



Educational Attainment as an Economic Driver for States, Regions and Communities

Larry Good
Jeannine La Prad
Corporation for a Skilled Workforce

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Michigan State University

Center for Community and Economic Development

EDA University Center for Regional Economic Innovation

Larry Good

Jeannine La Prad

Corporation for a Skilled Workforce

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TABLE OF CONTENTS

INTRODUCTION	4
Why Increasing Skills & Educational Attainment Matters.....	5
Increasing Educational Attainment as a Strategy for Increasing Economic Prosperity	7
DOES EDUCATIONAL ATTAINMENT DRIVE ECONOMIC GROWTH?	11
How Does Education Affect Economic Growth?.....	11
What Mix of Education Matters for Economic Growth?.....	15
MAKING EDUCATION A DRIVER OF ECONOMIC GROWTH IN MICHIGAN	20
How is Michigan Positioned Now?	20
How Are Leading States and Regions Strengthening Education as a Driver Of Economic Growth?.....	21
What Levers for Change are Growing Educational Attainment?	29
What are Promising Practices Underway in Michigan?	31
Reported achievements include:	33
HOW CAN MICHIGAN BECOME A LEADER IN EDUCATIONAL ATTAINMENT?	35
Tackle This Agenda Collaboratively and Urgently	35
Strengthen the Role of Michigan Community Colleges in Economic Development	36
Undertake Strategies that can “Move the Needle” on Educational Attainment	37
Reinvest in Michigan’s Excellent Universities.....	38
Align Funding With This Agenda.....	39
CONCLUSION.....	42
REFERENCES	43

INTRODUCTION

There is growing consensus that increasing educational attainment increases economic prosperity, and many states and regions are considering making needed investments in talent development in line with economic development priorities. But, in what ways can educational attainment drive economic growth? And, what does that mean for talent and economic development strategies at a state, regional and community level?

This paper examines those questions, building on national educational attainment and economic growth research and offers an analysis of Michigan efforts to promote investments in education and training that leads to sub-baccalaureate credentials tied to business and industry needs. It includes strategies for increasing alignment among economic diversification and growth, educational investments, and outcomes. And, offers some examples of promising partnerships, programs, and practices from Michigan and around the country that most effectively support meeting both short- and longer-term economic and workforce demands.

We hope this paper is a valuable resource for communities and regions interested in linking talent development more closely to current and future economic opportunities. We also hope that the examples we offer provide concrete ideas for moving the needle on degree attainment in the context of economic development. Ideally this provides the basis for both discussion and action that leads to Michigan becoming a high skill, high wage state.

Why Increasing Skills & Educational Attainment Matters

Continuing economic change is challenging the future for many people, companies, and communities around the country. Businesses and workers have to be more agile and creative in the new economy due to expanding global competition, rapidly shifting industries and markets, and the increasing complexity of business and work environments. This translates to a growing need for more advanced skills and greater employment challenges for lower-paid, lower-skill workers (National Governor's Association, April 2013).

Economic Recovery & Employment – In Michigan, unemployment is higher than the national average (U.S. Bureau of Labor Statistics, n.d. a) and income and wealth inequality have increased over recent years (Center on Budget and Policy Priorities, 2012). The financial positions of many middle class families are still fragile. For example:

- Job loss. Michigan lost more than 720,000 non-farm jobs during the 2001-2010 decade; thus far only 112,500 jobs have been added to the state's economy. At that pace, it would take over thirteen years before employment would return to the 2001 level (U.S. Bureau of Labor Statistics, n.d. b).
- Lower income. Michigan has fallen from being 17th in the nation in per capita income in 1980 to 36th in the nation today. The state has moved from being relatively affluent to becoming increasingly poorer (U.S. Bureau of Economic Analysis, n.d.).
- Unprecedented long-term unemployment. Many former workers have left the labor force. Some are part of the biggest cohort of long-term unemployed job seekers since the Great Depression; others have simply given up and aren't even looking any longer. The labor force in Michigan has declined by over 500,000 workers since 2001. The labor force participation rate has also fallen, with only 60% of the population in the labor force in 2012 compared to 69% in 2000 (Ruark, September 2012). The unemployment rate in Michigan and the United States is falling as a result of people leaving the workforce, not because greater numbers are finding jobs.

Some ground has been gained in recent years. Recent data from the Michigan Dashboard show improvements on three of five economic strength indicators – monthly gross domestic product, unemployment, and personal income per capita (State of Michigan, n.d.). However, with these improvements Michigan is still experiencing major job and skills gaps for workers, companies and communities.

Labor Market Churn & Skills Gaps – As we're seeing in other places around the country, the nature of employment in today's economy is different from the industrial economy.

Jobs are more complex and more dependent on teams and technology. Workers are facing new challenges to upgrade their skills to keep their job and those without the skills to compete may not be finding jobs at all (McKinsey Global Institute, June 2009; Baum, Ma, & Payea, 2010).

Today, most states have not only significant unemployment but also shortages of skilled workers to be machinists, nurses, or manufacturing technicians. Often these skill and educational attainment gaps exist because many people are now working in industries and jobs quite different from what they were initially prepared to do. Closing these skill gaps is good for employers, employees, students, and regional economies.

In addition to educational institutions offering new programs, employers and individuals will also need to take responsibility for improving the skills and adaptability of workers. Examples of collaborative approaches involving government, business, communities, and individuals are emerging (a few of which will be highlighted later in this paper).

Innovation Jobs & Skills Cluster – In addition to these skills gaps, it seems the mix and quality of jobs that are growing may be of benefit to some workers, communities, and regions, but not all. Jobs in the innovation sector are growing disproportionately fast and human capital is key to those jobs (i.e., helping upgrade productivity, expand markets, and develop new products). Many of these jobs are dependent on workers with varied levels of educational attainment (from quality certificates to advanced degrees), and they are creating a multiplier effect for both skilled and unskilled jobs (Moretti, 2013).

Cities with the innovation jobs and a solid base of human capital attract good employers offering high wages, while those with higher poverty and lower skills often don't, which contributes to further economic decline. Fortunately, a number of regions and communities are looking at how best to address educational attainment issues for people at different places in the labor market, including for those marginally attached because of significant skills gaps. And, in a few places we're seeing a convergence of these different strategies form the basis of multi-pronged, integrative regional prosperity agendas that are being supported with both private- and public-sector resources.

Credentials, Competencies & Resilience – In the midst of the churn and challenges facing workers and communities, there have been persistent wage gains for those who attain at least some education and training after high school and lower unemployment rates for workers with college degrees over the past few years (Carnevale, Smith & Strohl, June 2011).

At the same time, having the right set of knowledge and skills and the ability to continually learn and adapt is more critical than ever. Research and experience in the field show that resilience requires higher-level technical and interpersonal skills as well as financial and

social capital for ongoing learning to be able to contribute in the changing economy (Organization for Economic Cooperation, 2001). These are important considerations in the development of partnerships and programs that support both new competency and credential attainment.

Increasing Educational Attainment as a Strategy for Increasing Economic Prosperity

These economic shifts bring into question what strategies result in economic prosperity for states and communities. No one doubts that every state needs a well-crafted strategy for driving economic growth. Across the country, policy makers, businesses and community leaders are working to identify the components of an economic development approach that will put their states and localities out front in the competition for business investment dollars, especially those that produce lots of high wage jobs that are the foundation of a thriving middle class. Central to these approaches is the issue of talent.

State & Local Prosperity – States and local governments have a variety of tools to work with to boost economic prosperity. Primarily, these tools consist of tax and regulatory incentives, investments in infrastructure improvements that lower the costs of doing business (both in general and on behalf of selected enterprises and industries), investments in education (both in general and on behalf of selected enterprises and industries), and investments in community development and quality of life factors.

Policy and advocacy organizations cite a skilled talent pool as a key differentiator, typically demarked by level of post-secondary attainment. To varying degrees key players in almost every state and locality have identified education systems and institutions as critical for creating new and distinctive competitive advantages. They are assessing the performance of institutions and programs and developing strategies for ensuring they serve as drivers of economic growth (Thompson, 2010; Bartik, 2009).

Regional Innovation & Talent Development – Regional prosperity is also being linked more closely to innovation and talent development, with some acknowledgement that an innovative economy alone can't produce growth if other factors aren't in place (e.g., if residents don't have needed skills, if the natural environment is seriously degraded). It's also noted that increasing productivity is the key to regional prosperity, and the basis for productivity improvements are innovation and people (Collaborative Economics, September 2008). In a survey of CEOs and business leaders, employees, business partners, and customers were selected as the most significant sources of innovative ideas (IBM, 2006).

Many regions today are lagging in innovation and entrepreneurship because they haven't developed their talent base and economic infrastructure, while others haven't been able to

recruit and retain people because of quality of life issues. Others are leading the way in focusing on the mix factors needed for regional prosperity: innovative companies; talent with education, skills, and creativity; and communities with an attractive and supportive quality of life.

Education & Economic Development – Increasingly, policy experts, policy makers and business leaders in almost every state and locality are working to redefine the relationship between education and economic development. The role of educational institutions in preparing people for work and life-long learning has become a paramount consideration.

Education systems and institutions have always prepared people for employment, but the relationships between employers and educators were less formal and less business influenced than is becoming the case. In an earlier era of generally higher rates of employment growth, education had broadly defined missions in which preparation for participation in the labor force was one part, and not considered critical to a state's economic growth. In this new era of slow economic growth and high rates of unemployment and underemployment, education is being called upon to play a major role in creating potent state and local competitive advantages, to be a key driver of economic growth.

As a result, the way states, regions, and communities are tracking and measuring educational attainment is changing as well. Increasingly, educational performance is being measured in relation to how well K-12 schools, colleges, and universities instill knowledge and skills that business leaders want and expect. Not surprisingly, the opinions of business leaders play a much larger role in assessing the performance of colleges and universities and K-12 education systems, along with much more formal testing for acquisition of employment related skills and knowledge, particularly in the sciences and math.

This new evaluation approach has changed conclusions about how well education systems are working. The prevailing opinion among business leaders, policy experts, and policy makers is that the majority of education systems across the U.S. are not up to the job of being a key component of an economic growth strategy. In far too many cases, too few high school students are transitioning into college, high school and college completion rates are too low, skill and knowledge attainment in K-12 schools and in colleges and universities is poorly aligned with labor force demand and/or of poor quality, and education systems are unable to respond to changing labor force demand in a timely manner.

This new view of education as a driver of economic growth raises a key question: “How much does the functioning and efficacy of education systems impact business leaders’ location and investment decisions?” Evidence suggests that education system differences will be considered most in location and investment decisions by employers in industries that depend on workers with professional and technical skills, like those in STEM careers (science, technology, engineering, and math) (Starner, 2012; Starner, 2013).

In many regions around the country collaboratives have formed to look at how to increase educational attainment in response to business needs, including post-secondary degrees, credentials, and industry-validated certifications. And, while economic development tends to be oriented more toward addressing STEM and other high-demand skill shortages, there are places where leaders from both the public- and private-sector are working to ensure a more diverse and inclusive talent base is developed. In these places it's not an either/or choice and a mix of educational attainment strategies are being developed to address needs at all levels of the labor market.

Inclusion & Diversity as a Strategy – The United States will need to increase postsecondary degree production by almost 53% annually — which equates to 781,000 additional degrees per year — to be number one in the world by 2025 (Jones, 2009). Although much work needs to be done to improve K–20 education in the United States, over three-quarters of the 2020 workforce is already in the labor pool and they will need better skills and adaptability to better contribute to innovation-driven productivity growth (Toosi, January 2012). That means states will need to reach beyond traditional high school graduates to increase their college attainment rates to the levels required to be number one in the world. To reach these projections, states must develop strategies that meet the unique needs of all potential students, including adults.

Adult students who do not possess a postsecondary credential are a large and diverse population. As of 2005, there were over 138 million adults age 18-64 in the United States. Of those, 42 million are candidates for postsecondary education, but are not adequately prepared (Jones, 2009). Many adults require English language training, others with high school diplomas require remedial and developmental education and others need to acquire their GEDs before being able to enroll. Each of these populations requires a unique set of interventions that will enable them to earn a credential and be employed in a living-wage job.

The question is how to incorporate inclusion and diversity into the strategy for using education to drive economic growth. One way is to take an approach that emphasizes education system changes that build the middle class from the bottom up by helping to restore upward mobility for individuals and families that rely on low wage jobs for income. Such an approach would involve a strategic decision to channel a large part of post-secondary education resources into educational programs that are accessible to a broad range of low skill workers, develop skills that are in demand in the labor market – largely growing mid-level skill (middle skill) jobs – and are relatively low cost.

Benefits to this approach abound. Many low income U.S. residents are already prepared to benefit from middle skills education and training and many more can become ready through remedial course work. And, the cost of 2-year community college degrees and long-term occupational certificates is generally much lower than the cost of four to six years of university education. Moreover, helping large numbers of low-wage workers move

into middle wage jobs will substantially reduce costs for food assistance, free and reduced school lunches, and other taxpayer funded income supplements. Tax revenues will also increase (Card, 1999).

As we have noted, communities and regions will be more likely to thrive if they understand the relationship between education and their economy and have tools and resources to support the development and retention of local jobs and talent. The challenge and opportunity for states and regions is to develop the resources and capacity to be able to do both:

- Build a sustainable pipeline of highly skilled talent to power existing and emerging industries that drive prosperity and competitiveness; and
- Increase flexibility in the approach so that talent can quickly be connected where it is needed or rapidly up-skilled to match demand.

In the sections that follow we offer some context for the educational attainment goals and strategies states and regions are pursuing, and examples of what's happening around the country and in Michigan to respond to short- and longer-term needs and recommendations for success in these areas.

DOES EDUCATIONAL ATTAINMENT DRIVE ECONOMIC GROWTH?

The role of higher education as a major driver of economic development and growth is becoming well established, and many assume that it will only increase as further changes in technology, globalization, and demographics impact the United States. We see examples of higher education systems, universities, and community colleges working to help regions and states advance in the new knowledge and innovation economy.

While this is happening in many states and regions around the country, in some places there is still significant debate about the factors that drive economic growth and the relative value of educational attainment in that mix. These debates may be most prevalent in state government where different perspectives and choices around economic development and higher education investments are being considered.

A number of American families and individuals are also beginning to question the short- and longer-term value of post-secondary education given the rising costs and concerns about the availability of good jobs, careers, and income as a return on their investment. Even if there is general agreement that educational attainment is a driver of economic growth among researchers, there are choices about if and how much to invest in higher education institutions, companies, and individuals to achieve intended outcomes.

These differences between macro-level data and personal experiences with education and the labor market contribute to the confusion and disagreements among policy-makers and other stakeholders about how best to move forward on education. More work needs to be done at a state and local level to better understand the data and public perceptions about the costs and benefits of increasing educational attainment.

How Does Education Affect Economic Growth?

There are a few different ways researchers have been analyzing this question. A number of studies have looked at the individual economic and social benefits of education, while others have examined state and community level outcomes. There are also studies that explore the effects of education on state and local economic performance, and some that focus more on education in relation to business performance and investment choices.

Given this array, it's important for states, regions, and communities to be clear about economic, community, and workforce development goals in relation to different economic and social outcomes. Ultimately, better understanding the relationship between these goals and outcomes will serve as a basis for determining what mix of educational attainment strategies and investments to support.

Educational Attainment & Prosperity – The evidence that educational attainment and economic prosperity are strongly associated is unequivocal. Individuals with more education and credentials are more prosperous. Families with highly educated and credentialed members are more prosperous. Communities and states with highly educated and credentialed residents are more prosperous.

Individual Economic & Social Benefits – A study by the College Board Advocacy and Policy Center found that higher educational attainment levels are associated with higher labor force participation rates, higher earnings, higher hourly wages, better benefits, and more job satisfaction. For example, in 2008 bachelor's degree recipients working full-time year-round had median earnings of \$55,700, while high school graduates had median earnings of \$33,800. Individuals with some college but no degree earned 17% more than high school graduates working full-time year-round. For young adults between the ages of 20 and 24, the unemployment rate in the fourth quarter of 2009 for high school graduates was 2.6 times as high as that for college graduates (Baum, Ma & Payea, 2010)

In general and over the long-term, higher levels of education are also associated with other quality of life factors, including: employer provided benefits (health insurance being the most important); a higher level of employment security; access to housing in better quality neighborhoods; access to better quality schools for children; and better health and longer life expectancy (Oreopoulos & Salvanes, 2009; Williams & Swail, 2005).

State & Community Benefits – At the state and community levels, increases in educational attainment are associated with increased shared prosperity (Williams & Swail, 2005). Shared prosperity is an extension of individual prosperity, through primary and secondary effects:

- Primary effects – increased spending in the community (supports local businesses and increases employment); increased tax and fee payments; and increased contributions to community institutions (libraries, museums, charities, etc.).
- Secondary effects – To the extent that high earnings of individuals with strong educational credentials and skills spread through a community, secondary effects can include: consistent productive employment which reduces dependence on public income-transfer programs (public assistance, private charities); improved student performance; fewer problems associated with unengaged youth; and better maintenance of the lower end housing stock (higher property values).

Generally, all workers, regardless of education level, earn more when there are more college graduates in the labor force (Baum & Ma, 2007).

Economic & Business Performance Benefits – The associations between educational performance indicators and economic growth support the assertion that education can be a driver of economic growth. For example, *State and Local Economic Performance - Enterprising States 2013: Getting Down to Small Business* advises that: “Investing in people is perhaps the most effective long-term economic growth strategy. Training and education offer the best chance for workers to find well-paying, long-term employment while providing businesses with the talent they need to grow” (Zimmerman, Schill, Leiphon, Aasheim, Kotkin, April 2013).

This report’s data show that economic growth success is tied to multiple high rankings. One that stands out is ranking on Talent Pipeline, a composite based on certain educational performance indicators such as higher education efficiency and attainment, the rigor of high school coursework, and the performance of the state workforce development system. States that perform well on the Talent Pipeline ranking also perform well economically. The data also show that STEM job growth is strongly related to economic performance.

At the local level, a study by the Brookings Institution that analyzed data for 358 cities in the country and ranked each city on several economic factors found a modest correlation between the city’s rank in terms of GDP per worker and its rank in terms of the percent of technology workers and workers with a bachelor’s degree in a STEM field (Brookings Institution, 2013).

Another study of economic growth by the Cleveland Federal Reserve identified several factors that are important to economic growth, but found that a skilled workforce “contributes the most to growth in output, per capita income, and productivity” (Eberts, Ericckek & Kleinhenz, April 2006).

Education’s Role in Business Location & Investment Decisions – Whether an education system is or can be a driver of economic growth also pertains to the question of whether it is a significant factor in location and investment decisions made by business leaders. If it is, ramping up investments in improving educational systems and institutions and connecting programs more closely to economic and business development efforts would be a good direction to take.

The decision-making and production processes through which a company achieves a high level of performance depend on employees with strong and specialized, sometimes fairly unique, knowledge and skills. For that reason today’s businesses are more dependent on the performance of people, and the education and training programs preparing them. In a November 2012 survey of site selection consultants who subscribe to *Site Selection* magazine, respondents ranked work force as the single most important factor in considering site selections (Starnier, 2013). This result suggests that high performing education systems will be part of the evaluation of a location.

And, business leaders and investors in certain high wage, high growth industries are more likely than others to compare education systems and institutions when making site selection decisions, especially those who find it difficult to recruit appropriately skilled employees and depend on R&D, knowledge and technology transfer relationships, and other connections with researchers and faculty at higher education institutions.

Relationship to Other Contributors for Economic Growth – Mobilizing an education system to help drive economic growth can only produce strong results when combined with the right kind of job growth. Little will come of high completion rates with high quality certificates and degrees, if graduates have to leave a region or state to find job openings that match their newly acquired skills and credentials. High quality job creation must match high quality education system output.

The *2012 New Economy Index* makes the point this way:

More jobs alone, while a critical step for recovery, will not be enough to get America's economy back onto the trajectory of the growth rates experienced in the 1990s. Instead, the economy will need to shift from low-skilled, low-wage jobs to more highly skilled and thus higher wage jobs; and from our traditional industrial manufacturing makeup to a twenty-first-century mix of employment in high-tech fields such as biotechnology, clean energy, information technology, nanotechnology, and advanced manufacturing.

A state or region must touch all the economic growth bases. Companies that offer the "good" jobs that the graduates of a high quality education system look for are seeking a complete package of competitive advantages, including infrastructural investments, easy to navigate regulatory systems, accessible capital resources, and other services that lower operating costs. States and regions that fail to generate the complete competitive package will waste the resources pumped into mobilizing education as a driver of economic growth.

Graham Toft found that educational attainment attributes combine with five other key economic agents as salient contributors to income growth: productivity; science and research; small business commercialization; capital investment; and broadband infrastructure (Toft, June 2011).

States and regions that fail to generate the complete competitive package will waste the resources pumped into mobilizing education as a driver of economic growth. Economic growth will not be optimized and taxpayers will see many of the graduates of programs they have helped pay for take their hard-earned credentials to other communities or other states.

What Mix of Education Matters for Economic Growth?

Expanding higher education degree attainment is clearly an essential and powerful strategy for economic development in states and regions. The mixture of degrees produced is most often influenced by student choice and the programmatic offerings of institutions; both should be informed by business and industry demand for credentials and competencies in different fields and the value they add to the economy.

Education can be mobilized to contribute significantly to economic growth, and it can do so in such a way as to both increase the rate of economic growth for a state or region and to increase economic opportunity and equity among individuals. As noted previously, it's important for states and regions to be clear about what educational attainment goals and outcomes it's aiming toward to better understand what strategies to implement. In general, many states and regions are beginning to focus on the following goals:

- Linking education to jobs and career pathways – articulating clearer pathways between work and learning for people entering the labor market as well as those already in it who are transitioning to different work and building new set of skills.
- Investing in skill/competency development – developing the skills needed for jobs and career pathways through multiple career and technical education and training not only 2- and 4-year degree programs.
- Scaling up integrated efforts – building on lighthouse examples of experimentation and innovation to be able to implement different approaches at a larger scale, including addressing funding and information gaps.
- Producing significant returns on investment – ensuring there are clear benefits for workers, companies, communities and states with whatever investments and strategies are put into place so that resources are used wisely.

Regional Indicators for Education Attainment – Related to goal setting, many regions include a set of educational attainment indicators in regional prosperity or economic growth scorecards (Public Policy Associates, March 2010). Most frequently noted are:

High School Completion & College Participation	College /Degree Attainment	Skills & Productivity
<ul style="list-style-type: none"> • High school progress; dropout rates; graduation rates • Meeting higher education entrance requirements • Public school graduates enrolled in college or skills training • College enrollment; community college enrollment • Participation in public higher education by race/ethnicity 	<ul style="list-style-type: none"> • Higher education degrees awarded • Percent with bachelor's degree or higher • Associates degrees awarded • Science & engineering degrees awarded 	<ul style="list-style-type: none"> • Workforce with new economy skills • Worker productivity

Potential Returns on Investment – A number of studies have looked closely at the potential returns on investment from different educational attainment strategies. Some of the analyses of returns include looking at changes in: employment rates; income levels; income growth; wages per worker; and GDP per capita at the national and regional levels. A number of analyses are analyzing what happens if investments are made in people with different levels of education. For example, the benefits from investing in new training and higher education are greater when you add one year of schooling to the average educational attainment among employed workers with at least a high school diploma, as compared to an additional year of education for workers with just nine or 10 years of schooling.

Another study focused on what happens to regional GDP when one extra year is added to the average years of schooling among all employed workers in a metro area (10.5 % increase in GDP) and for those with at least a high school diploma (17.4% increase in GDP). These researchers also found that these returns to education appear to be higher for workers in some industries than in others, so regions with a large employment share of business and IT services industries would see higher returns.

Strategy	Target	Returns
Improving post-secondary worker readiness (Lund, Manyika, Nyquist, Mendonca & Ramaswamy, July 2013)	<ul style="list-style-type: none"> - Raising the number of high school graduates receiving post-secondary, sub-baccalaureate education - Increasing the number of STEM graduates 	<ul style="list-style-type: none"> - \$7-15 billion to annual GDP by 2020 - \$25 billion to annual GDP by 2020
Raising the median adult four-year college attainment rate (CEOs for Cities, n.d.)	The top 51 metro areas with 30.7 percent to 31.7 percent attainment rates	Increase in income of \$143 billion per year for the nation
1 percentage point increase in the proportion of the population holding a four-year college degree (Baum, Ma & Payea, 2010)	<ul style="list-style-type: none"> - Workers without a high school diploma - High school graduates - Workers with some college - College graduates 	<ul style="list-style-type: none"> - 1.9 percent increase in wages - 1.6 percent increase in wages - 1.2 percent increase in wages - 0.6 percent in wages
Adding one extra year to the average years of schooling among employed workers (DeVol, Shen, Bedroussian & Zhang, February 2013)	<ul style="list-style-type: none"> - Employed workers with at least a high school diploma - Employed workers in a metro area 	<ul style="list-style-type: none"> - Increase for a region in real GDP per capita of 17.4% and an increase in real wages per worker of 17.8% - Increase for a region in real GDP per capita of 10.5% and an increase in real wages per worker of 8.4 %

Again, while these are generally useful calculations it's important for states and regions to consider doing their own cost/benefit analyses when considering which strategies to pursue.

Economic Impact of Research Universities and 2- and 4-Year Colleges – Many research universities are focusing on increasing degrees awarded in STEM related programs, as well as trying to address other educational attainment related challenges facing regions and states. They are also emphasizing the significant role they play in broader economic development activities such as R&D, technology transfer, business and entrepreneurship support, and knowledge transfer. Through these efforts they are contributing significantly to their state and regional economies through jobs, income, new state tax revenue, and R&D and general operating expenditures (Grover, Spencer & Rosaen, January 4, 2013).

The same is also true for many other 4-year colleges and universities, as well as community colleges. For example, many are analyzing their community impact through emphasizing economic presence, net economic impact (e.g., jobs & income), and human capital impact (e.g., increased earnings, employment retention, and skill enhancement). Community colleges also have an impact on creating access for a more diverse set of workers and learners which results in a whole host of benefits for individuals, the community, and the economy overall (Erickcek & Hollenbeck, 2012).

The Value of Baccalaureate and Sub-baccalaureate Degrees and Credentials – Baccalaureate and sub-baccalaureate attainment continues to matter for both income level and growth in today's economy. One recent study found that bachelor degrees and higher continue to matter for both income level and job growth, while associate degree attainment correlates more noticeably with income growth (Toft, June 2011).

Another found that sub-baccalaureate degrees are associated with higher earnings compared to completing just a high school degree, when controlling for age, sex, race, Hispanic origin, and work status. This relationship is affected by type of occupation and whether a person is working in a field related to the field in which the degree was awarded (Crissey & Bauman, April 2010). For instance, earnings were higher for people who had a sub-baccalaureate degree in business, computer/technical, and health fields compared to high school graduates, while people with degrees in service and education fields did not earn significantly more than high school graduates. The computer/technical field of study was the most consistently lucrative relative to a high school diploma. Sub-baccalaureate degrees in the fields of health and police/protective services were only associated with higher earnings relative to high school graduates when employed in a related occupation. Other national and state level research indicates that longer-term certificates in virtually all areas of nursing and allied healthcare produce the strongest returns. Certificates in

technology, construction trades, and mechanic and repair trades also produce positive returns (Bosworth, December 2010).

Value of STEM Degrees & Credentials – A recent study shows differences in unemployment and earnings based on major for bachelor and graduate degree holders. STEM — Science, Technology, Engineering, and Mathematics — majors typically offer the best opportunities for employment and earnings, while unemployment is higher for graduates with non-technical degrees. Graduates of those programs will have the best opportunities to become employed and to be employed in jobs that provide higher level wages and benefits (Carnevale & Cheah, 2013).

States and regions with growing numbers of labor force participants with STEM skills and credentials will have an extra advantage in competing for high wage/high profit/fast growing companies. As a result, those states and regions are more likely to achieve higher rates of economic growth.

State policy makers may be tempted to primarily focus on ramping up funding for STEM related baccalaureate and graduate programs because those degrees are strongly associated with cutting edge industries and the highest wage jobs. However, as we have noted, investments in middle skills programs may drive economic growth and offer returns to taxpayers that are as good as or better than the impacts of baccalaureate and graduate programs.

A full range of unequivocal evidence of the association between educational attainment and economic prosperity is driving policymakers, educators, industry, communities, and workers to undertake strategies to build the knowledge and skills of their talent pools as key to economic growth. In the sections that follow, we will explore some of these promising strategies and how they can be employed to drive Michigan's economic growth.

MAKING EDUCATION A DRIVER OF ECONOMIC GROWTH IN MICHIGAN

Michigan is not a leader today in driving economic growth with education-centered strategies. But it has the potential to become one. Governor Snyder's March 2013 Talent Summit centered on the importance of filling skill gaps to meet employer needs and in building clear pathways to good jobs in Michigan for college graduates. Business Leaders for Michigan lists increased educational attainment as a crucial goal within their state policy strategy. Several other organizations have laid out similar goals.

Despite that recognition of the important relationship of education to economic growth, current efforts within Michigan fall short of conveying the sense of urgency and commitment to large-scale change that can be found in other states and regions. A scan of trends in play elsewhere illustrates gaps and opportunities.

How is Michigan Positioned Now?

Michigan is below average in comparison to other states on some key indicators of educational attainment and employment:

High School Graduation Rates – A recent analysis by Education Week places Michigan 40th in high school graduation rates at 70.9%, well below the 74.7% national average. Leading states top 80%. During the past 10 years, Michigan was just one of four states whose high school graduation rates declined (Education Week, 2013).

Post-Secondary Completion Rates – The proportion of working-age adults (ages 25-64) who hold a two or four-year degree in Michigan is 36.8%. In four rural counties, the percentage dips below 20%. In 60% of Michigan counties, educational attainment is below 30% (The Lumina Foundation, 2013).

Michigan ranks 30th on this measure, below the national average (38.7%) and far below leading states (such as Massachusetts at 51%, or Colorado and Minnesota at 47%). Michigan's rates also are well below projected need. Research by the Georgetown Center on Education and the Workforce posits that by 2025 roughly 60% of jobs in both the United States and in Michigan will require a post-secondary certificate or degree (The Lumina Foundation, 2013).

Michigan ranks even lower in terms of adults holding four-year degrees or higher, at 25.6%, or 36th in the nation (U.S. Census Bureau, n.d.).

Basic Skills – In 2009, the Michigan Council on Labor and Economic Growth estimated that 1.7 million working age adults in the state possess low basic skills – one out of three people (Michigan Council on Labor and Economic Growth, 2009) – as compared to the national estimated level of 25% (National Commission on Adult Literacy, 2008).

Disconnected Youth – Nationwide, 17% of youth 16-24 are either not in school or work, or are engaged and are not progressing in either school or work and are at high risk of dropping out. The estimated lifetime taxpayer burden for each youth who does not reconnect is \$171,000. Michigan's numbers mirror national results regarding youth disconnection. (Belfield, Levin & Rosen, January 2012)

Long-Term Unemployed Workers – Nearly 50% of workers in Michigan who have lost their jobs have been out of work six months or longer, well above 36% nationally (Casselman, 2013). This reflects an unprecedented proportion of unemployed workers who don't find a new job within a few months, reflecting both the loss of jobs in the past decade and increasing challenges in transitioning from one job/career to another. Recent analysis indicates that the long-term unemployed face great difficulty finding work. One out of four workers unemployed less than six months find a new job each month, whereas just 10% of the long-term unemployed do (Casselman, 2013). A substantial cohort find themselves unemployed for multiple years and struggle to find new jobs.

Michigan faces daunting challenges in becoming a state in which education is a key driver of economic development. And data, such as the examples cited above, suggest educational attainment is at best improving incrementally and at worst declining. Michigan educational attainment is not increasing on any key dimension at a pace that would advance Michigan and its regions in national or international comparisons.

How Are Leading States and Regions Strengthening Education as a Driver Of Economic Growth?

Across the country, a number of states and regions have concluded that improving educational attainment is crucial to economic prosperity and are undertaking multi-dimensional strategies to improve their positioning regarding talent as compared with other communities, states and nations.

Those strategies seek a continuum of outcomes, from expanding early childhood programs to increasing graduation rates at both the high school and post-secondary levels to improving the skills of workers already in the labor force. States and communities also balance their focus on increasing skills among current residents with attracting skilled workers from other regions, states and countries.

Defining Talent to be a Central Economic Development Strategy – A fundamental step undertaken by a number of states and regions has been to explicitly declare human capital to be a key dimension of their economic development strategy. These states and regions are marshalling political will and resources to support actions they believe will build capacity to use this dimension to drive economic growth.

Strong examples of this trend can be found at both the state and community levels:

- **State of Washington Economic Development Strategy.** Washington’s economic development strategy is built around an “innovation ecosystem” framework, with talent termed as the principle driver of the innovation economy. The strategies contained in the plan include expanding the capacity of universities and community colleges to increase post-secondary attainment, using industry developed skill standards to drive career and technical education, filling skill gaps by attracting and retaining top-end talent, and upgrading the skills of unemployed workers. (<http://www.wedc.wa.gov/>)
- **Oregon Business Plan.** For more than 10 years, Oregon has undertaken bipartisan strategic economic development planning and action led by the Oregon Business Council, working closely with elected officials, educators, and community leaders. More than 1,000 people participated in the 2013 plan’s creation. Oregon’s plan centers on high-wage job growth through “4 P’s for Prosperity,” all of which have talent dimensions: “...the work skills of our people, the productivity of our businesses, the quality of place that attracts and retains talented workers, and our culture of pioneering innovation.” (Oregon Business Plan, n.d a) Within “Improving the Education and Workforce Skills of Oregonians”, the plan notes as key strategies the establishment of the 40-40-20 goal (40% of adults with a bachelor’s degree or higher, 40% with an associate’s degree or certificate, and 20% with a high school diploma), legislation that designated the Governor as the state superintendent of schools, and creation of the Oregon Education Investment Board combined with appointment of a chief education officer charged with unifying policy and strategy spanning 0-20 education. (Oregon Business Plan, n.d. b; <http://www.oregonbusinessplan.org>)
- **Central Texas.** The E³ Alliance is a regional education collaborative based in Austin, Texas. The Alliance’s primary goal is to strengthen Central Texas economic competitiveness by increasing educational outcomes for all students. To build a strong educational pipeline the E³ Alliance acts as a catalyst for change, working to break down barriers and build better alignment across the education continuum. The Alliance provides objective data and analyses about education trends and outcomes so communities and institutions can understand educational gaps, develop a common agenda for change, and identify solutions. Partners include colleges, school districts, community organizations, and businesses. (<http://e3alliance.org/>)

- **Central Louisiana Work Ready Network.** With leadership from local philanthropy, economic developers, employers and educators have joined forces in the region on a strategy to increase economic competitiveness by demonstrating local worker readiness for employment. This initiative uses ACT's National Career Readiness Certificate as the tool to provide evidence of work readiness, and includes commitments from local employers to hire workers with the NCRC and from educators to increase the number of NCRC holders among their graduates. Similar Work Ready Communities efforts can be found in several states, including Oklahoma, Georgia, and Kentucky. (<http://www.cenlaworkready.com/cenla-work-ready-network.php>)

Setting and Using Clear Outcome Goals and Metrics – A number of communities and states have set numeric goals for increased educational attainment and are using publicly visible scorecards to track their progress toward realizing those goals. This trend has been encouraged by federal efforts, notably President Obama's articulation of a national goal of at least one year of post-secondary education for all workers. Foundations focused on education policy have also spurred the use of goals and metrics, most notably the Lumina Foundation, which has set a national goal of 60% of U.S. workers possessing a high quality post-secondary degree or certificate by 2025. The Lumina Foundation regularly publishes updates of post-secondary attainment rates in every state, county and labor market.

Outcomes being focused upon include:

- Increasing high school completion rates;
- Increasing post-secondary completion rates, especially in community colleges;
- Aligning post-secondary credentials with current and projected labor force skills demand;
- Matching the quality of post-secondary course content and the integrity of credentials with expectations in the business community; and
- Aligning K-12 curricula with requirements for success in college and in the labor force.

Examples of the use of goals and metrics in practice include:

- **55,000 Degrees (Louisville, KY).** Major public and private stakeholders in Louisville have aligned around this goal for educational attainment by 2020, which would result in 50% of the city's workforce possessing a post-secondary credential. The initiative's web site contains extensive, regularly updated metrics about key indicators toward meeting that goal. Louisville has increased post-secondary attainment from 35% to 40% of the adult workforce, increased proportion of K-12

- graduates ready for college and/or career from 31% to 45%, increased college enrollment by working age adults by 24% and are on pace to reach their goal of having 15,000 working adults complete college by 2020. (<http://55000degrees.org/>)
- **Strive Partnership (Cincinnati, OH).** This coalition aligns work among diverse partners toward a goal of success for all students, resulting in post-secondary attainment. The partnership tracks and publishes a report card of eight metrics it deems key to achieving student success. Baselines have been established on all eight metrics, and annual progress is being tracked on each. The Strive Partnership members are undertaking multiple initiatives designed to improve results on the metrics. Two early indicators of progress are an 11% increase in readiness to enter kindergarten and a 16% increase in 4th grade reading levels. (<http://www.strivetogether.org>)
 - **Oregon 40-40-20.** In 2010, the Oregon Legislature formalized a state goal that by 2025, 40% of adults in Oregon would possess a bachelor's degree or higher, 40% would have earned an associate's degree or post-high school certificate, and 20% would have earned a high school diploma. This goal is now deeply embedded in economic development and educational strategies at all levels, including in the business-led Oregon Business Plan. Oregon set the 40-40-20 goal in part to combat a trend of declining educational attainment, resulting from new workforce entrants possessing lower educational attainment than possessed by retiring workers. Multiple strategies are being undertaken to achieve the goal, including aligning and increasing educational funding, increasing the use of contextual learning and competency-based credentials, and increasing the use of industry sector partnerships. (<http://www.oregonbusinessplan.org/Initiatives/Improve-Education-and-Work-Force-Preparation.aspx>)
 - **Complete College America Alliance of States.** Thirty-two states are members of CCA's Alliance of States, with each member committing to a specific goal for increasing post-secondary attainment and to an action plan for realizing that goal. One example of this playing out is in Tennessee, where in 2010 the Complete College Tennessee Act became law as a comprehensive higher education reform act setting the goal of meeting the projected national average in post-secondary attainment by 2025 and setting into motion an array of systems changes aimed at helping Tennessee achieve that goal. The Act included performance-based funding, a requirement for institutional mission clarification for each school, increased articulation among schools, and a reframed approach to remediation. (http://www.completecollege.org/alliance_of_states/)

Creating Shared Ownership Through Public-Private Partnerships – Communities and states tackling challenging talent issues often form public-private collaboratives to align investments and to create an ownership base that transcends political boundaries. These

efforts can build close collaboration between business and education in defining needs, developing solutions, and implementing chosen strategies.

Public-private partnerships tackle varying scales of educational attainment issues. The focus can be on holistic strategies about the overall economy of the state or community, or centered more narrowly, such as on aligning around an industry.

- The **Oregon Business Plan** is an example of the holistic approach, aimed at achieving increases in educational attainment among the state's total population. A statewide business leadership organization drives the plan's creation and follow through, working closely with the governor and legislature, as well as with educators and community leaders.
- An example of a holistic approach at the local level is the **Community Education Coalition (Columbus, Indiana)**. The Coalition is a long-standing business-education-community leadership partnership centered on increasing learning in support of economic growth. This coalition takes a comprehensive approach to improving education with programs in adult literacy and education programs in manufacturing, healthcare, and tourism and hospitality. The coalition has undertaken initiatives across the K-20 education spectrum. Collaboration among higher education institutions is a hallmark of this coalition's work, along with engagement of industry leaders. The 2013 CEC work plan includes a goal of creating a STEM seamless pathway across K-12 and postsecondary education systems. (<http://www.educationcoalition.com/>)

These partnerships can also be more narrowly focused, such as to center on specific industries, as in industry sector partnerships. These partnerships have become a widespread form of business-education collaboration, with more than half of the states engaging in sector strategies and more than 1,000 partnerships operating nationwide (Woolsey & Groves, February 2013).

- **Colorado**. The state's economic development office convened leaders from 14 key industries into individual industry steering committees. Those steering committees created business plans for their industry networks, with subgroups, such as those on workforce development, education, economic development, and other issues charged with translating the plans into action. (National Governors Association, January 2013)
- **Hampden County Precision Manufacturing Regional Alliance Project (PMRAP)** is a sector partnership led by the Western Massachusetts Chapter of the National Tooling and Machining Association (WMNTMA), and involving the Hampden County Regional Employment Board, the region's seven vocational schools, Springfield Technical and Holyoke Community Colleges, UMass Amherst and other education and training partners. The alliance's objectives include building a technologically skilled, adaptable workforce, strengthening the industry

cluster within the region, and improving the capabilities of firms engaged in the alliance. During its first two years of operation, results from PMRAP included reframed community college curriculum, deeper industry involvement in technical education at area schools, increased collaboration among the participating firms, and development of “real time” information about industry trends and market diversification options. (Regional Employment Board of Hampden County, April 2012)

Increasing the Engagement of Employers with Higher Education – A related strategy focus in a number of states and regions is to deepen and broaden the involvement of employers from key industries in post-secondary education. This is frequently described as moving from employer advisory committees for specific programs that meet once or twice a year into a far more integrative relationship, based on the belief that such an ongoing engagement will improve the relevance of curriculum to labor market needs during an era of volatile change and increase the employability and productivity of college graduates.

These partnerships focus at several stages, including:

- Needs assessments, including refreshing labor market trends and projections to reflect emerging patterns in a given industry;
- Curriculum design to ensure it reflects the skills needed by employers in key industries;
- Providing work-based learning opportunities, including internships and apprenticeships;
- Identifying and using industry-recognized competency-based credentials (both degrees and certificates) as a means to articulate the skills held by learners; and
- Employing graduates.

Examples of such partnerships include:

- **Harper College (Palentine, Illinois) Manufacturing Partnership.** Harper College is working with 54 manufacturing companies in its region on strategies to develop a pipeline of skilled manufacturing workers in the community. Harper’s program is heavily modularized with stackable credentials, with curriculum customized from national manufacturing skills efforts based on feedback from their employer partners. Paid internships are being guaranteed by the participating firms to students that complete the program. (American Association of Community Colleges, n.d.)
- **Columbus State Community College (Ohio) Logistics Partnership.** This college-industry partnership is centered on the warehouse and distribution industry, and was formed to respond to industry-identified need for 17,000 new and replacement workers in their region, and new skills for current workers to reflect changing

technology in the industry. The partners collaborated to develop training programs for both new and incumbent workers, which are in operation now and expanding to meet market needs. (American Association of Community Colleges, n.d.)

Connecting the Dots – Undertaking Integrative Strategies – Many states and regions have undertaken strategic talent-centered initiatives with specific lenses, such as a partnership to grow the clustering of an industry within a region or one to ensure students and workers understand career pathway options based on what skills they possess and acquire. The most advanced places are combining multiple specific strategies into larger ones that combine several angles of focus into one framework, including:

- Identifying and strengthening key industries within regions;
- Shifting economic growth responsibility to regional organizations;
- Coordinating and integrating business development, workforce development and education programs:
 - Strengthening K-12 and post-secondary alignment;
 - Strengthening post-secondary and labor market alignment;
 - Building career pathways in key industries and occupations that inform learners and workers, whether in K-12, post-secondary, or looking for employment; and
 - Identifying and using competency-based credentials that are industry valued.

Examples of “dot connecting” strategies include:

- **FastTRAC (Minnesota).** Several agencies, educational systems, and employers at the state and local levels are combining efforts to provide educationally underprepared adults with basic skills education and career-specific training in fields where new skills are in high demand by businesses. Students learn foundational skills in the context of their career interests and earn stackable credentials as they progress. Individuals are prepared to gain living-wage jobs with room for advancement. Local employers are provided with the skilled employees they need to grow their businesses. FastTRAC combines several strategy threads, including career pathways, industry sector partnerships, and combining basic and occupational skills education into unified courses. One early success indicator: 88% of the students enrolling in the combined basic and occupational skills courses have succeeded in completion, with 64% of them either gaining employment and/or moving on to career pathway education. (www.mnfasttrac.org)
- **East Bay Region, California.** The Design it-Build it-Ship it (DBS) initiative is being undertaken by a consortium of 10 East Bay Area community colleges, 5

workforce boards, University of California-Berkeley, California State University-Eastbay, East Bay Economic Development and other regional partners. The DBS consortium is focused on strengthening career pathway training in advanced manufacturing, transportation/logistics, and engineering. (Design it-Build it-Ship it, n.d.)

Strengthening the Role of Community Colleges in Economic Development – Community colleges are a major source of education and training for local and regional jobs, including providing quick response training that helps workers attain new skills and master changing technologies. In many regions, community colleges are integrally involved in economic development in a number of ways, including: working closely with both individual firms and industry sector partnerships to meet ongoing training needs, operating small business development centers, and doing research and analysis that supports economic development. One example of a systemic model for aligning community colleges with economic development priorities:

- **Community College Centers of Excellence.** This strategy, employed in several states including California, Minnesota, and Washington, identifies colleges that serve as a lead within a state specializing in industries that are crucial to economic growth. These colleges work closely with industry leaders to identify needs and develop relevant curriculum, and to inform other colleges, economic developers, and community leaders about workforce issues and solutions within the industry of focus. Washington State’s model is a good representative example and information about it can be found at http://www.sbctc.ctc.edu/college/_ewkforcecentersofexcellence.aspx.

Focusing on Regional Strategies – Numerous policy experts now advocate for state policies that center economic growth efforts in regions within states, including efforts to strengthen education as a driver of economic growth. The report *Prioritizing Approaches to Economic Development in New England: Skills, Infrastructure, and Tax Incentives* concludes that “economic development strategies that focus on making regional economies more productive – by investing in infrastructure and building the skills of the current and future workforce– have greater payoff in terms of jobs and economic growth than the approach that relies on subsidies and tax cuts for corporations” (Thompson, 2010).

Many states have adopted a strategy of shifting responsibility and authority for driving economic development to regions. The thinking behind this is that most local economies are too small to compete effectively in a global competitive environment. On the other hand, state level organizations are seen to be too far removed from on-the-ground knowledge and too slow to make decisions and mobilize resources to be effective at

attracting business investments. Regional control is intended to optimize the effectiveness of a state's economic growth efforts (Sparks & Pappas, n.d.).

- **New York.** Governor Cuomo in 2011 led the formation of regional economic development councils in each of the state's 10 regions. Local business, university, labor, and community leaders were charged to develop strategic plans based on their regions' assets, strengths, and aspirations. Each regional council is co-chaired by a business leader and a university leader. The state has combined more than \$700 million each year from 11 state agencies to fund the strategies developed by the regional councils through a consolidated funding application (National Governors Association, 2013).
- **Colorado and Tennessee** have recently completed regional plans that have been rolled up into a statewide economic development plan. In 2011, **Colorado** released the *Colorado Blueprint: A Bottom-up Approach to Economic Development*, a state economic development plan that was created through a regional, "bottom-up approach" by reaching out to citizens across the state to provide their input into shaping Colorado's economy. **Tennessee's** Jobs4TN plan was released in 2011 and focuses on creating high-quality jobs through a regional approach to economic development. One of the elements of the plan is the Jobs4TN Regional Accelerators program, which awarded a \$250,000 competitive grant to entrepreneurial accelerators in each of the state's nine economic development regions. (National Governor's Association, 2013)

What Levers for Change are Growing Educational Attainment?

As educators and workforce developers endeavor to meet the substantial challenges of increasing worker skills and educational attainment, their experimentation – in many cases supported by research – has brought out several innovative approaches that produce results.

Integrating Development of Basic and Occupational Skills – This is a potential breakthrough strategy for dealing with the large number of adults who either possess low basic skills or challenges resulting from English being their second language. The core idea, pioneered in the State of Washington's I-BEST approach, is that students strengthen their basic skills at the same time they're obtaining technical skills, building core skills in the context of the occupational area of study in an accelerated manner. In the Washington model, instruction is provided by teams of adult education and occupational education faculty. Rigorous evaluations of I-BEST done by the Community College Research Center conclude that this model substantially improves student outcomes, including accelerating attainment of basic skills and is cost neutral, despite requiring two instructors per class (Wachen, Jenkins, Belfield & Van Noy, 2012). Variants on the I-BEST model are being implemented in several other states currently.

Industry Sector Partnerships – Typically operating at the labor market level, these partnerships bring employers within an industry together with education, training, economic development, labor and community organizations to focus on identifying and solving current and emerging workforce skill needs. Industry Sector Partnerships provide an ongoing mechanism for aligning resources, building relationships, and developing solutions within a given industry that is important within a labor market.

More than 1,000 industry sector partnerships are in operation today, spanning multiple industries (Mangat, 2010). Sector strategies are an active state policy tool in at least 25 states (Woolsey & Groves, 2013). Evidence suggests this model works. Employers report increases in productivity, and reductions in rework and in customer complaints (Woolsey & Groves, 2013). A rigorous study by Public/Private Ventures concluded that workers trained through industry sector partnerships earned 18% more after two years than did those in a control group (Maguire, Freely, Clymer, Conway & Schwartz, 2010).

Examples of innovative sector strategies are plentiful. A catalogue of information about this approach can be found at www.sectorstrategies.org.

Career Pathways – This approach is achieving adoption in at least 10 states and many communities. The core idea is to help individuals – especially those with limited education, skills and work experience – identify and progress on career paths through acquisition of needed basic skills, post-secondary education, and training to enter and progress within an industry and/or occupation. This idea has become popular as a means of building connections between levels of learning and between learning and employment. The approach varies from place to place within a broad framework, but typically includes an industry sector focus, use of stackable credentials, learning that is contextualized to the industry/occupation, integrated basic and occupational skill development, and support services that allow the learner to stay in school and work (Social Policy Research Associates, 2011).

The model, while popular, has not been rigorously evaluated yet. CLASP is currently working with a 10-state alliance to develop a framework of high quality career pathways, including quality criteria, indicators and metrics (CLASP, n.d.).

Work-Based Learning – Some industries and occupations have long built a strong experiential dimension into worker/learner preparation. The construction industry, for example, has long used apprenticeships as an essential mode of competency development. Physicians must go through a substantial residency process as part of their preparation to practice.

Today, those models and variants are being experimented with in many places as a way to ensure learners build their competence at crucial skills required on-the-job by employers. Work-based learning models include apprenticeships, internships and mentoring. For learners, these approaches offer both a context for applied learning and also an opportunity to explore career options. For employers, it offers a way to hire workers who are good fits for jobs and to ensure they possess needed skills (ISEEK, n.d.).

Recently, the U.S. Department of Labor released recommendations from its Advisory Committee on Apprenticeship about how to expand uses of this model into additional industries and occupations, resulting in industry-validated credentials (Advisory Committee on Apprenticeship, January 2013).

Closely tied to work-based learning are assessments of learning that has been acquired through life and work experiences that can be applied to degree attainment. Most colleges offer some form of such assessment, although typically at limited scale. www.learningcounts.org offers access to CAEL's prior learning assessment services as an example from one of the major organizations focused on this work.

Competency-Based Sub-Degree Credentials – A number of policy organizations currently are focusing on expanding the use of competency-based credentials – such as certificates, licenses, certifications and badges – as validation of skills at the sub-degree level. Such credentials are used extensively in some industries and occupations, including information technology and healthcare. The efforts to expand the use of such credentials stem from the potential that they can become a well-understood way to describe more precisely the skills possessed by the holder. These can better inform employer hiring decisions as well as learner career planning choices and transitions (Ganzglass, Bird & Prince, 2011).

What are Promising Practices Underway in Michigan?

Within Michigan, examples of innovative approaches can be found as well. These can be an important foundation on which to build systemic strategies. A few examples of promising practices underway within Michigan illustrate that point.

University/College Partnerships with Economic Development – Michigan post-secondary institutions engage actively as partners in economic development within their regions as well as statewide. Two highly visible examples of this are Ann Arbor SPARK and the University Research Corridor.

- **Ann Arbor SPARK** was formed in 2005 to reframe economic development in Washtenaw County around the Ann Arbor region being a globally recognized research and innovation center anchored by the University of Michigan and a highly educated talent base. SPARK operates as a unified economic development organization for the Ann Arbor region, providing support for business startups,

growth of firms already in the community, talent development, along with marketing Ann Arbor for business attraction. SPARK positions itself as a hub for expanding an innovation-centered economy. University of Michigan was a strong initial funder and co-designer of SPARK and remains an active partner in its work. (www.annarborusa.org)

- The **University Research Corridor** is an alliance among Michigan State University, Wayne State University and the University of Michigan to collaborate in support of transforming and growing Michigan's economy. The URC has undertaken a combination of economic development studies and initiatives since its formation. One example is *Accelerate Michigan*, a strategic alliance with Business Leaders for Michigan to undertake initiatives aimed at making Michigan a "top 10" state by key economic development metrics, including efforts centered on increasing entrepreneurship in the state. (www.urcmich.org)

Michigan Advanced Technician Training Program – Michigan Governor Rick Snyder launched the Michigan Advanced Technician Training Program to engage young people to enter manufacturing careers and acquire the skills they need to succeed. Based on the German dual education model, students are interviewed and "hired" by an employer and then alternate 6-week periods of school and of paid work. Their tuition is also paid for by the companies, along with a living stipend during the periods in school. The initiative was launched in 2013 in partnership among the Michigan Economic Development Corporation and Oakland and Henry Ford Community Colleges (Freed, January 7, 2013).

Center for Student Success – Michigan Community College Association - Supported by a grant from the Kresge Foundation, MCCA operates the Center for Student Success as a vehicle for collaboration among member colleges to promote innovation and continuous improvement aimed at increasing student completion and other outcome metrics. Because Michigan has one of the most decentralized sets of community colleges in the nation, the state lacks a statewide systems office, a function that in other states serves as a catalyst for research, innovation, and diffusion of effective practices among colleges. The Center is a strategy to fill that void through a center housed at the colleges' association. (<http://www.mcca.org>)

Regional Partnerships and Initiatives around Talent – Multiple examples can be found within Michigan of strong regional efforts to advance the economies of their communities through talent-centered partnerships. Three good examples are the Workforce Intelligence Network in metro Detroit, Talent 2025 in the Grand Rapids region, and the Northwest Lower Michigan partnerships.

- The **Workforce Intelligence Network** is an alliance of 7 workforce boards and 8 community colleges in Southeastern Michigan that supports economic development in the region through a combination of data products and employer-education partnership initiatives. As an example, WIN organizes “real time” labor market information that combines public LMI data with information culled from online job listings. WIN has undertaken industry cluster employment strategies in several targeted industries, including information technology and manufacturing. WIN was launched with support from the New Economy Initiative, a collaborative funding venture of several Detroit-centered funders (Katz, July 18, 2013).
- **TALENT 2025** is a coalition of more than 70 CEOs from 13 West Michigan counties with a mission to act as a catalyst for ensuring an ongoing supply of world-class talent in West Michigan. TALENT 2025 has formed working groups and task forces for Early Childhood Development, K-12 Education, College and Work Readiness, Post-Secondary Education, Adult Workforce Development, Employer Practices, Entrepreneurship, Veterans and Talent Attraction and Retention. In each of these, TALENT 2025 acts as an accountability partner to help ensure West Michigan’s talent development system meets the needs of the region’s job providers.

Reported achievements include:

- Aligned West Michigan’s stakeholders and employers around a common goal to increase post-secondary credentials from 34 percent to at least 60 percent by 2025.
 - Developed dashboard to provide an ongoing assessment of West Michigan’s talent system.
 - Identified leading practices to improve early childhood development, K–12 education, degree completion, entrepreneurship, veteran employment, college and work readiness (West Michigan Strategic Alliance, n.d.).
- **Northwest Lower Michigan.** This 10-county region has a long history of successful collaboration. It is the only Michigan region with a combined organization, the Northwest Michigan Council of Governments (NWMCOG), that includes: Regional Planning & Community Development, Workforce Development (Michigan Works), Adult Education, Small Business and Technology Development Center, Procurement Technical Assistance Center, Prisoner Reentry, MEDC Local Convener, and additional programs relating to community prosperity.

A recent example of this region’s work is a collaboration to address its growing agriculture sector. Needs were identified for a wide variety of business and workforce trainings related to farm succession, value-added agriculture market

growth, food hubs, and other agriculture-related sector development. Consequently, the region has pieced together funding from multiple sources into a full picture of services to the agriculture sector.

Additionally, this part of the state has been very successful in convening local and state partners around economic development and prosperous communities. Area economic development agencies such as the Alliance for Economic Success, Traverse Bay Economic Development Corporation, and the Northern Lakes Economic Alliance agreed to collaborate with the NWMCOG to act as the leadership group for a broad based group of economic development practitioners and service providers in the region. They will soon be the first region in the state to adopt a comprehensive and shared economic development strategy among all economic development partner groups. (<http://www.nwm.org>)

These examples aren't exhaustive; many others can be found. But the reality is that current efforts are not aggregating to make Michigan a leader in educational attainment. The next chapter frames ways Michigan could reach that goal, building from innovative efforts like the ones cited here.

HOW CAN MICHIGAN BECOME A LEADER IN EDUCATIONAL ATTAINMENT?

Increasing educational attainment in any state or region is difficult to achieve and won't occur in Michigan without extraordinary commitment and action collectively among business, education, state and local government, and families. Without such a collective effort, Michigan's overall educational attainment is likely to remain stagnant, falling further behind leading states.

Tackle This Agenda Collaboratively and Urgently

In every state and region studied, a strong partnership leads and manages campaigns to achieve scalable changes in educational attainment. These partnerships take multiple forms, but they consistently share key characteristics:

- Strong leadership from one or more business organizations, elected officials and educators;
- Clearly articulated P-20 vision, goals and strategies developed with broadly-based input;
- Metrics and widely shared scorecards/dashboards of progress toward realizing success on key indicators;
- A commitment to innovation and experimentation, encouraging regional partnerships and individual agencies/institutions both to adopt new approaches that have been proven to work and to do research and development on original ideas.

Governor Snyder has set the stage for the needed partnerships in two important ways. First, the governor convened a statewide economic summit centered on talent in March 2013 that identified a number of key issues and opportunities that could form the basis for shared vision, goals and strategies. Second, the Snyder administration has launched a regional economic and workforce development initiative designed to align resources in support of regional goals and strategies for economic growth. And, as noted earlier, a number of strong regional talent/economic development partnerships are operating around the state, as are important business-education alliances.

The next big step beyond what's already in motion is to commit to sustained campaigns that bring together goals, strategies, accountability and resources to achieve scalable change. Such campaigns are essential to achieve meaningful action on multiple strategies simultaneously, which will be needed to realize scalable improvements; and to make this effort compellingly visible to all in Michigan, including a clear case for why both the goals and key strategies are urgent to economic growth in the state.

Strengthen the Role of Michigan Community Colleges in Economic Development

Community colleges can be pivotal in achieving effective economic development and in increasing educational attainment across Michigan. They work closely with key industries within their regions, and some have developed in-depth understanding of economic and employment trends in those sectors. They offer an important, flexible mix of programs that can prepare both learners entering the workforce and workers making transitions with skills and credentials they will need to be employable.

Michigan doesn't fully capitalize on its community colleges as a strategic asset. In a number of other states, community colleges are positioned as leaders within state and regional economic development, with a much higher profile than most Michigan colleges have today. Their relative invisibility likely results from a combination of factors, including:

- Michigan community colleges operate in the shadow of a strong set of universities, including internationally well-known and well-regarded research universities; and
- Michigan has perhaps the most decentralized community colleges in the country. In a number of leading states, a strong state system office increases the colleges' collective visibility about strategies and impact, as well as provides a shared space for research and innovation.

As noted earlier, Michigan community colleges are engaged in important change initiatives, including the Michigan Community College Association's Center for Student Success, innovative new technical training efforts like the Michigan Advanced Technician Training Program, and regional partnerships, such as the Workforce Intelligence Network in Southeastern Michigan. Several Michigan community college presidents and key staff are leaders in national education transformation initiatives as well.

Despite those important and promising efforts, Michigan needs to invest in building a stronger set of community colleges in order to fully realize their potential. Competing states are doing just that:

- In 1997, Kentucky Governor Paul Patton won legislative approval to create **the Kentucky Community and Technical College System**, transforming 14 community colleges and 15 technical schools into 16 comprehensive community colleges with 67 campuses, charged with becoming an engine of economic development in the state. During the first decade after creation, KCTCS nearly doubled student enrollment and became the provider of post-secondary education to nearly half of those enrolled in undergraduate education in Kentucky. KCTCS is seen widely today as a leader and innovator in post-secondary education and economic development.
- **Indiana's Ivy Tech Community College** system began in the 1960s as a set of technical schools. Over a number of years, Indiana political and educational leaders concluded that the lack of comprehensive community colleges was an impediment

to economic growth in the state. After considering other models, Indiana in 2005 transformed Ivy Tech into a system of comprehensive community colleges, charged both with transfer education and occupational education at both the associate's degree and certificate levels.

It is difficult to conceive of Michigan creating a state-level system office, given cost pressures and a state culture of decentralization. But several actions could bolster the role community colleges play in Michigan regardless of formal structure:

- **Rethink and increase community college funding.** Michigan has historically operated on a model of supporting community colleges with three roughly equal components: state funding, local property tax support, and tuition. Substantial reductions in state funding and limits of local property tax support bring that equation into question. For community colleges to operate at much larger scale will require mechanisms to increase their support substantially.
- **Set strong and clear outcome expectations.** Fewer than 50% of community college students obtain an associate's degree, according to national data, and in some colleges the graduation rate is much smaller. A movement is underway nationally to increase degree and certificate attainment within community colleges. This strategy can be an important part of increased overall educational attainment within Michigan.
- **Increase support for community college research and development.** The Kresge Foundation supported Center for Student Success at MCCA fills part of a gap in R&D investment that some other states do at much larger scale than is found in Michigan. Identifying resources to bolster that is an important dimension of rethinking community college funding.

Undertake Strategies that can “Move the Needle” on Educational Attainment

Michigan currently has roughly 1.9 million working age adults who have earned an associate's degree or higher. To become a leading state on this metric, Michigan would need to expand that by another 900,000 people during the next several years. The incremental increases currently underway can be counted on to produce a portion of that expansion, but are projected to leave Michigan at least 500,000 short of the goal (The Lumina Foundation, 2013).

How could a campaign to increase educational attainment reach an increase of such scale? Based both on what other states are doing and some specific efforts underway within Michigan, several strategies could be employed.

Turn Students with “Some Credit” Into Completers – One out of four Michigan adults – 1.3 million people – have some college credits but never completed a degree (The Lumina Foundation, 2013). Strategies that encourage them to complete can be a major component

of a campaign. Strategies like the effort being led by Louisville’s economic development agency to win employer commitments to encourage and support their workers in completing degrees can help working adults finish degrees.

Increase Degree Attainment, Especially at Community Colleges – As noted in the prior section, a strategy to increase completion of programs among those currently enrolled can play an important part in reaching this goal. Such a strategy typically includes providing needed student advising and supports, expanding the use of online/hybrid courses, developing accelerated learning approaches, and other tactics.

Expand the Use of Industry-Validated, Competency-Based Certificates – One important component of increased educational attainment is to broaden the use of meaningful certificates at a sub-degree level. At many community colleges, roughly half of the students are engaged in non-credit occupational training aimed at meeting the needs of key industries. A focus on ensuring students can obtain a credential that both accurately reflects what they know how to do and that is used in hiring decisions by companies within an industry can be an important complement to other strategies.

Increase the Flow from Basic Skills Programs into Degree Completion – Few learners who have low basic skills and enter either an adult education program or are placed in a remedial program at a community college ever achieve a degree. Given the scale involved (an estimated 1.7 million Michigan adults with low basic skills), increasing the proportion of them who succeed and obtain a degree is crucial. Examples like the Washington I-BEST initiative and Minnesota FastTRAC illustrate that it is possible to succeed with learners who begin with low basic skills by contextualizing and accelerating their learning.

Turn Disconnected Youth into Degree Completers – With an estimated 1 out of 5 young people ages 16-24 neither in school nor working across Michigan and the nation, a key to improving their long-term success is to increase their educational attainment, whether a high school diploma, a GED, and/or a post-secondary credential. Several Michigan communities, including Detroit and Flint, are developing networks to increase their success with this hard-to-serve group.

Reinvest in Michigan’s Excellent Universities

Michigan has world-class research universities and highly-regarded regional universities. These institutions are essential to economic growth in Michigan. They serve as innovation hubs in which ideas are translated into new products, processes and companies, generating

high quality jobs. They produce annually thousands of graduates prepared to do highly skilled work across every sector of the economy and with the adaptive capacity to make career transitions within turbulent economies.

A key public policy goal is to sustain their ability to continue to be an enormous asset within Michigan.

Align Funding With This Agenda

Achieving substantial increases in educational attainment requires a funding strategy that supports this goal. Such a strategy for Michigan must deal with college affordability, thinking through what incentives to create through funding, and what potential new models should be considered.

Increase Affordability – Michigan must reinvest in higher education. State appropriations for post-secondary education funding have fallen dramatically over the past decade. State per-student appropriations fell from \$6,698 in FY2000-2001 to \$3,583 in FY2012-2013. With even a longer view of trends, the proportion of college budgets supported by state appropriations fell from two-thirds in 1983 to one-third today (Jen, 2013) As a result, Michigan has moved from being a state that was highly ranked in post-secondary support to 39th in the country. The 2013 state budget made a small increase in support for universities and community colleges, but the question of dramatically expanding state funding remains a central challenge.

In Michigan, the reductions in state funding have placed a high financing burden onto traditional and non-traditional students alike, creating widespread concerns about potential students who will no longer be able to afford to go to college. The availability of employer-supported tuition reimbursement is uneven, and many of the adults needing to go back to school are either unemployed or are working part-time. As financial resources dwindle, increasing numbers of students are turning to student loans to fill gaps. Nationally, student loan debt has increased since 2005 from \$400 billion to nearly \$1 trillion. It is now the largest form of debt outside mortgages (Federal Reserve Bank of New York, n.d.). Unless Michigan reinvests public support for post-secondary education, the state is unlikely to achieve a sizeable increase in educational attainment.

A key expectation tied to increasing state funding must be that tuition costs will be lowered as other support increases, rather than being eaten up fully by escalating operating costs. Colleges and universities must seek ways to increase their productivity, including how technology is used in the learning process so that costs can be controlled.

Link Funding with Performance – In a number of states, experiments have begun to explore how to tie portions of higher education funding to attainment of results. Performance

funding that supports increasing attainment could be a valuable tool in advancing such an effort. Two examples of performance funding that could do so:

- Base a portion of college funding on student progress and completion; and
- Reward advancement of lower skilled learners, and not only those close to completion.

Blend Employer Funding With Public Support – Many studies over the years have posited that employers expend far more on post-secondary learning than does the public sector. And while the specifics of how that may be changing in a shifting economy deserve study, a strategy worth consideration is to explore shared public-private funding models.

Examples of this are regularly found in customized training and on-the-job training programs. The specifics vary, but it is typical for public workforce funds to cover a specific percentage of the training costs with the employer involved covering the rest. Michigan's New Jobs Training Program funds company-specific training with resources that are repaid by capturing the state income tax associated with the new employees' wages.

Even large scale examples of this sort of public-private collaboration are commonplace in other aspects of economic development. It is commonplace that a major development effort by private firms will be supported by public investment to provide needed infrastructure.

A large-scale campaign to increase educational attainment offers an opportunity for creative thinking about how public and private resources might be blended effectively in support.

Align Investments with Economic Priorities – Not all education programs cost the same to deliver. In particular, the added costs of certain technical training programs are considerably higher than those of traditional academic programs, often because of required equipment and laboratories required. Michigan should explore differential funding that removes disincentives for offering more costly technical training programs.

A second form of potential targeting of resources would be to focus funding towards priority skill clusters and industry sectors. A long-standing example of this used frequently is the provision of financial aid forgiveness for medical professionals who commit to practice in underserved rural communities.

Incentivize Student Completion – Financial aid can be targeted to encourage student persistence and completion. This approach involves providing greater financial aid to students closer to completion. It can also include increasing financial aid to students with longer, more challenging educational attainment paths, such as those starting with low-basic skills.

Explore New Higher Education Funding Models – In a few states, policymakers are considering dramatically different approaches to higher education funding. An example is Oregon's *Pay It Forward* model, enacted into law recently. This approach would involve students paying no tuition while in school. In exchange, they would have 3% deducted from their post-graduation paychecks for 24 years. The legislation calls for development of a pilot project to test this model by 2015.

CONCLUSION

The role of educational attainment as a major driver of economic development and growth is becoming well-established, and many states and regions are considering making needed investments to align their talent development and economic development activities.

Michigan, while not currently a leader in its approach to driving economic growth with education-centered strategies, has the potential to become one. Michigan has much of the infrastructure in place to undertake multi-dimensional strategies that can improve the state's positioning regarding talent.

Sustained commitments and collective actions, as described in this paper, on the part of business, education, state and local government, and families can catapult Michigan back to its position as a high skill, high wage state that can boast sustainable and economic growth and shared prosperity, with talent at center of its success.

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