussed here are among several that are considered by agencies such as the Ohio Research Office in preparing long-term population forecasts. The thirty-year forecast for Allen County is presented in the graph below.

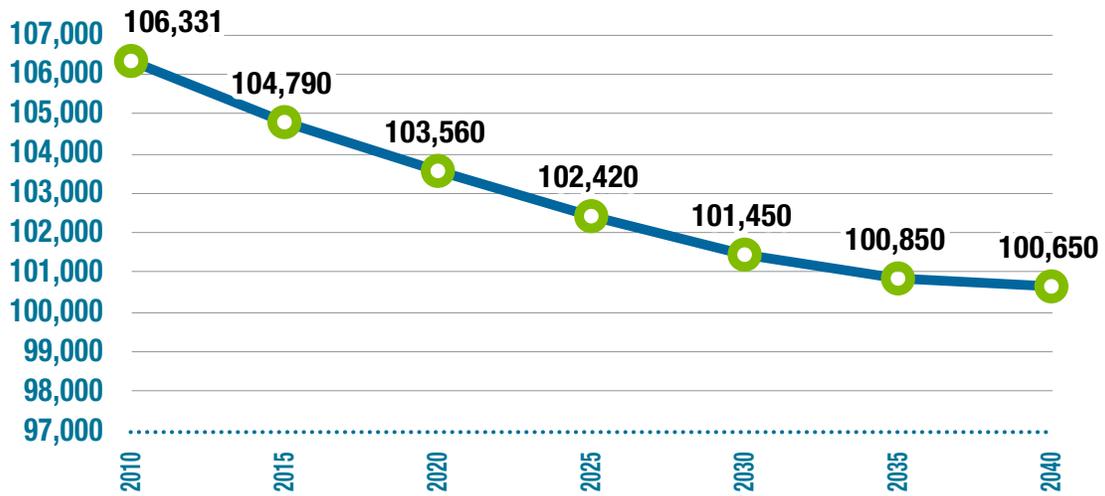


Figure 4: Projected Population Change 2010-2040

Allen County's population is expected to decline by a total of 5,691 residents or 5.3 percent between 2010 and 2040. While this seemingly assumes a downward trend, the forecasted annualized change is actually much smaller of around 190 residents or 0.2 percent of current population. This trend line is consistent with recent historical patterns and further suggests that the regional population has stabilized. At first glance, this may infer a sense of certainty or security. However, a flat population also has the potential to constrain economic growth, as we shall see in future sections.

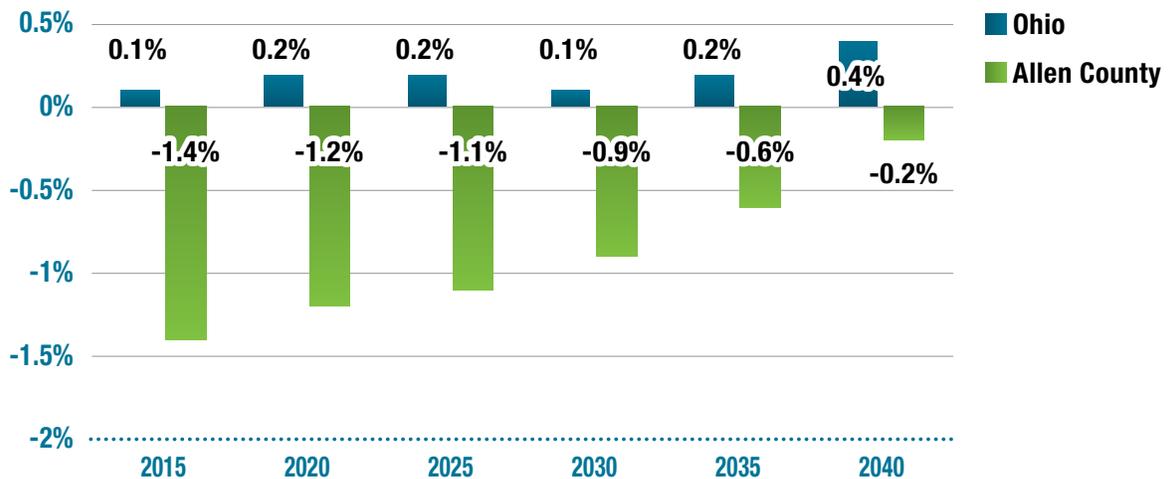


Figure 5: Comparative Projected Growth Rates - 2010-2040



The disparate population trend of Allen County is further illustrated when compared to five-year annualized growth rates for the state of Ohio. We see that Allen County's population will be most strongly impacted over the next ten years in correlation with the retirement of the Baby Boom generation, the state forecasts modest, but positive growth throughout this same period. When considered in scale, a 1.2 percent positive growth rate for the state is not all that dissimilar from the slight decline forecast for Allen County. It also emphasizes the shared challenge faced by many Midwestern states due to similar demographic trends. This further suggests an increase in competition for young residents among communities throughout the region.

2.2 WORKFORCE DYNAMICS

There are a number of strong and natural linkages between trends in a region's population and its workforce. This is especially true both in periods of economic growth and decline as one's ability to live in an area is clearly influenced by their employment. We have established the assumption that there has been some connection between local economic cycles in Allen County and patterns of population change. This suggests that future challenges may exist for the region, but that potential solutions are also close at hand.

2.2.1 UNEMPLOYMENT TRENDS

One of the most commonly reported and closely watched workforce metric available is the monthly unemployment rate. While the measure is not perfect by any means and often lags behind other economic activity, it is the best comparable measure of labor market conditions available. There are a number of factors that are most likely to impact the unemployment rate of a particular area, as depicted in the chart below.



Figure 6: Comparative Unemployment Rates 1990-2015



The first pattern that becomes apparent in these trend lines is that the unemployment rate of any area is subject to seasonal fluctuations. This is especially true of Midwestern states, as industries related to agriculture and those that are weather-dependent, such as construction see wider fluctuations in employment than do those that are not subject to these factors, such as health care. Communities with higher shares of employment in these seasonally-affected industries typically see the widest variation. This is also especially true in communities with large retail sectors, as they tend to report their highest levels of employment around the holiday shopping season.

The second and perhaps more prominent trend that can be observed here is that changes in the unemployment rate are also strongly affected by changes in broader economic conditions. We can see the clear evidence of three significant recessions throughout this period in 1991 and 1992, 2001 through 2003, and 2008 through 2010. This represents punctuated high water marks for unemployment in both Allen County and the state.

The two trend lines mirror each other, for the most part, except for one period of divergence from 1995 to 1997 where Allen County's unemployment rate remained relatively high while the state unemployment rate decreased. This suggests that the region recovered more slowly from the effects of the 1991 recession and that policy changes related to the passage of the North American Free Trade Agreement may have also played a factor. This pattern is fairly consistent in areas where employment was dominated by manufacturing and other heavy industries during this time.

The unemployment rate represents a ratio of two connected measures – the total share of an area's population that is considered to be unemployed, in that they are actively seeking employment, and the labor force, which is a subset of the general population over the age of 16 that is either employment or seeking work. (If an individual is not working and is not seeking employment they are considered excluded from the labor force.) Changes in the unemployment rate can then occur through fluctuations of either of these factors. Allen County's unemployment rate has generally followed Ohio's trend over the last four years as the local unemployment rate has returned to pre-recessionary levels in the last several months. This decline is partially the result of the generalized improvement of the nation's and local economy. However, it also demonstrates a third pattern that is closely tied to the population dynamics discussed earlier.

2.2.2 LABOR FORCE PARTICIPATION AND COMPOSITION

The unemployment rate represents one means of assessing the health of any given labor market. Another metric which is especially useful is the labor force participation rate, which is the ratio of the sum of employed and unemployed individuals to the labor force-eligible population as a whole. Allen County's labor force participation rate or LFPR has remained fairly constant at 63 percent over the past eight years. This dynamic has historically followed state trends for the last thirty years due to similarities in population composition and economic makeup.

Over the last fifty years, participation in the labor force has been strongly influenced by two major factors – gender and age. Most regions, including Ohio experienced a significant increase in labor force participation beginning in the 1960's as women entered the workforce in larger numbers. This has remained fairly stable until the last several years, as the most recent recession has led to a significant decline in male labor force participation. Data is not available to confirm this at the level of Allen County. However, a number of recent studies have demonstrated that these effects are again disproportionately felt in manufacturing-heavy markets.

In addition to punctuating a growing divide between male and female labor force participation, the most recent recession also demonstrated that participation varied quite widely by age. The chart below forecasts labor force participation rates for various age groups through 2018, as projected by the U.S. Bureau of Labor Statistics.

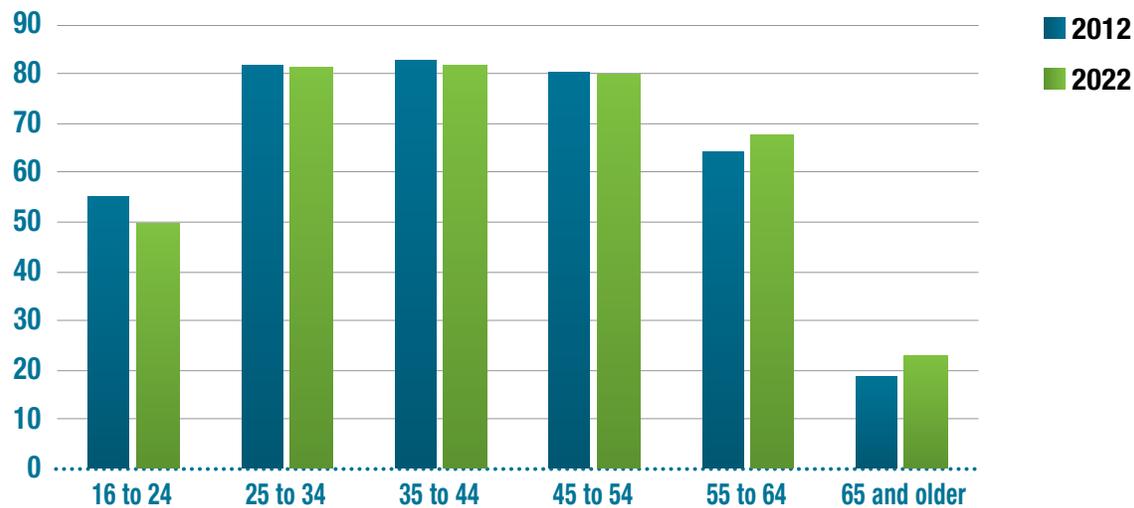


Figure 7: Labor Force Participation Rate by Age Group

We see here that labor force participation is the highest among workers aged 25 to 54 and then decreases with age. This pattern is dictated first by the increased utilization of postsecondary education, which delays entry into the labor force for many. It is also dictated by the physical demands of many occupations, as labor force participation had historically been defined by one's strength and ability. As such, it should come as no surprise that these demands couple with eligibility for a number of benefits, such as Medicare and Social Security lead to a sharp drop off in labor force participation after age 65.

There are a number of key changes that are forecast across several age groups. We have observed a gradual erosion of participation among young entrants. This is expected to reach a low point. Conversely, participation has expanded among older workers both due to growth in the number of less-demanding professional occupations that has occurred over the last two decades, as well as increases in life expectancy. This suggests that any further erosion in the Allen County labor force will not occur as rapidly as forecasted population decline. Rather, it is not unreasonable to assume that the region's labor force will remain stable for the next decade. This provides some certainty to employers and a base upon which to build new initiatives.

The impacts of the changes discussed are most strongly felt in industries with higher shares of older workers. This again tends to be the case in traditional industries such as construction or manufacturing and less likely in industries with relatively lower wages and higher worker turnover, such as retail trade or the hospitality sector.

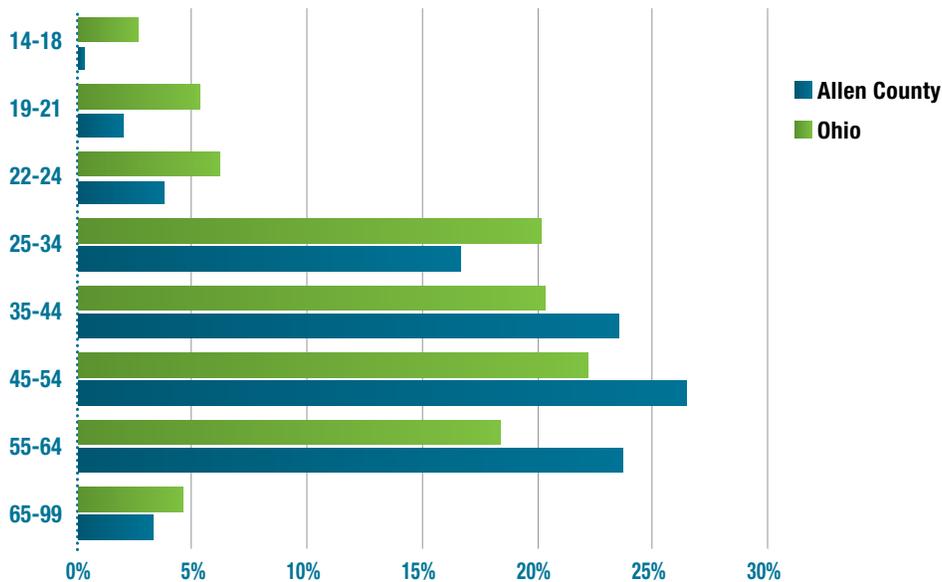


Figure 8: Manufacturing Employment Composition by Age Group

The chart above depicts the age distribution of all employers and the manufacturing sector in Allen County as of the first quarter of 2014. We can see the significant impacts of an aging workforce here as the share of workers over the age of 35 is significantly higher among manufacturers in the region. Of particular note is the sharp difference in the share of workers ages 55 to 64. This represents a significant share of the workforce that may be anticipating retirement in the next decade. Employers also recognize that these workers, as well as those ages 45 to 54 are more likely to have advanced skill sets and leadership experience. Replacing these workers and their attributes is of critical importance in maintaining economic competitiveness.

The issue of the potential skills gaps created by the aging workforce in a number of key industries has become more pronounced as the regional economy has recovered from the most recent recession. This has led a number of organizations such as the Western Ohio Manufacturing Consortium (WOMC) and Link Lima to realign their efforts to account for skills and training needs throughout the full array of workforce preparedness. Similar conversations are occurring in many communities and best practices are only now emerging. The development of the WOMC, which will be discussed in the review of Community Assets that follows as well as Link Lima have the potential to lead Allen County in being well-positioned to address this possible challenge.

2.2.3 THE ROLE OF EDUCATIONAL ATTAINMENT

One of the more interesting metrics included in the 2005 BRAC analysis was the educational profile of those communities under review. Education plays a vital role in connecting many aspects of society and the economy through its influence on residents and the workforce. Allen County has the advantage of access to a wide variety of postsecondary education options, including seven colleges and universities and five community or technical



colleges. These institutions are also essential partners in a number of community initiatives, such as the Automotive Task Force, Link Lima, Task Force LIMA, and the WOMC. This engagement underscores the importance of education and training in securing Allen County's economic future.

The chart below describes the distribution of all residents in the county aged 25 years or older by their highest completed level of education, also known as educational attainment. As we can see, there are a number of distinct differences between the Allen County profile and that of the state and nation.

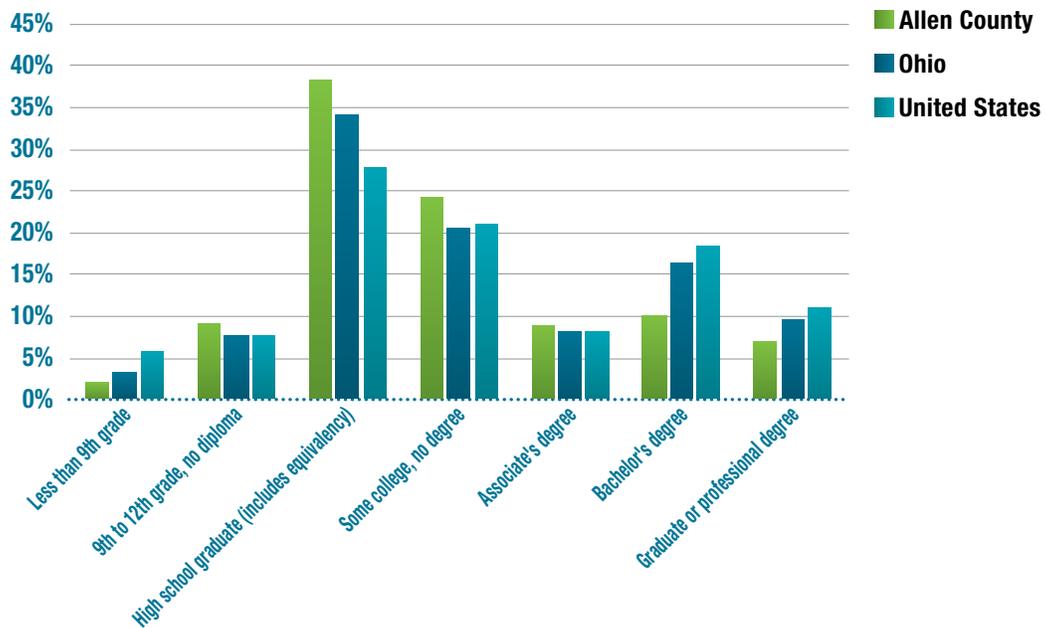


Figure 9: Educational Attainment of the Population Age 25 and Over, 2013

The first and most significant difference is that both Allen County and Ohio have a significantly higher percentage of individuals that have completed no postsecondary education. This has historically been associated with a difference in industry composition, as employment in many traditional industries has not required specific training beyond high school until recently. Any additional skills would be obtained through a combination of company-provided instruction and experience. This is also more common in smaller regions than large urban areas for similar reasons.

Conversely, Allen County has a slightly higher concentration of individuals who have completed at least one year of postsecondary education or have received an Associate's degree. This too is determined both by available employment opportunities in an area as well as access to education institutions. This finding is intuitive, given that Allen County's residents have enjoyed convenient access to high quality vocational and technical education options.



A final clear difference has the potential to present another significant future challenge to the region. Only ten percent of Allen County’s residents have earned a bachelor’s degree, and seven percent have earned a graduate or professional degree. Each of these measures is significantly below both the state and national average. The region’s industry and employment base again explains much of this disparity. However, demands for more highly educated and skilled workers in all major industries have increased significantly over the last decade and will continue to increase as employers seek to replace the skills and experience vacated through retirements. As a consequence, the region must consider ways to both attract and retain these highly educated and coveted residents.

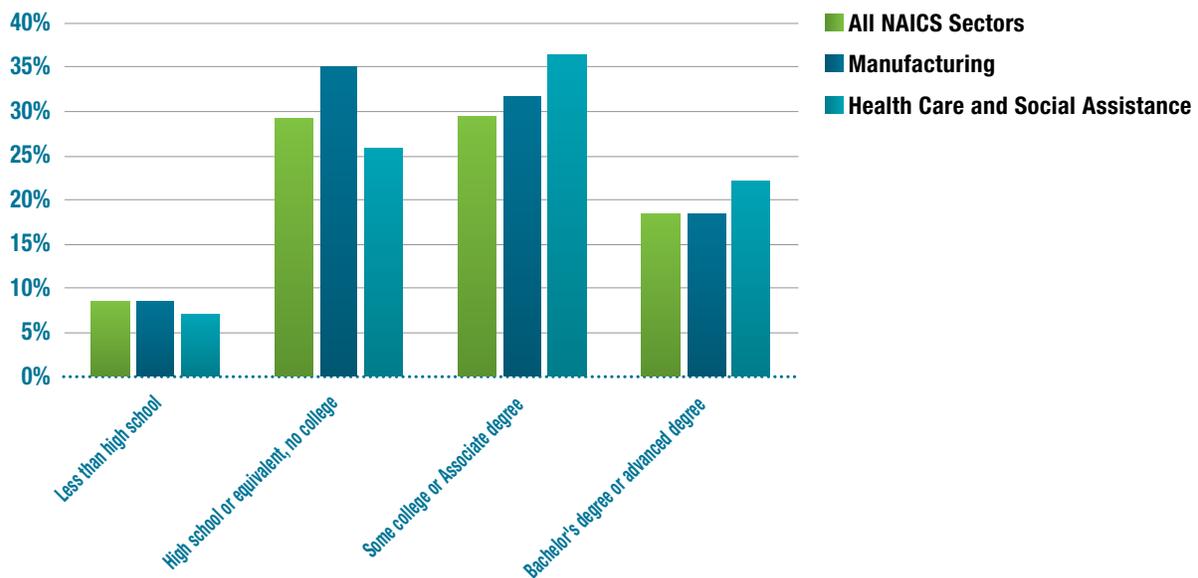


Figure 10: Distribution of Employment by Educational Attainment for Selected Industries, Q3 2014

It has been suggested that many of the differences that have been observed to this point between population and workforce trends in Allen County and Ohio have been attributed to historical industry patterns that will be discussed in a future section. One aspect that is particularly salient to the current discussion, however, is again the fact that different industry sectors have varying demands for individuals of different educational attainment levels. This is illustrated in the bar graph above. By comparing the two rightmost bars in each educational category, we see that the manufacturing sector in Allen County employs a significantly higher share of high school degreed workers than does the health care sector. Conversely, Allen County’s health care providers employ a greater percentage of workers with some level of postsecondary education. This can be linked to some extent to the occupational distribution found in each sector. However, changes among the region’s major manufacturers have also narrowed these gaps considerably over the last eight years.



2.2.4 WORKFORCE MOBILITY

A final aspect of the workforce dynamics of Allen County that helps to determine its readiness to meet future economic opportunities is the level of mobility within the local workforce. Residents often view labor markets as being regionally-defined rather than restricted by municipal or county boundaries. Similarly, one's personal employment opportunities are defined both by access to transportation as well as the tradeoff opportunity cost between time, distance, and compensation.

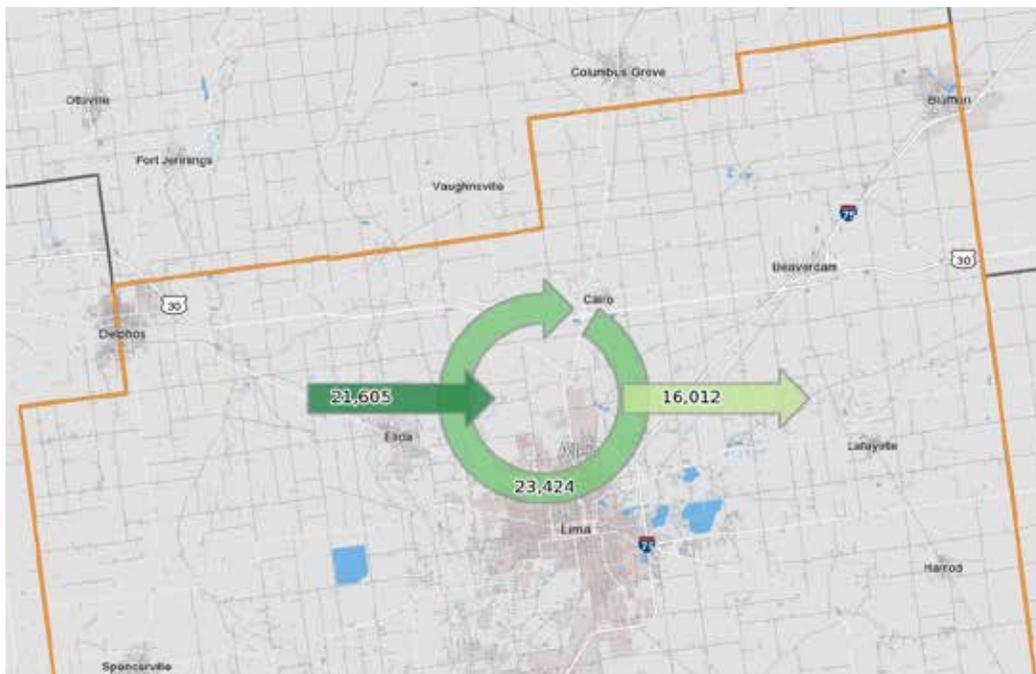


Figure 11: Employment Commuting Patterns, Allen County

The map above summarizes the net commuting activity of the Allen County labor market. We see that a majority of the county's labor force (59 percent) both lives and works in the county. Similarly, a lesser share of residents (40.6 percent) work outside of Allen County, and represent a lesser number than those from outside of Allen County that commute into its communities every day. This commuting pattern is fairly typical of metropolitan areas that are located along major transportation routes, as is the case Lima and neighboring communities. This pattern also suggests that there is some potential to effectively recapture the out-commuting workforce if employment opportunities grow and diversify.

Another way of visualizing commuting behavior is to look at the principal markets in which residents of Allen County are employed. The map below shows this density, with darker colors, such as that in the communities of Lima and Delphos representing the strongest concentration of jobs and workers.

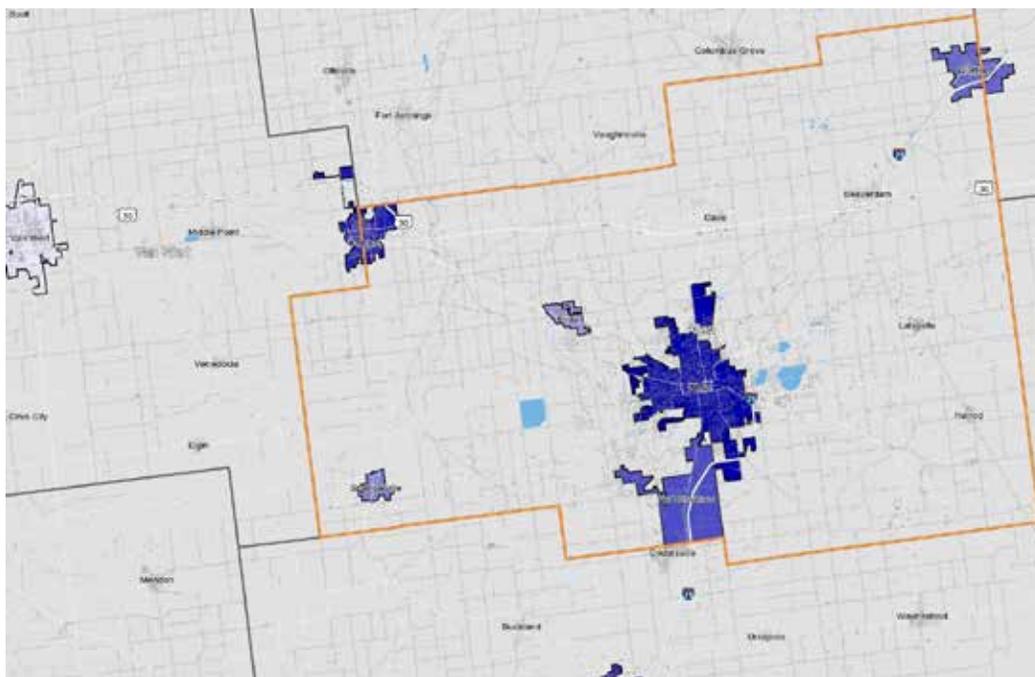


Figure 12: Principal Employment Locations of Allen County Residents by Density

This analysis suggests that the effective labor market for Allen County's residents is mostly defined by three counties – Allen, Auglaize, and Van Wert. This further reinforces the conclusion that the Allen County economy is truly regional in scope.

A final note of interest regarding Allen County's commuting activity concerns both the earnings generated through the inflow and outflow of workers. The general distribution of average wages among those commuting into and out of the county is roughly similar, though fewer workers commute into the county for employment that pays less than \$1,250 per month. This is again intuitive as lower wages offer less incentive to travel when similar work may be available close by. However, the gross numerical disparity between those coming into and going out of creates an imbalance of over \$600 million annually as the earnings of those who live outside of Allen County (\$894 million) are greater than those who work outside of it (\$281 million). This suggests, to a certain degree that relative wages may be higher in Allen County than in nearby neighbors, or that the mix of individuals who commute into and out of the county differs. This again presents an opportunity for future growth as it suggests that Allen County's employers require both larger numbers and a diversity of skill sets to meet their employment needs than that which is currently produced within the county.

2.3 INDUSTRY TRENDS

The population and workforce of Allen County represents two significant assets that will be needed to assure future prosperity and competitiveness. The composition of the county's economy and industry base represents a third important factor that has both influenced the region's history and will continue to shape its future. Allen County has traditional strengths in heavy industries such as oil refining and manufacturing as well as a strong agricultural



heritage. These same industries, coupled with a growing professional sector will grow and adapt in response to changes in future conditions. By examining many of the recent historical and current trends among these key sectors, it is possible gain some perspective on the possibility of future growth opportunities.

2.3.1 INDUSTRY EMPLOYMENT GROWTH

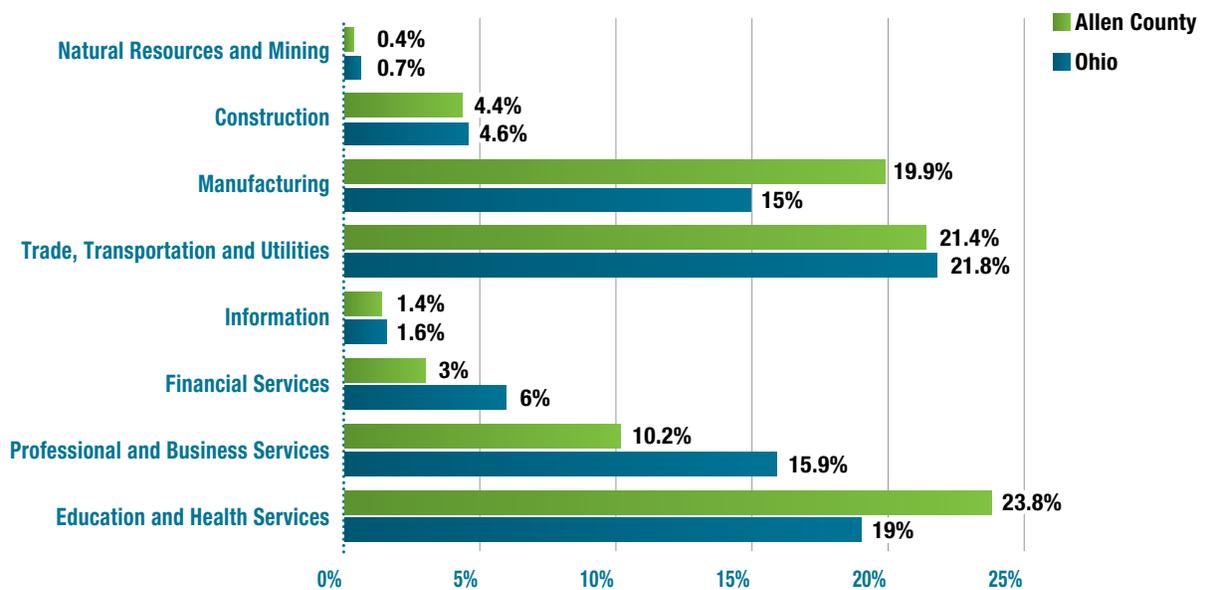


Figure 13: Employment by Major Industry Sector, Q3 2014

The Allen County industry base is dominated by two major sectors – manufacturing and education and health services. Employment in the manufacturing sector constitutes nearly twenty percent of total employment, a concentration that exceeds the state average and is more than twice the national average (9.6 percent). The sector is also represented by many of the county’s largest employers, including the JSMC, Ford Engine Plant, Procter-Gamble, Potash and several others. The sector represents one of the historical strengths of the region and dominates the local economy in other ways.

The second principal industry sector in Allen County is the education and health services super sector. This sector represents the amalgamation of two industries that share many similarities. The health services sector represents 14.3 percent of employment and more than 63 percent of employment in the super sector. The importance of health services employment in Allen County is especially pertinent given its location between the Dayton and Toledo markets and the access that it provides to a broader regional patient base.

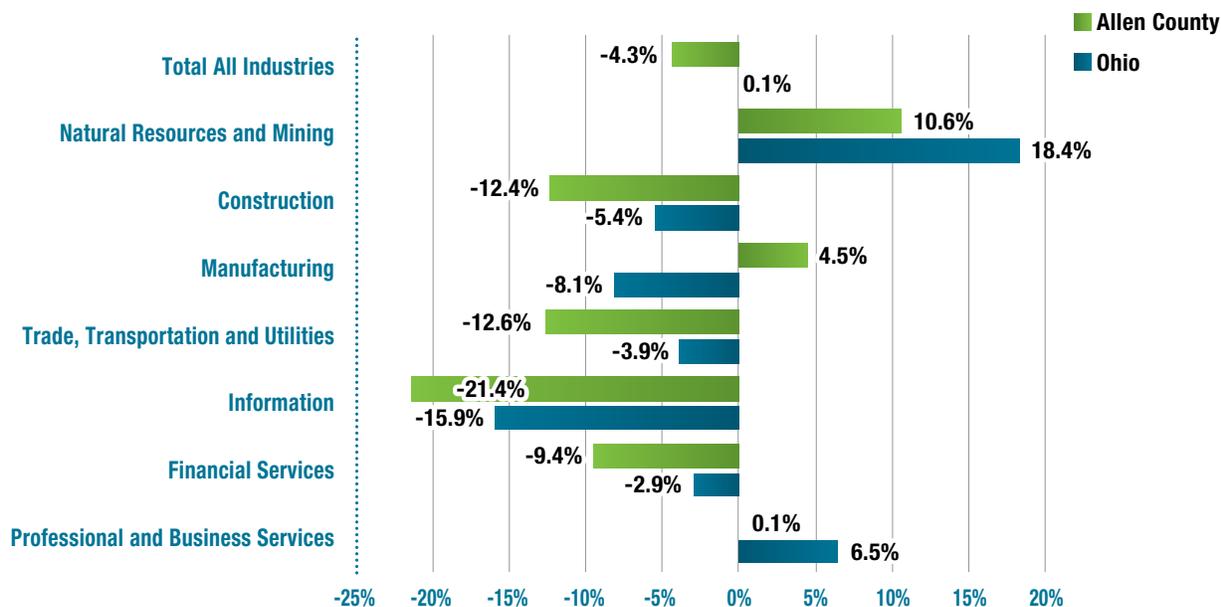


Figure 14: Employment Change by Major Industry Sector 2008-2014

The chart above depicts the impact of the most recent recession and subsequent recovery on Allen County and the state of Ohio by measuring changes in employment from the third quarter of 2008 to 2014. We see that there are a number of areas of divergence between the two industry growth patterns. This further highlights the unique composition of Allen County's industry base.

The region, as a whole continues to lag behind state and national employment growth trends. This is largely due to two principal factors. First, while the share of jobs lost in the county and the state from 2008 to 2010 are roughly equal in percentage terms (6.3 percent versus 6.4 percent), the broader statewide employer base is better able to benefit from the multiple growth opportunities that have emerged in the last five years. This has especially been true in professional sectors such as professional and business services and education and health services. Second, some industry changes, such as the recent cancellation of a number of contracts at the JSMC are not subject to or consistent with economic cycles. As a consequence, the region may lag behind the state in the pace of employment growth. However, employment growth in sheer numerical terms only tells part of the story here.

The industry base of the Allen County regional economy has generally struggled to recapture the largest share of employment lost over the course of the recent recession. Much of this is the consequence of counter-cyclical factors and scale though changing demographics also plays an important role. What is missing in this discussion is a consideration of the extent to which changes in industry output mirror changes in employment. It is clear that the industry growth patterns described above in terms of employment have been eclipsed both by increases in profitability and productivity among the region's largest industry segments.

2.3.2 INDUSTRY OUTPUT AND PRODUCTIVITY GROWTH

Industry Sector	2008-2012 % Change (in 2009 Dollars)
All industry total	10.8%
Private industries	12.8%
Farms	89.3%
Utilities	40.0%
Construction	-8.8%
Manufacturing	36.4%
Wholesale trade	-6.4%
Retail trade	-0.6%
Information	5.9%
Finance and insurance	5.3%
Real estate and rental and leasing	-28.0%
Professional, scientific, and technical services	-6.7%
Management of companies and enterprises	57.9%
Administrative and waste management services	23.0%
Educational services	2.1%
Health care and social assistance	1.5%
Arts, entertainment, recreation, accommodation, and food services	7.5%
Performing arts, spectator sports, museums, and related activities	50.0%
Accommodation and food services	9.5%
Other services, except government	-6.5%
Government	-6.8%

Figure 15: Change in Real GDP by Industry Sector 2008-2012



The table above represents changes in industry output in Allen County after adjusting for inflation. (Please note that data for 2013 and 2014 is not available for most industries as of publication.) Many of the findings presented here first contradict but also provide a great deal of additional context to the discussion of transitions within the regional economy. Output growth across all industries has averaged nearly eleven percent over the period, with several sectors far outpacing this benchmark. Any analysis of percent change data must always be tempered by differences in scale among many of these industries. For example manufacturing output is twenty-four times the size of farm output. However, there are still a number of interesting patterns that can be deduced.

First, we see that growth among traditional industries, such as agriculture and manufacturing has remained strong over the last several years, with farm incomes increasing by nearly 90 percent and manufacturers growing by more than 36 percent. Construction income has lagged here as has been the case in most of the country. This again suggests that these industry sectors remain an important part of the regional economy.

Growth in so-called “white collar” or service industries has been more measured, but is still vibrant. The real estate industry has suffered for many of the same reasons as the construction industry, yet has the potential to rebound as it has nationally. Health care output has lagged over this period due to changes in national policy. The most significant growth by scale has occurred among the region’s corporate and company headquarters, as well as in the administrative and waste management services sector. Each of these industries represents different aspects of a third perspective on industry changes in the regional economy.

Industry and employment and income interact in two ways. The most commonly-discussed is in terms of payroll and wages. This will be analyzed in the next section. The intersection between employment and output can also be measured in terms of employee productivity, or value-added.



Industry Sector	Allen County Output Per Employee	Ohio Output Per Employee
All industry total	\$ 80,236	\$ 97,827
Private industries	\$ 82,649	\$ 102,051
Farms	\$ 56,928	N/A
Utilities	\$ 589,041	\$ 753,352
Construction	\$ 80,236	\$ 85,897
Manufacturing	\$ 248,625	\$ 139,173
Wholesale trade	\$ 96,006	\$ 138,704
Retail trade	\$ 42,018	\$ 55,391
Information	\$ 120,617	\$ 184,132
Finance and insurance	\$ 79,940	\$ 195,184
Real estate and rental and leasing	\$ 102,347	\$ 989,489
Professional, scientific, and technical services	\$ 46,039	\$ 113,031
Management of companies and enterprises	\$ 86,957	\$ 144,977
Administrative and waste management services	\$ 36,060	\$ 53,168
Educational services	\$ 33,070	\$ 39,150
Health care and social assistance	\$ 55,478	\$ 59,484
Accommodation and food services	\$ 23,197	\$ 27,191
Other services, except government	\$ 25,961	\$ 42,170
Government	\$ 69,233	\$ 75,571

Figure 16: Value-Added Levels for Prominent Industry Sectors, 2013



Employee productivity is commonly expressed in terms of dollar output per worker. This is presented in the table above. We see that there are wide variances between industries across all sectors. Productivity across all industries is significantly lower than the state average, as well as national standards. This is consistent with previous conclusions regarding the general scale and composition of the regional economy. This is true of all private sector employment, as well as employment in a number of the county's largest industry sectors. One finding that does stand out is the fact that manufacturing output in Allen County is nearly twice the state average. This is also significantly higher than the national average of \$163,000 per employee. This speaks to the presence of a number of high value-added firms in the sector, as well as a strong concentration of professional and design staff. These output measures present both significant challenges and opportunities to regional stakeholders as productivity can be enhanced in a number of sectors through employment and growth and diversification especially in highly-skilled technical fields. Yet, this growth should occur without affecting the high returns yielded in a number of key industry sectors.

2.3.3 INDUSTRY INNOVATION POTENTIAL

There has been a great deal of discussion in Allen County over the last decade as to the role that innovation plays in the future economic growth of the region. Similar conversations have occurred in many small urban and rural economies as these regions seek ways to advance beyond a strict reliance on traditional industries. This is a natural transition as recent evidence has demonstrated that so-called "second stage" growth firms have outpaced national growth trends both in terms of employment and profitability. As a result, it is important to examine those activities currently ongoing as well as the region's potential to foster future innovation.

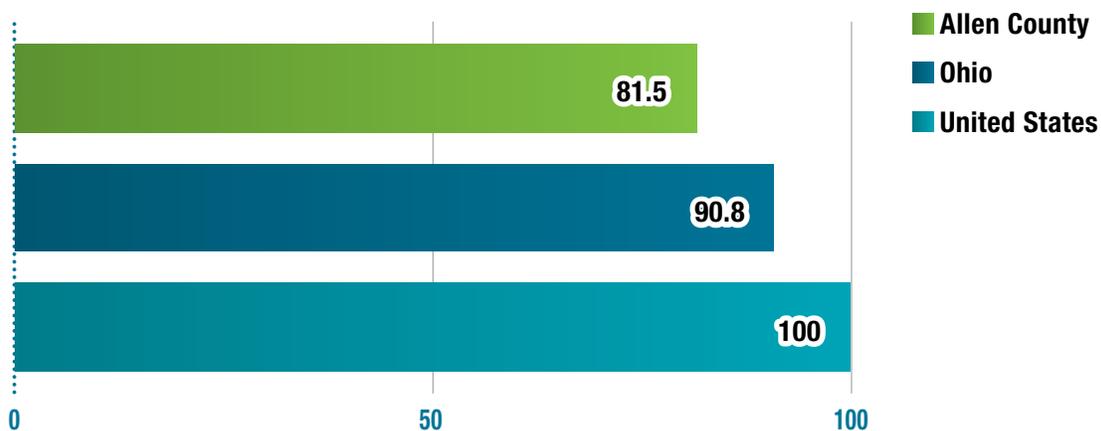


Figure 17: Indiana Business Research Center Innovation Index 2014

The bar graph above presents the most recent comparative measure of innovation capacity, as measured by the Indiana Business Research Center. As the United States represents the benchmark in this index, we see that both Ohio and Allen County lag in terms of innovation support. The index is constructed on the basis of four key measures: Human Capital, Economic Dynamics, Productivity and Employment, and Economic Well-Being. In



decomposing this index, we see that Allen County lags most significantly in terms of Human Capital (75.1) and Employment and Productivity (75.5). Each of these conclusions is consistent with previous findings in the current analysis. It is important to note here that the Innovation Index does not measure innovation activity, per say, but rather a region's ability to support future innovation growth.

The Allen County region has invested significant capital and other resources in the development of the Ohio Energy and Advanced Manufacturing Center (OEAMC), a targeted industry incubator facility. It is too early to speculate as to whether this center will facilitate in the development of new firms. However, its existence and the consortium of firms and leaders that has emerged in support serve as testament to the aggressive positioning of the region as a future innovation hub. It is also consistent with a historical pattern of research and development that has improved production and refining processes in a number of key industry sectors. The organization and incubator will be further discussed in the review of community assets that follows.

It is also important to note that much of the innovation that has historically occurred within the region has happened as existing firms have developed new products and processes. Examples of world-class innovations can be found at many of the region's most prominent manufacturers, including the JSMC, American Trim, and Ford Motor Company. These breakthroughs have improved internal processes and increased productivity and profitability. However, recent history has also demonstrated that it is less likely and more difficult for these internal improvements to become commercialized or grow in scale to support separate enterprises. Rather, firms tend to closely hold this intellectual property for competitive advantage.

As a consequence, the strategy that is most likely to be successful for facilities such as the OEAMC is to build partnerships among academic researchers, entrepreneurs with industry experience, and primary customers in large industries to support the development of similar innovations to support multiple industries. This model has been successfully applied in a number of communities and can be adapted to scale in Allen County.

2.4 INCOME PATTERNS

The final significant asset or indicator area that warrants discussion is the role that income and earnings plays in the dynamics of the regional economy. This has been alluded to in a number of previous sections, but it is also important to review this in isolation as a number of key insights can be gained. The level of income present in any given community has a significant bearing on the quality of life enjoyed by its residents, the composition of the industries, and the level and variety of services offered.



2.4.1 INDUSTRY WAGE ESTIMATES

	Allen County Output Per Employee	Ohio	Percent of Ohio Average
Total, All Industries	\$38,815	\$44,062	88.1%
Natural Resources and Mining	\$30,900	\$45,305	68.2%
Construction	\$44,717	\$51,998	86.0%
Manufacturing	\$64,156	\$55,733	115.1%
Trade, Transportation, and Utilities	\$31,682	\$38,657	82.0%
Information	\$38,075	\$61,670	61.7%
Financial Services	\$40,842	\$61,160	66.8%
Professional and Business Services	\$34,637	\$57,399	60.3%
Education and Health Services	\$41,899	\$41,321	101.4%
Leisure and Hospitality	\$13,167	\$16,508	79.8%
Other Services	\$21,728	\$27,427	79.2%

Figure 18: Average Annual Wages for Major Industries, 2013

The table above presents annual average wage estimates for each of Allen County's most prominent industry sectors in comparison to state averages. We again see that the county average lags behind the state as its all industries average of \$38,815 is 12 percent below the state average. Similar trends can be observed in a number of other key industries. Two industries break from this pattern, however – education and health services and manufacturing. Each of these sectors has average wages that are at or above the state average. Average manufacturing wages also eclipse the national average of (\$61,102). This is especially important as we know that each of these sectors also represents a significant share of employment and output in the regional economy. As such, growth in both of these segments is critical to ensure future economic vitality.

Average wages have increased by 3.4 percent across all industries since 2008 after adjusting for inflation. This local growth rate is more than twice the state average of 1.3 percent, and again points to the potential for future economic growth that exists. Wage growth has also been especially aggressive in the natural resources and mining



(8.4 percent), manufacturing (4 percent), and professional and business services sectors (10.9 percent). This again suggests that growth is occurring among a number of key industry sectors and that the potential exists for future employment growth and diversification.

2.4.2 PER CAPITA INCOME GROWTH

It is also common to measure income dynamics in a more comprehensive manner that includes sources other than wage and salary, such as investment returns, proprietor income, and transfer payments. This can be further decomposed at a per capita level to better compare trends between areas of different sizes. Such a comparison is presented in the chart below.

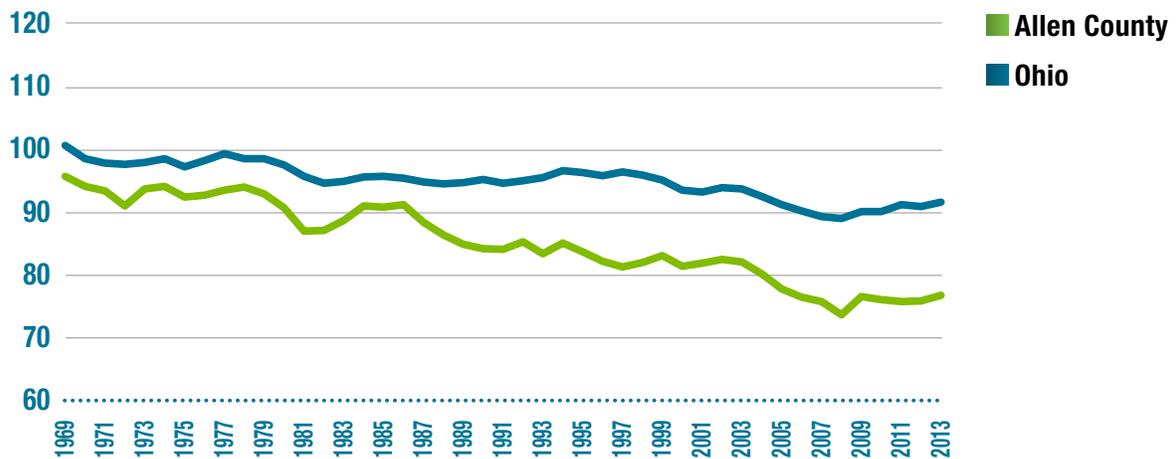


Figure 19: Indexed Real Per Capita Personal Income 1969-2013

The trend lines seen here depict changes in per capita personal income as indexed to the national average. This allows data across multiple years to be presented in real dollar terms. The first notable conclusion to be observed here is that personal income in Allen County has historically lagged behind national and state averages. The gap between Allen County and Ohio averages also diverged significantly beginning in the mid 1980's though the two trend lines have moved in roughly the same fashion over the last decade. This suggests that the economic downturn experienced in the region due to deindustrialization in the late 1970's and 1980's established a new baseline for the region which has created a semi-permanent divide between it and larger markets. It is hoped that future employment and opportunity growth could potentially close this gap.



It is finally important to note the role that proprietors or small business owners play in the Allen County region. Their impact on supporting regional employment has been well established, as firms with less than 50 employees account for 87 percent of local employment. They also play a critical role in supporting the regional income base. Non-farm proprietors' income accounted for eight percent of total personal income in Allen County in 2013, a figure that is only slightly less than the national average of 8.8 percent. This is significant as small business owners and their presence in the community are cited as one of the principal assets required for rural entrepreneurial growth by Mark Drabenstott in his 2010 paper, *Past Silos and Smokestacks: Transforming the Rural Economy in the Midwest*. Allen County is identified as a region that has potential to spur future activity due to its high concentration of proprietor income. It is important to note that proprietor income has grown by 21.1 percent in gross terms in Allen County, 47.8 percent in Ohio, and 33.1 percent nationally between 2007 and 2013. This suggests that the region's position in this analysis may have eroded to some extent as a consequence of the recent recession.

3.0 COMMUNITY ASSETS

The analysis presented above suggests that the Allen County region possesses significant demographic and economic assets that can be effectively utilized to generate future growth and prosperity. However, significant challenges exist in terms of addressing the needs of an aging community, developing the next generation of skilled workers, and unleashing the region's innovation potential. The foundation for the solutions of each of these challenges exists and none is necessarily insurmountable. What is a greater challenge is how the region might develop solutions to deal with more timely challenges, such as the uncertain future of the Joint Systems Manufacturing Center, the significant income disparity between the immediate region and state averages, and the need to produce more civic investment and engagement.

The communities of Allen County are fortunate to be filled with business and community leaders that have anticipated many of these challenges and have initiated discussions to create innovative solutions. The purpose of this section is to summarize the work and progress of a sample of four key regional initiatives – Task Force LIMA, the West Central Ohio Manufacturing Consortium, LINK Lima/Allen County, and the Ohio Energy and Advanced Manufacturing Center. There are a number of synergies that exist between these organizations. They also represent a small segment of a wider population of organizations and partnerships that are working to improve conditions in the region. They have been selected for inclusion largely due to the multitude of stakeholders engaged, as well as for the possible models they represent to build future regional collaborations.

3.1 TASK FORCE LIMA

The Joint Systems Manufacturing Center or JSMC has played a prominent historical role in the Allen County economy, as well as the nation's defense infrastructure. This role has been documented throughout the course of this analysis. However, the analysis to this point has not alluded to the recent vulnerability of the facility and its prominence.

Changes in military alignment and spending over the last twenty-five years has resulted in calls from both the Department of Defense and Congress to consider the consolidation or closure of what are viewed as surplus military assets. Community leaders were alarmed when it was announced in 2003 that the JSMC would be included in a round of Base Realignment and Closure (BRAC) analysis that would conclude with a series of recommendations in



2005. The challenge presented was how the community could present the JSMC as a unique and vital asset while also building a supportive community infrastructure. Task Force LIMA was formed with this in mind.

Task Force LIMA represents a comprehensive community partnership organized to advocate for the JSMC and its capabilities to state and federal officials. It is a coalition of local, state and federal elected officials, economic development and business associations, labor organizations, media, and other community leadership. The inclusion of such a comprehensive array of partners is essential given both the scope of the facility as well as the nature of the challenge.

The leadership of the task force mirrors the unique nature of the JSMC as it has always been co-chaired by the mayor of Lima and the General Dynamics plant manager. This public-private partnership has been especially effective as it opens a constructive dialogue as to the needs of the JSMC and what community assets could be leveraged to support it. By engaging in an extensive public outreach and advocacy campaign, the task force was able to successfully reverse a 2005 recommendation to reduce the productive and physical footprint of the JSMC.

The Task Force only met occasionally between 2006 and 2010, but resumed its current regular meeting schedule in 2010 and 2011 when two key contracts – the Future Combat Systems and Expeditionary Fighting Vehicle programs were cancelled by the Department of Defense. The Task Force has met continuously since and has shifted its approach from being reactive to assuming a more proactive role. Members now actively engage in a number of key advocacy activities, such as hosting Congressional delegations and meeting with Pentagon staff. They have also been instrumental in bringing the importance of the defense sector to the State of Ohio to Governor John Kasich's attention by drafting a white paper in 2013 tracking the flow of federal funds into and out of the state.

By assuming this more forward-thinking perspective, Task Force LIMA is in the process of evolving from an issue coalition to an advocacy or interest organization. The distinction is important as it has allowed the members to shift their orientation from defending the JSMC against possible closure to advocate for more capital investment and additional contracts. This shift has made the Task Force a more viable organization in the long-term. In fact the organizational structure has become so successful and embedded that membership has recently met with other communities in Ohio to share best practices.

Issue or advocacy organizations frequently struggle to expand their scope or maintain inertia after the initial threat or crisis has been resolved. The Department of Defense's Office of Economic Adjustment has recognized this challenge and has provided a planning grant to the Allen County Board of Commissioners to consider how the JSMC fits within the broader economy and its impact at a regional level. Future iQ Partners has been contracted to help facilitate this conversation.

Task Force LIMA has also enjoyed an additional recent victory through the recent announcement of additional capital investment by the U.S. Army into the JSMC. It is assumed that this is the first in a series of actions that may shift the facility's standing into one that is more in line with other depot facilities. This will improve the future viability of the JSMC by opening it up to additional maintenance and support funding and allow GDLS and its military partners to better position the facility to procure additional contracts and vehicle lines. This again attests to the mission of Task Force LIMA, though it also highlights how dependent its success is on external stakeholders. This is a second key vulnerability of advocacy organizations.



Task Force LIMA represents a viable model of public-private partnership that could be effectively applied to support other industries or issue areas. It speaks to the importance of engaging stakeholders across a wide scope of interests, centering the discussion on shared needs. It also highlights the importance of both embracing proactive strategies and publicizing success. The region's victories must be shared in order to gain additional traction and support as these initiatives expand in scale and scope.

3.2 WEST CENTRAL OHIO MANUFACTURING CONSORTIUM

The West Central Ohio Manufacturing Consortium represents a second significant asset in the Allen County region's ability to capitalize on future opportunities. Its history and the development of the more broadly-defined but related Link Lima initiative speaks again to the opportunities and challenges that have emerged in the wake of the recent recession. The consortium's mission is closely tied to the changing needs of the region's manufacturing workforce and is now expanding to consider similar needs in other industries. It points to the importance of human capital needs in the region as well as the strength of the partnerships that have formed between education and industry.

Community and business leaders in Allen County and neighboring counties began to engage in a series of conversations regarding the broader future of manufacturing within the region around the same time that Task Force LIMA developed. The impact of global and national industry changes were especially hard felt in the region, as manufacturing employment as a share of total employment decreased from 35 to 25 percent between 1994 and 2004 (it has since decreased to 20 percent), leading many experts to conclude that future decline was inevitable unless industry leaders collaborated. Many of these leaders had maintained informal relationships with each other through community social and fraternal organizations and the Allen County Chamber of Commerce. However, formal collaboration was less common even though shared needs became evident.

The WCOMC traces its foundation to a 2004 survey conducted by Rhodes State College of forty-three advanced manufacturing companies. The survey, which was funded by KnowledgeWorks, a Cincinnati-based education and training advocacy foundation explored these firms' workforce needs and challenges. The general conclusion reached by this analysis suggested that local hiring demands had shifted from the unskilled labor that had filled shop floors during the 1960's and 1970's to individuals with intermediate to high skill levels as companies invested in more technology and increased productivity. Significant gaps were further identified in the skills competencies of the incumbent and incoming workforce and the capacity of the region's training providers to prepare these workers for future demands.

The WCOMC is nominally headquartered at Rhodes State College and is endorsed and supported by many of the largest manufacturers within a twelve-county region. Its principal focus to date has been on the development of a series of three tiered career pathways training programs designed to prepare manufacturing workers for the rigors of increasing skill and responsibility. The consortium started with the development of a basic-level advanced manufacturing certification that addressed concerns from manufacturers as to level of employability and entry-level skills lacking in the region's jobseekers. Much of this work occurred before the recession of 2007. However, this initial focus also combined with changing economic conditions to prompt employers such as the JSMC and GDLS to disengage from the partnership.



Subsequent surveys conducted in 2007 and 2013 indicated that the skills needs expressed by the region's manufacturing base had intensified with a greater concentration in intermediate skills levels. A second-tier certification program was designed that closely follows the acquisition of a technical diploma in one of many skilled trade areas. An advanced certification was also added to credential those manufacturing workers that have received an associate's or bachelor's degree.

Pathways models of this type are notable for a number of reasons. First, they represent a logical path of advancement for workers in the field. This is important as this advancement can be effectively transferred between employers. Second, the training curriculum and credentials are both designed and endorsed by industry partners. This provides a second level of credibility beyond that which is given by the training provider and may give job seekers an advantage when pursuing opportunities with member companies. As the skills needs of manufacturers, including the JSMC become more advanced, the work of organizations such as the WCOMC will become increasingly important.

It is strongly recommended that the JSMC and GDLS reengage in a more meaningful sense with the consortium. A recent analysis of skills needs at the JSMC revealed the presence of 326 intermediate-skilled workers, and an additional 91 advanced-level employees, using the criteria established by the WCOMC. As the plant's workforce continues to age and potential future contracts are procured, demands for workers in each of these skills levels will only increase. The pathway model developed by the WCOMC may represent one possible tool to produce these needed employees.

3.3 LINK LIMA / ALLEN COUNTY

The discussion regarding workforce development and human capital needs has expanded in scope but narrowed in scale in recent years through the creation of the LINK Lima/Allen County initiative. This initiative traces its development back to the publication of the Allen Economic Development Group's AEDG Workforce Vision 2018 in 2010. The initiative, which represents a partnership by large employers across several sectors and the small business community members of the Lima-Allen County Chamber of Commerce developed through the recognition of a shared need for the community to attract, develop, and retain a world-class workforce. This also comes from a similar recognition to that of the WCOMC as to the need to develop a more comprehensive training model to support the workforce needs of employers across multiple sectors.

The initiative has established an ambition agenda as part of its mission statement, which reads:

Lima and Allen County will become known for cultivating and delivering to local businesses everything they are looking for in an employer-ready, appropriately trained, local workforce.

This ambitious agenda clearly calls for the adoption of a collaborative approach. To this end, the AEDG has partnered with Transform Consulting of Cincinnati to provide leadership and strategic guidance. The initiative is also guided by a widely-represented Workforce Advisory Council, which includes community, business, and education leaders. A number of working groups also support the core initiative. This organizational structure closely mirrors similar initiatives found in other communities around the country.



Where LINK Lima/Allen County differs from the WCOMC and other related initiatives is first in its more generalized scope encompassing multiple industries, and also in its focus, which includes both the K-12 primary and secondary education system as well as postsecondary institutions. This suggests that the initiative may shed more attention on career exploration as well career development for adult workers. The initiative also builds upon state efforts to link employers and jobseekers through awareness of the Ohio Means Jobs portal. The model is ambitious in its scope as it intends to meet the needs of workers at all levels of experience and age. This closely aligns with the existing needs of Allen County's employers as current job openings reveal needs across all education and experience levels.

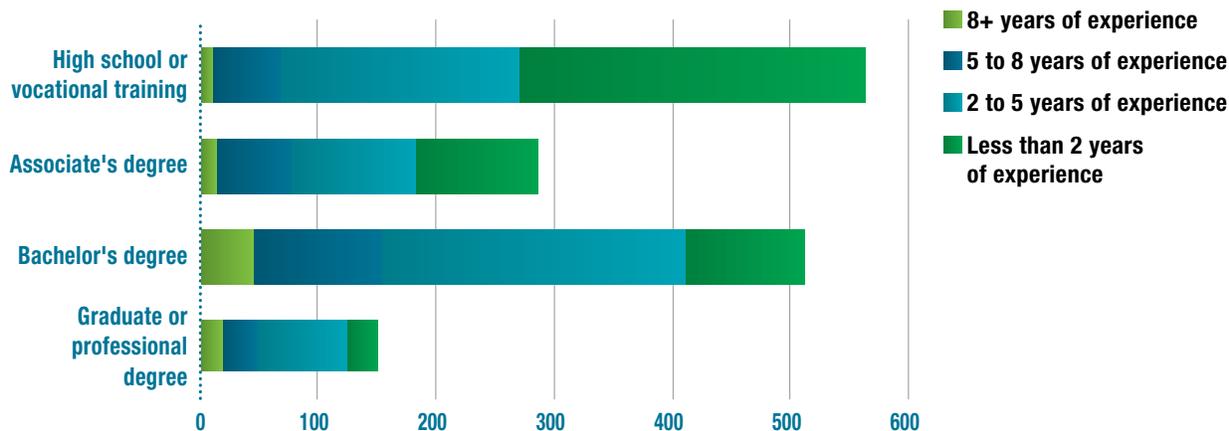


Figure 20: 2014 Job Openings by Education and Experience Required

Despite the ambition of its scope, it appears that the AEDG is uniquely positioned as a potential facilitator for the growth of this and other related partnerships. Its mission bridges across multiple areas and it has the widespread support of both the business community and government leaders. The presence of this type of objective champion organization is essential to ensure the success of regional public-private partnerships.

3.4 OHIO ENERGY AND ADVANCED MANUFACTURING CENTER

The Ohio Energy and Advanced Manufacturing Center (OEAMC) is a sophisticated and versatile incubator facility in Lima, Ohio. The center opened in fall 2014 and is currently accepting its first class of entrepreneurs. However, the story of the partnership that led to this development stretches back over the last decade and mirrors the conversation that led to the creation of the West Central Ohio Manufacturing Consortium, in many regards.

The dialogue that led to the eventual formation of the OEAMC started in 2006 as community leaders engaged with faculty from Ohio Northern University and other research institutions and business leaders in the energy and manufacturing sectors to discuss the role of innovation as an economic development tool. These early conversations focused on the principle of Sustainable Agile Manufacturing as a development strategy for the region.



The concept of Sustainable Agile Manufacturing (SAM) is described in a 2012 White Paper produced by the center. In short, SAM attempts to apply the concepts of software development to manufacturing processes in stressing the importance of pre-tooling to enable mass customization in production. It also embraces the concept of the “10 percent model,” where principles are applied to develop pre-production systems in 10 percent of the time, at 10 percent of the cost, but for only 10 percent of the previous model's production cycle. This objective is also a key principle in lean manufacturing, which is a closely related, but more holistic model.

Most American manufacturers do not currently utilize SAM in their processes largely because embedded tooling and design systems dissuade customization. The shift to more agile models may result in costly initial capital investment, but the eventual cost savings and increased productive capacity far outweigh the outlay. The SAM model proposed by the OEAMC utilizes a number of innovative principles to derive these savings, including:

- Sustainable Energy
- Advanced Materials
- Agile Tooling
- Additive Manufacturing Technologies
- Advanced Forming and Joining Technologies
- Coatings/Decorative Technologies
- Simulation Software

In sum, these advances present a comprehensive suite of tools and processes that are on the cutting edge of manufacturing innovation.

The OEAMC formalized its organizational structure in 2008 and initiated a campaign to raise capital for an incubator facility. The new incubator was funded, in part through a \$1.5 million Economic Development Administration grant and a total of \$4.8 million in state grants and loans. This represents a significant public investment in the concept of innovation as an economic development strategy.

The success of the incubator model of innovation development is largely driven by the synergies that are derived from collaborative partnerships among entrepreneurs and researchers. This is especially important in the case of the OEAMC as their stated intention is to develop applications to benefit firms in a national market. One key synergy has already been created as the organization has deliberately recruited leadership from both local manufacturing and energy firms. This represents the two key traditional industry strengths in the region.

The development of the OEAMC incubator facility will require continued engagement from those key stakeholder groups already at the table, as well as new industry partners. It serves a vital role in the pursuit of a regional innovation strategy. The identification of a clear development process and defined markets has already differentiated it from similar initiatives in other communities. It rightfully represents one of the key assets to guide the Allen County region's economic future.



4.0 CONCLUSION

Allen County, Ohio, and its surrounding region have had a long history of growth, struggle, and resilience. It has re-defined itself time and again on the strengths of its industrial core and world-class workforce. Many of these assets still exist today, though there are considerable challenges ahead. The region recognizes the importance of many of these key assets and knows that they must be repositioned in order to most effectively benefit from future opportunities. These are the same challenges faced by a number of manufacturing communities in the Midwest. Those communities that develop the most comprehensive and effective partnerships are most likely to succeed.

The analysis presented here illustrates many of the same key strengths and weaknesses identified in the BRAC community assessment conducted in 2005. While the focus of that investigation was to evaluate the assets needed to support the Joint Systems Manufacturing Center, many of these same assets are recognized to be of critical importance to the community at large. Employers throughout the region are all faced with the challenge of an aging workforce. Companies across multiple sectors are considering strategies to more effectively engage young professionals. The community has recognized the need to foster more innovation throughout the regional economy. These are all needs that are common throughout multiple sectors and will require collaborative strategies to address.

While many of the indicators presented here suggest that Allen County lags behind Ohio and the United States in a number of growth measures, it is also important to note that none of these gaps are insurmountable. Some of the challenges are cyclical in nature and will continue to improve as the regional economy recovers from the recent recession. Others are systemic or structural in nature and will require more intensive solutions and therefore more community resources to address. Potential worker shortages can only be solved by preparing and engaging a new generation of labor. The innovation economy requires the coordination of capital, facilities, and customers. Again, many of the assets needed to meet these challenges already exist in the region but need to be aligned. Others may need to be developed.

There are a number of regional organizations and partnerships already actively engaged around these issues. In some instances groups such as the West Central Ohio Manufacturing Consortium may represent a best practice to be replicated. Others, such as Task Force LIMA and LINK Lima/Allen County show the power of collaboration and organization. Finally, the innovation potential that exists at the Ohio Energy and Advanced Manufacturing Center may have the potential to spur extensive future development throughout the region. Each of these examples is joined by many others, suggesting that a critical mass for change exists within the region.

Allen County has written a number of comeback stories throughout its history. This discussion may represent the first chapter in the next one.



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6.0 ABOUT FUTURE IQ PARTNERS

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ABOUT TASK FORCE LIMA

This study is one of many to be produced under an award issued by the U.S. Department of Defense Office of Economic Adjustment to assist Allen County and Task Force LIMA in developing strategies to ensure the economic health and vitality of the Joint Systems Manufacturing Center and the broader region. For more information regarding Task Force LIMA or any aspect of this project, please contact: Denis Glenn, CM at dglenn@allencountyohio.com.



