



Underrepresented Ohioans Need More Education To Meet the State's Workforce Needs

Ohio needs to deliver high quality education to more underrepresented students to meet workforce needs



John R. Kasich, Governor
Jim Petro, Chancellor

University System of Ohio
Board of Regents

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Work on the Condition Report was initiated in 2010, and former regent, **Bonnie K. Milenthal**, Cofounder and Partner of The Milenthal Group, served as Regent Chair of the *Fourth Condition Report* and provided exemplary leadership in shaping the *Report*. Former Regents, **Donna Alvarado**, President, Aguila International, and **Bruce R. Beeghly**, President, Altronic, Inc., provided important insights in the development of the *Report*.

Ex-officio members:

Senator Peggy Lehner, Ohio Senate

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Former Ohio Auditor of State provided financial and performance oversight of Ohio’s universities, former Ohio Attorney General served as the chief legal officer to the state’s universities, recipient of the Distinguished Alumni Citation from Denison University, member of Case Western Reserve University School of Law’s Honorary Society of Benchers.

Consultant

Brenda Norman Albright served as the consultant to the Board of Regents in the development of the *Condition Report*.

The Ohio Board of Regents presents its April 2011 *Report on the Condition of Higher Education in Ohio: Underrepresented Ohioans Need More Education to Meet the State's Workforce Needs*. The annual *Condition Report* is a statutory responsibility under House Bill 2 of the 127th General Assembly. The *First Condition Report* provided a snapshot of Ohio providing higher education needed to be competitive in today's world. The Second Report focused on facilities and technology. The *Third Report* addressed the importance of the University System of Ohio being student-centered and delivering high quality education to more Ohioans. The *Fourth Report* focuses on the need to educate more underrepresented Ohioans for an economy that demands highly skilled workers.

Ohio's economic future is as bright as its workforce allows it to be. A highly skilled workforce fosters expansion of existing industries and attracts new industries with high paying jobs. Not enough Ohioans have degrees. Ohio must tap the resources of its citizens who are underrepresented in earning degrees to meet future manpower needs.

Who are underrepresented? Adults, students of color, low-income students, returning veterans, and first-generation college students are not earning the degrees that will allow them to enter and advance in career-track employment. How are they underrepresented? Too many low-income, black, and Hispanic students drop-out of high school or are not academically or culturally prepared for college. Many underrepresented students enroll in college, but too many do not reenroll after their first-year, and many more fail to graduate or seek a higher degree. Some working adults do not have access to higher education in a flexible format that allows them to earn degrees.

Why is it important to Ohio that these students attain a degree? The degree matters. Opportunity to enroll in college is important, but degrees change lives. Those who earn a degree in Ohio stay in Ohio. College graduates earn salaries necessary for a middle class life. Workers with a bachelor's degree or higher have unemployment rates half that of workers with a high school diploma. By 2018, most of Ohio's jobs will require college degrees yet only 32% of Ohioans have associate degrees or higher.

What can be done to educate more underrepresented Ohioans? Higher education must work with K-12 to reduce drop-outs and assure that students are prepared for college. Ohioans must have clear, cost-effective pathways to degrees. Colleges and universities must eliminate barriers for underrepresented students, collaborate to educate them, and exchange educational strategies that help these students succeed in college.

The Regents know that Ohio faces tremendous economic challenges. Ohio is at an educational and economic crossroads. We must improve educational attainment or Ohio will fall far behind other states. Ohio has already taken significant actions to improve its education and economy with its commitment to higher education, the Third Frontier, and internships and coops. Much work remains to be done.

Sincerely,

James M. Tuschman, Chair
James F. Patterson, Vice Chair
Dr. Walter A. Reiling, Jr., Secretary

Acknowledgments

The Board of Regents benefited greatly from the insights and comments of numerous people. Chancellor Jim Petro and members of his staff including Dora Dean, Stacia Edwards Darrell Glenn, Joel Husenits, Kim Norris, Charles See, and Bill Wagner along with former Chancellor Eric Fingerhut and members of his staff including Paolo DeMaria and Lori McCarthy were enormously helpful. Trustees, college leadership and the various statewide stakeholder organizations including the Inter-University Council, the Ohio Association of Community Colleges, the Ohio Faculty Council, and the Ohio Faculty Council (OFC) of Community and Technical Colleges provided excellent feedback that shaped the Report. Presentations by Tally Hart, Senior Advisor for Economic Access, The Ohio State University, Dr. Valerie B. Lee, Vice Provost for Diversity and Inclusion, The Ohio State University, Dr. Brenda Hass, Interim Dean, University College, Shawnee State University, Dr. David Todt, Provost and Vice President for Academic Affairs, Shawnee State University, Dr. Brian Bridges, Vice Provost for Diversity, Access and Equity, Ohio University, Dr. John Cuppoletti, OFC Chair, University of Cincinnati were insightful and thoughtful. We also thank students, Daniel Derrwaldt, Patrick Furr, Dawn Morton, and Tony Parker, who shared their Ohio collegiate experiences and aspirations for the future. They serve as examples of why higher education is so important to Ohioans.

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Executive Summary

Underrepresented Ohioans Need More Education to Meet the State's Workforce Needs

The Fourth Report on the Condition of Higher Education in Ohio focuses on the need to educate more underrepresented Ohioans. A knowledge economy demands capable, highly skilled workers. Four in ten Ohio employers report having a hard or very hard time finding qualified workers. Not enough Ohioans, particularly underrepresented adults and racial-ethnic, first-generation college, and low-income individuals have degrees. Ohio must tap the capabilities of these citizens to meet future manpower needs. Ohio's businesses and industries are more likely to expand and new industries are more likely to move to Ohio when highly skilled workers are available.

It is important for Ohio that these students attain a degree. The degree matters for the individual, the state, and businesses and industries. Those who earn associate and bachelor's degrees in Ohio stay in Ohio. They earn good incomes. They have low unemployment rates. Most of Ohio's future jobs will require some postsecondary education.

To assess Ohio's potential to educate many more underrepresented students who are ready for the workforce, we asked five questions:

-  Who is underrepresented in earning awards and degrees, how and when are they underrepresented?
-  What are the barriers that prevent underrepresented students from achieving a degree? What are strategies that Ohio can employ to educate more underrepresented students to meet the workforce needs?
-  How does Ohio's degree production compare with the nation?
-  What are the contributions of various institutions to degrees?
-  What are the linkages among the economy, employers, and higher education?

Major conclusions and data to support them are summarized on the following pages.



Who is underrepresented in earning awards and degrees and how and when are they underrepresented?

What we know:

- Ohio's adult white males are twice as likely to have bachelor's degrees as black males (26 percent versus 13 percent) while 15 percent of Hispanic males have bachelor's degrees.
- Ohio's adult white females are more likely to have bachelor's degrees than black females (24 percent versus 16 percent) while 15 percent of Hispanic females have bachelor's degrees.
- A higher percentage of females have associate degrees than males (32 percent versus 31 percent, but a smaller percentage of females have bachelor's degrees (23 versus 25 percent).
- In Delaware, Franklin, Geauga, Greene, Hamilton, Summit, and Warren counties, 40 percent or more adults have a two year degree or higher, however, about 15 counties (primarily small, Appalachian, and rural) had less than 20 percent of adults with a two year degree or higher.ⁱⁱ
- Young black men fall behind from their earliest years in school. By the fourth grade, only 12 percent of black male students read at or above grade level while 38 percent of white males do. By eighth grade, it falls to 9 percent for black males, 33 percent for whites.ⁱⁱⁱ
- Blacks are less likely to return for the second year than white students
 - at community colleges (42 percent versus 63 percent) while 56 percent of Hispanics return for the second year;
 - at university main campuses (75 percent versus 88 percent) while 82 percent of Hispanics return for the second year;
 - at university regional campuses (62 percent versus 73 percent) while 70 percent of Hispanics return for the second year.
- Most students leave college because they are working to support themselves and going to school at the same time. At some point the stress of work and study just becomes too difficult.^{iv}

We conclude:

- 1) Ohio's blacks and Hispanics lack the degrees they need to meet workforce demands.
- 2) Women have made substantial progress in earning degrees.
- 3) Citizens in many of Ohio's small, rural Appalachian counties lack the degrees they need to meet workforce demands.
- 4) K-12 is a critical tipping point, lack of success in K-12 is a major barrier for many underrepresented students to succeed in college and the workplace.
- 5) Returning to college for the second year is a critical tipping point that is essential for underrepresented students to realize long-term financial and workplace success.



What are the barriers that prevent underrepresented students from earning degrees? What strategies can Ohio employ to educate more underrepresented students?

What we know:

- Academic preparedness is a barrier. As an example, many underrepresented students do not take the college core courses in high school.
- Economic issues are barriers. As an example, applying for financial aid is complex and time consuming, and the importance of meeting deadlines is not always clear.
- Knowledge/support systems are barriers with the lack of family support or awareness of college support systems.

- Cultural preparedness is a barrier. Many underrepresented students do not have role models and do not understand the culture of going to college, including time management and what is required for academic success in college.
- Higher education structure/course/program delivery is a barrier when relevant coursework is not available at night, on the weekend, or in convenient physical locations.
- Ohio's colleges have numerous programs to assist underrepresented students.

We conclude:

- 1) Ohio must take bold actions to overcome academic preparedness, economic issues, knowledge/support systems, cultural preparedness, and higher education structure/course/program delivery barriers.
- 2) Ohio and many other states have many programs designed to assist low-income, underrepresented students, but many students and families are not aware of the programs, and many colleges are not aware of successful programs in other colleges.



How does Ohio's degree production compare with the nation?

What we know:

- Ohio produces about the same number of bachelor's degrees as other states (521 per 100,000 population versus 522).
- Ohio is below in associate degrees (243 per 100,000 population versus 256).
- Ohio's largest gap (10 percent) is at the graduate level, including law and medicine (236 per 100,000 population versus 266).

We conclude:

- 1) Ohio must improve degree production at the graduate level.
- 2) Ohio has made progress during the last two decades, but still must "catch up" with other states in degree production.



What are the contributions to degrees awarded by various institutions?

What we know:

- More than 123,000 awards and degrees were granted by postsecondary education: public, private not-for-profit and private for-profit in Ohio in 2009. (63 percent were awarded by public institutions, 27 percent by private not-for-profit, and 10 percent by private for-profit).
- The U. S. labor market is projected to grow faster in science and engineering than any other sector in the coming years. More than two-thirds of these jobs will require a bachelor's or master's degree.^v
- More than 40 percent of all of Ohio's awards and degrees are in science, technology, engineering, math, and medical (STEM) fields, but only 27 percent of bachelor's degrees. The number of STEM degrees produced by the University System of Ohio has increased by eight percent since 2007. (Note: Total degrees and credentials awarded increased by seven percent.)

We conclude:

- 1) Public and private colleges and universities are producing substantial numbers of degrees.
- 2) With the demands of a knowledge economy, Ohio should focus on awarding more STEM degrees, particularly at the baccalaureate level.



What are the linkages among the economy, employers and higher education?

What we know:

- Most employers plan to hire more college graduates. They think colleges and universities need to make some improvements in preparing students effectively for a global economy.^{vi}
- Increasing educational attainment leads to substantial economic gains. Nationally, an increase of one percent in graduation rates for associate and bachelor’s degrees would produce an increase of \$291 billion in income.^{vii}
- By 2018, 57 percent of Ohio’s jobs will require at least some postsecondary education.^{viii} Almost 90 percent of associate degree graduates and three-fourths of bachelor’s and master’s degree graduates stay in Ohio the year after they receive their degrees.
- Ohio posted major gains in a recent report comparing economic growth among states. Overall, in the “Knowledge Jobs” category, Ohio climbed six places; moving from 22nd nationally to 16th.^{ix}
- While Ohio is recognized for its comprehensive higher education data system, it does not link data systems across the P-20 /workforce spectrum. The Board of Regents is now designing web portals designed to better align curriculum with employers needs so that more Ohioans will be prepared for the workplace. The Board of Regents can serve as an important Clearinghouse for workforce and educational information of value to students and employers.

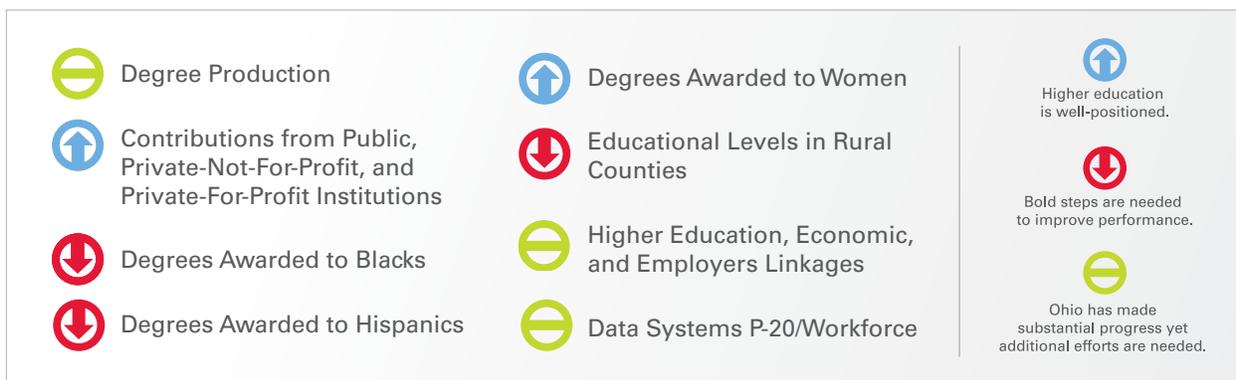
We conclude:

- 1) A postsecondary degree or credential is increasingly valued in the marketplace for both new labor force entrants and those already employed.
- 2) Ohioans are making significant investments to improve the economic well-being of the state with the Third Frontier, new student internships for businesses, and other programs designed to improve the lives of its citizens. Ohio is realizing some improvements in its economic competitiveness.
- 3) Ohio needs better data across the P-20/workforce spectrum to help students be more successful and meet employers’ needs.
- 4) Individuals who receive their degrees in Ohio stay in Ohio. The table below shows that almost 90 percent who receive an associate degree stay in Ohio the first year after college and about three-fourths who receive a bachelor’s and master’s degrees stay in Ohio.

Degree Level	2008	
	Number of Graduates	Percent Retained
Less than Associate Award	1,992	87%
Associate Degree	9,759	88%
Bachelor’s Degree	19,101	73%
Master’s Degree	3,880	79%
Doctoral Degree	265	56%
First-Professional Degree	1,615	57%
All Award Levels	36,612	77%

How competitive is Ohio in educating more underrepresented students to meet workforce needs?

If Ohio is to produce more underrepresented graduates in the numbers and disciplines needed for a thriving 21st century economy, how competitive is higher education? The Regents assess higher education's condition in the following dashboard:



When we assess the current condition of the University System of Ohio to meet the workforce needs of business and industry and to educate more underrepresented students, we conclude:

- Ohio is improving degree attainment and degrees granted
- More Ohioans must earn degrees
- Ohio must find ways to increase the number of degrees awarded to adults, underrepresented racial/ethnic groups, and citizens in rural counties
- Ohio must find ways to increase the number of degrees awarded in the science, math, engineering, technology and medical fields to adults, underrepresented racial/ethnic groups, and women
- Ohio has strong, diverse, high quality colleges and universities
- Ohio's higher education institutions are making noteworthy contributions to Ohio's workforce and economy and to its future economic strength
- Ohio's return on investment from the Third Frontier has been substantial
- Colleges and universities must make some improvements in preparing students effectively for a global economy
- Ohio has made substantial progress in moving toward a common academic calendar, in integrating the adult career centers into the University System of Ohio, and streamlining less expensive pathways to degrees
- Ohio has achieved success in growing its online offerings
- Ohio has improved services for veterans and their families
- Ohio needs better data across the P-20/workforce spectrum to help students succeed.

Higher education can help all Ohioans compete for better jobs and enrich their lives. Giving Ohioans the opportunity to enroll in college is important, but degrees change lives. Ohio must ensure that all citizens have not only access to higher education, but also the opportunity to succeed. Current federal and state budgetary realities threaten the education of underrepresented students. Support for federally funded financial aid programs for low-income students is uncertain. States and the federal government may make overall cuts which could jeopardize specialized programs for underrepresented students. What can be done? Higher education must place a high priority on educating more underrepresented students and find creative ways to do so in an environment of the same or fewer resources.

Underrepresented Ohioans Need More Education To Meet the State's Workforce Needs

The *Fourth Report on the Condition of Higher Education in Ohio* focuses on the need to educate more underrepresented Ohioans and the workforce. Projections show that most future population growth will be Ohioans who are currently underrepresented in higher education. The *Fourth Condition Report* also provides an update on linkages among higher education, the economy, and the workforce. A knowledge economy demands capable, highly skilled workers. Four in 10 Ohio employers report having a hard or very hard time finding qualified workers.* Not enough Ohioans have degrees. Ohio must tap the resources of its citizens to meet future manpower needs. Ohio's businesses and industries are more likely to expand and new industries are more likely to move to Ohio when highly skilled workers are available.

To answer the question "*Who are underrepresented in higher education?*," data were analyzed comparing Ohio's population with those who enrolled in college and those who earned degrees. We found that adults, students of color, low-income students, first-generation college students, and citizens from certain counties are not earning the degrees that will allow them to enter and advance in career-track employment. The divide among various groups is alarming. As an example, adult white males are twice as likely to have bachelor's degrees as black males (26 percent versus 13 percent) while 15 percent of Hispanic or Latino males have a bachelor's degree. Citizens in many rural, Appalachian counties lack college degrees.

To answer the questions "*How and when are they underrepresented?*," national data for K-12 enrollment and achievement, initial college enrollment, first to second year college retention, and college degrees earned were analyzed. Many underrepresented students have difficulty in K-12. As an example, young black men fall behind from their earliest years in school. By the fourth grade, only 12 percent of black male students read at or above grade level while 38 percent of white males do. By eighth grade, it falls to 9 percent for black males, 33 percent for whites. Black males are twice as likely as white males to drop out of high school (9 percent vs. 5 percent). The unemployment rate among black males age 20 and older (17 percent) was twice the rate for white males of the same age.^{xi} These data point to the need for aggressive, cooperative efforts among K-12, higher education, and community groups to address the critical problem of educating black males.

While many underrepresented students enroll in college, too many do not re-enroll after their first-year, and many more do not graduate or seek a bachelor's or higher degree. As an example, for less than 2-year certificates and associate degrees, 40 percent are awarded to low-income students, but only 27 percent of bachelor's degrees are awarded to low-income students.

What are the barriers that prevent underrepresented students from achieving a degree? What are strategies that Ohio can employ to educate more underrepresented students to meet the workforce needs? We posed these questions to colleges and universities, and they identified barriers in five areas: academic preparedness, economic issues, knowledge/support systems, cultural preparedness, and higher education structure/course/program delivery. Strategies to remove these barriers are summarized in the *Report* along with efforts of other states and institutions.

Current federal and state budgetary realities threaten the education of underrepresented students. Support for federally funded financial aid programs for low-income students is uncertain. States and the federal government may make overall budget cuts which could jeopardize specialized programs for underrepresented students. *What can be done?* Higher education must place a higher priority on educating more underrepresented students and find creative ways to do so in a fiscal environment of the same or fewer resources.

Why is it important to Ohio that these students attain a degree? The degree matters for the individual, the state, and businesses and industries. Those who earn a degree in Ohio stay in Ohio. They earn good incomes. Workers with a bachelor's degree or higher have unemployment rates half that of workers with a high school diploma.

The *National Governor's Association* has emphasized the importance of raising educational attainment, which leads to substantial economic gains. Nationally, an increase of one percent in graduation rates for associate and bachelor's degrees would produce an increase of \$291 billion in income.^{xii} Research shows that increases in the proportion of a region's population with a bachelor's degree result in wage increases for all workers in the region, regardless of education level.^{xiii}

Ohioans are enrolling in colleges and universities in record numbers. Ohio's colleges and universities have maintained high quality and educated more citizens by being more cost-effective. From fall 2005 to fall 2010, an additional 87,000+ students have enrolled in the *University System of Ohio*. These numbers include Ohioans who lost their jobs and are seeking to improve their employability and skills. Almost half of the growth is at community colleges offering intense and targeted workforce training. Many Ohioans are not mobile and must be educated where they live or work. Stackable certificates and short-term programs prepare them for available jobs. For their future and Ohio's future, these short-term educational programs must also be stepping stones

for college degrees.

Higher education, the economy, and the workforce are strongly linked, and Ohio's employers want a better educated workforce that is adaptable to a changing workplace:

- Every year, more than one-third of the entire U.S. labor force changes jobs.
- Today's students will have 10-14 jobs by the time they are 38.
- Each year, more than 30 million Americans are working in jobs that did not exist in the previous quarter.^{xiv}

Work is being redefined by a technology and information-driven global economy. With this transformation, advanced knowledge and skills and a postsecondary degree or credential are increasingly valued in the marketplace for both new entrants in the labor force and those already employed.

To be economically competitive, Ohio must educate many more students in fields where they can obtain good jobs and stay in Ohio. The economy demands that Ohio graduate more students with high quality, efficiently, and quickly. It means graduating more students who are underrepresented, including students of color, first generation students, students from low-income families, working or unemployed, adults and those returning from the military.

To assess Ohio's potential to educate many more underrepresented students who are ready for the workforce in cost-effective ways for them and for Ohio, we asked five questions:

- 1 Who is underrepresented in earning degrees, how and when are they underrepresented?
- 2 What are the barriers that prevent underrepresented students from achieving a degree? What are strategies that Ohio can employ to educate more underrepresented students to meet the workforce needs?
- 3 How does Ohio's degree production compare with the nation?
- 4 What are the contributions of various institutional sectors to degrees?
- 5 What are the linkages among the economy, employers, and higher education?

What can be done to educate more underrepresented Ohioans? Ohioans must have clear, flexible cost-effective pathways to degrees. Colleges and universities must eliminate barriers for underrepresented students, collaborate to educate them, and exchange educational strategies that have been shown to work. Higher education must work with K-12 to reach students early, assess their career and college readiness, and remedy problems before students drop-out.

The following three sections of the *Condition Report* highlight the Regents' conclusions:

Section 1

Underrepresented Citizens and Degrees

- A. Who is Underrepresented
- B. How and When They are Underrepresented
- C. Barriers to Degree Attainment and Strategies to Remove Barriers
- D. Degree Production, Ohio and the Nation
- E. Degrees Produced by Various Institutional Sectors

Section 2

Higher Education, the Economy and the Workforce

- A. Ohioans' and Employers' Needs
- B. Employment/Unemployment
- C. First-Year Income
- D. Fifth-Year Income
- E. Internships and Businesses
- F. Job Creation

Section 3 Summary

The Regents sought perspectives of students, colleges and university administrators, faculty, trustees and other statewide business and educational organizations. The feedback was most helpful in shaping the *Fourth Condition Report*. Presenters and college responses are listed in Appendix A.

Underrepresented citizens and degrees

To be economically competitive, Ohio faces a significant challenge of achieving the *Strategic Plan for Higher Education* goal to educate 230,000 more students annually and graduate many more students. This means that colleges and universities must reach out to students who have the ability to succeed in college but who are underrepresented. Many are first-generation college students, low-income, students of color, adults, and those who live in rural counties.

Who is underrepresented in earning awards and degrees and how and when are they underrepresented?

To assess who is underrepresented and how they are underrepresented, we analyzed population, enrollments, and degrees for various groups of students.

What we know about Ohio's and the nation's educational attainment by race and gender:

- Ohio's Asians have the highest education attainment, which is also true nationally.
- Ohio's adult white males are twice as likely to have bachelor's degrees as black males (26 percent versus 13 percent) while 15 percent of Hispanic males have bachelor's degrees.^{xv}
- Ohio's adult white females are more likely to have bachelor's degrees than black females (24 percent versus 16 percent) while 15 percent of Hispanic females have bachelor's degrees.
- Educational attainment for Hispanic Ohioans is low yet it exceeds national averages.
- Ohio's American Indians and Alaska natives' education attainment is low yet exceeds the national average in most categories. (Note: These numbers are small and may skew analyses and conclusions.)
- The educational attainment of women is about the same as men at the associate or higher level (32 versus 31 percent) and below men at the bachelor's or higher level for Ohio (23 versus 25 percent).
- Nationally, women's gains in educational attainment have significantly outpaced those of men over the last 40 years.
 - A slightly greater percentage of women than men now have at least a high school education. Between 1970 and 2009, the percentage of women with at least a high school education rose from 59 percent (about the same as men) to about 87 percent (slightly more than men).
 - For the population as a whole, women have caught up with men in the percentage who have at least a college degree, about 28 percent for each group in 2009. In 1970, only 8 percent of women and 14 percent of men were college graduates.
 - The percentage of women age 25–34 with two or more years of graduate school has increased dramatically since the late 1970s to about 11 percent in 2009, while the percentage of men age 25–34 with two or more years of graduate school has remained at or below 8 percent.
 - Women earn less than half of all bachelor's degrees in mathematics and physical sciences, as well as in engineering and computer sciences. In engineering and computer sciences at the college level, women's share of degrees conferred in these fields is small (less than 20 percent) and has declined slightly over the last decade.
 - Women have long earned the great majority of degrees conferred in health and education fields, especially nursing and teaching at the primary and secondary levels. This disparity has increased since 1998.^{xvi}

Educational Attainment by Race and Gender

Educational Attainment for the Population 25 Years And Over by Race and Gender - 2009		HIGHEST DEGREE LEVEL			
		Male		Female	
	RACE	Associate or Higher	Bachelor's or Higher	Associate or Higher	Bachelor's or Higher
OHIO	Black or African American Alone	19.0%	12.6%	24.4%	16.2%
	White Alone, not Hispanic or Latino	32.1%	25.9%	32.4%	24.0%
	Hispanic or Latino	19.8%	14.8%	22.6%	14.6%
	American Indian and Alaska Native Alone	17.2%	13.3%	24.2%	18.4%
	Asian Alone	69.1%	66.0%	59.8%	54.7%
	Native Hawaiian and Other Pacific Islander Alone	Data not available		Data not available	
	Some Other Race Alone	17.9%	13.6%	22.6%	15.0%
	Two or More Races	29.9%	20.6%	28.2%	18.2%
	Total Ohio	31.1%	24.9%	31.7%	23.4%
NATION	Black or African American Alone	21.9%	15.6%	27.3%	19.3%
	White Alone, not Hispanic or Latino	39.5%	32.3%	38.8%	30.0%
	Hispanic or Latino	16.3%	11.6%	19.5%	13.6%
	American Indian and Alaska Native Alone	18.5%	11.9%	22.1%	13.9%
	Asian Alone	58.9%	52.7%	54.0%	47.0%
	Native Hawaiian and Other Pacific Islander Alone	21.3%	14.7%	22.6%	13.6%
	Some Other Race Alone	12.7%	8.8%	15.9%	10.7%
	Two or More Races	29.8%	22.2%	34.1%	24.8%
	Total Nation	35.1%	28.4%	35.7%	27.4%

Source: 2009 American Community Survey

Ohio's educational attainment varies significantly by geographic area, a 2010 report presented educational attainment information by county. While several counties – Delaware, Franklin, Geauga, Greene, Hamilton, Summit, Warren and Wood counties had 40% or more adults with a two year degree or higher, about 15 counties (primarily small, Appalachian, and rural) had less than 20 percent of adults with a two year degree or higher.^{xvii}

What we know about population and undergraduate students by race and ethnicity:

Ohio's undergraduate student population parallels its 18-49 population distribution by race and ethnicity.

Race/Ethnicity	18-49 Population	Undergrad Population Fall 2009
American Indian/Alaskan native	1%	<1%
Asian or Pacific Islander	2%	2%
Black/non-Hispanic	13%	14%
Hispanic	3%	2%
White, non-Hispanic	81%	74%
Two or More Races	N/A	<1%
Race Unknown	N/A	6%

Nationally, racial and ethnic minorities accounted for about 85 percent of the nation's population growth over the past decade. Latinos made up about 75 percent of the growth in Ohio.^{xviii}

What we know about degrees awarded to Blacks, non-Hispanics:

Blacks, non-Hispanic were underrepresented at all degree levels in public higher education and particularly at baccalaureate and post-baccalaureate degree levels and STEM degrees. Notes: First-professional degrees include law and medicine. Degrees are reported for 2008-9.

	Overall	STEM
One to Less than 2	11.9%	10.5%
Associates	9.4%	6.4%
Bachelor's	7.4%	5.5%
Master's	7.9%	5.6%
Doctoral Degree	7.5%	3.6%
First-Professional*	6.0%	5.3%

*Note: First-Professional includes law and medical degrees.

Blacks were underrepresented at all degree levels in private not-for profit higher education with the exception of doctoral degrees overall.

	Overall	STEM
One to Less than 2	11.7%	2.5%
Associates	7.1%	5.0%
Bachelor's	7.1%	5.1%
Master's	9.0%	7.0%
Doctoral Degree	12.2%	4.4%
First-Professional	6.6%	5.3%

Blacks received a higher percentage of degrees at all levels (through master's degree) in private for-profit higher education. This pattern also exists for STEM degrees. (Note: the private for-profit sector awarded a relatively small number of bachelor's (324) and master's degrees (36).

	Overall	STEM
One to Less than 2	32.1%	32.4%
Associates	28.6%	25.9%
Bachelor's	26.7%	16.6%
Master's	45.0%	26.5%

For all three sectors, Blacks were underrepresented at all degree levels above the associate degree.

	Overall	STEM
One to Less than 2	18.7%	25.2%
Associates	13.8%	11.6%
Bachelor's	7.5%	5.6%
Master's	9.0%	6.2%
Doctoral Degree	8.7%	3.5%
First-Professional	6.2%	5.0%

Young black men fall behind from their earliest years in school. By the fourth grade, only 12 percent of black male students read at or above grade level while 38 percent of white males do. By eighth grade, it falls to 9 percent for black males, 33 percent for whites. Black males are twice as likely as white males to drop out of high school (9 percent vs. 5 percent). The unemployment rate among black males age 20 and older (17 percent) was twice the rate for white males of the same age.^{xix} These data point to the need for cooperative efforts between K-12, higher education, and community groups to address this critical problem.

Statistics about blacks, Hispanics, and Native Americans preparing for careers in science, technology, engineering, and mathematics paint a troubling picture. Members of these groups make up 29 percent of the national population and 17 percent of Ohio's population and are among the fastest-growing groups in the country. Yet they represent only 9 percent of the nation's college-educated science and engineering workforce.^{xx}

What we know about degrees awarded to Hispanics:

Hispanics (3% of Ohio's population) were underrepresented at all degree levels in public higher education.

	Overall	STEM
One to Less than 2	1.8%	1.8%
Associates	1.7%	.5%
Bachelor's	1.9%	1.8%
Master's	2.2	1.7%
Doctoral Degree	2.3%	2.5%
First-Professional	2.5%	2.0%

Hispanics were underrepresented at all degree levels in private not-for profit higher education with the exception of doctoral degrees.

	Overall	STEM
One to Less than 2	2.3%	0.6%
Associates	1.2%	0.9%
Bachelor's	2.3%	1.4%
Master's	1.4%	1.7%
Doctoral Degree	3.6%	4.2%
First-Professional	1.8%	1.3%

Hispanics were underrepresented at all degree levels with the exception of overall master's degrees in private for-profit higher education. This pattern also exists for STEM degrees.

	Overall	STEM
One to Less than 2	2.1%	2.1 %
Associates	2.1%	1.6%
Bachelor's	1.8%	2.6%
Master's	3.1%	0.0%

For all three sectors, Hispanics were underrepresented at all degree levels:

	Overall	STEM
One to Less than 2	1.5%	2.0%
Associates	1.7%	1.5%
Bachelor's	2.0%	1.7%
Master's	1.9%	1.7%
Doctoral Degree	2.6%	2.9%
First-Professional	2.2%	1.8%

What we know about degrees awarded to other students by race and ethnicity:

Asian/Pacific Islanders have relatively high degree attainment when compared with population at

the baccalaureate and post-baccalaureate levels (overall and STEM) and are underrepresented at the associate degree and less than associate degree levels. (Note: These numbers are relatively small and should be interpreted with caution).

American Indian or Alaskan Natives are underrepresented at all degree levels with the exception of the doctoral degree (overall and STEM). (Note: These numbers are relatively small and should be interpreted with caution).

What we know about degrees awarded to women:

Women (50% of Ohio's population) were underrepresented at the bachelor's and doctoral STEM degree levels in public higher education.

	Overall	STEM
One to Less than 2	70.1%	71.9%
Associates	63.4%	62.4%
Bachelor's	54.5%	48.8%
Master's	59.9%	52.7%
Doctoral Degree	50.8%	46.1%
First-Professional	51.6%	55.2%

Women were underrepresented at one to less than 2 year award levels in private not-for profit higher education.

	Overall	STEM
One to Less than 2	6.9%	6.5%
Associates	52.2%	50.8%
Bachelor's	58.2%	58.5%
Master's	61.2%	65.9%
Doctoral Degree	55.6%	56.1%
First-Professional	48.7%	53.7%

Women were underrepresented at the STEM Bachelor's and Master's degree levels in private for-profit higher education.

	Overall	STEM
One to Less than 2	78.1%	78.4%
Associates	70.0%	68.1%
Bachelor's	49.0%	34.6%
Master's	62.8%	38.9%

For all three sectors, women were underrepresented at the STEM doctoral degree level.

	Overall	STEM
One to Less than 2	70.9%	72.8%
Associates	64.0%	62.7%
Bachelor's	55.9%	51.5%
Master's	60.4%	55.9%
Doctoral Degree	51.8%	48.0%
First-Professional	50.6%	54.7%

What we know about degrees awarded to adults (over age of 24):

For the public sector (these data are not available for other sectors), adults received more than half of the one to less than 2-year awards and associate degree awards as noted below, but less than 30 percent of the bachelor's degrees (overall).

	Overall	STEM
One to Less than 2	67.7%	69.5%
Associates	58.2%	64.3%
Bachelor's	26.7%	30.6%

Many adults find that they need to enroll in college to upgrade their skills to be more competitive in the workplace. At the same time, many must work while attending college. Online courses give them the flexibility to take courses when they are available. In some cases, fees for online courses are less than regularly scheduled classes and can help students reduce overall costs. Currently, adults make up half of Ohio's online enrollments.

What we know about degrees awarded to low-income students:

Researchers in the state of Washington found that one year of community college occupational education represented the "tipping point" for individuals to advance from low-wage to family-supporting jobs.^{xxi}

For the public sector (these data are not available for other sectors), Pell-eligible students (low-income students who have exceptional financial need) received about 40% of the associates and one to less than 2-year awards as noted below and almost 30% of the bachelor's degrees.

	Overall	STEM
One to Less than 2	42.1%	41.0%
Associates	40.5%	40.6%
Bachelor's	27.3%	28.4%

Nationally, only 5 percent of the students admitted to the nation's most competitive institutions came from families in the bottom socioeconomic quartile.^{xxii}

What we know about degrees awarded to first-generation college students:

Nationally 36% of entering freshman are first-generation college students, and 24% are both first generation and low-income, with most concentrated at less-competitive four-year colleges, two-year colleges, and for-profit institutions.^{xxiii}

First-generation students are less likely than their peers to complete advanced mathematics classes in high school. Even among those qualified for college, first generation students are less likely to enroll in 4-year institutions and less likely to persist in college and earn a degree. They are also less likely to take college entrance exams.^{xxiv}

For Ohio's public sector (these data are not available

for other sectors), first-generation college students received almost 40 percent of the associate degrees and one to less than 2-year awards and about one-fourth of the bachelor's degrees.

	Overall	STEM
One to Less than 2	39.3%	40.7%
Associate	38.5%	39.3%
Bachelor's	23.4%	24.1%

What we know about degrees awarded to students with one year or more of community college credit:

The number of bachelor's degree recipients (public only) with one year or more of college credit from a community college is small and has been growing each year and increased by 27% in the past three years:

Year	Number	% of Total
2007	3299	8.9%
2008	3583	9.6%
2009	3892	10.3%
2010	4205	10.9%

Students from several racial/ethnic groups are underrepresented in bachelor degree recipients with one year or more of community college credit as shown in the following table:

Ohio's population (Ages 18 – 49) **Bachelor's Degree with 1 year community college credit**

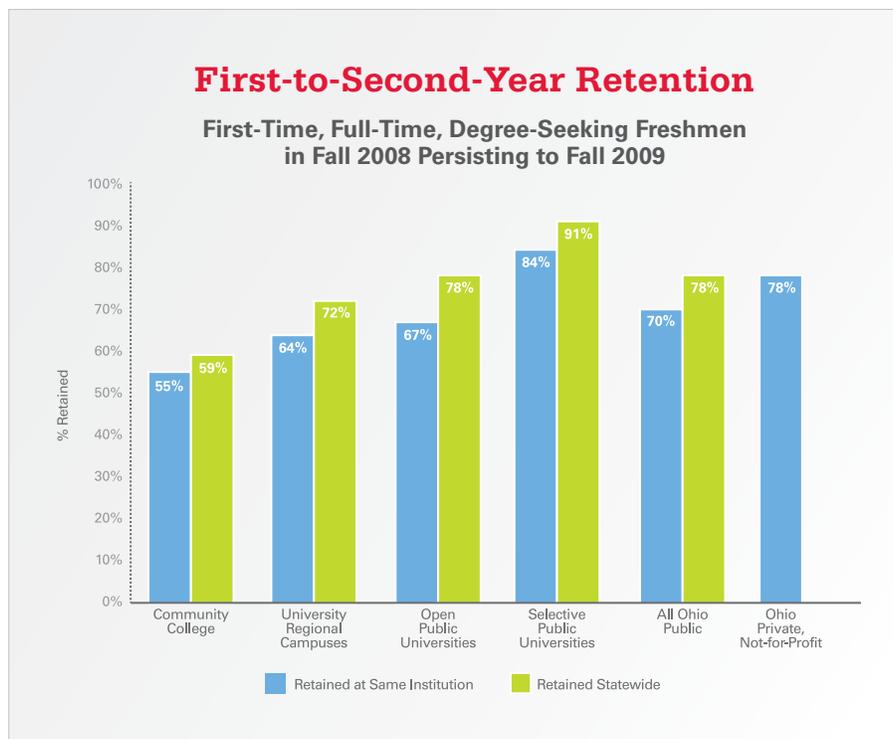
American Indian/Alaskan native	0.7%	0.4%
Asian or Pacific Islander	2.2%	2.1%
Black/non-Hispanic	12.9%	9.1%
Hispanic	3.1%	2.3%
White, non-Hispanic	81.1%	86.1%

What we know about first to second year retention rates:

Statewide, almost 80 percent of all full-time students reenroll in higher education for the second year. For community colleges, about 60 percent enroll for the second year as shown on the chart below.

Most students leave college because they are working to support themselves and going to school at the same time. At some point the stress of work and study just becomes too difficult.^{xxv}

Black students have the lowest retention rate from first to second year. At community colleges 56 percent of black students persist at any institution compared with 63 percent of white students. At university regional campuses, 62 percent of blacks persist compared with 73 percent of whites. At university main campuses, 75 percent of blacks persist compared with 88 percent of blacks.



First to Second Year Retention of First-Time, Full-Time, Degree-Seeking Freshmen by Sector and Race

University System of Ohio Institutions - Fall 2008

Sector/Race	Number of First-Year Students	Number of First-time Full-time Degree-seeking Undergraduates	% Persisting at Same Institution	% Persisting at Any Institution	First-time Full-time Degree-seeking Undergraduates as a % of First- year Students
Community Colleges					
American Indian or Alaskan Native	238	71	52%	59%	30%
Asian or Pacific Islander	473	115	65%	65%	24%
Black/non-Hispanic	6,514	2,249	38%	42%	35%
Hispanic	1,004	362	52%	56%	36%
White, non-Hispanic	25,698	10,093	58%	63%	39%
Nonresident Alien	241	60	35%	37%	25%
Unknown	2,327	790	54%	60%	34%
Total	36,495	13,740	55%	59%	38%
University Regional Campuses					
American Indian or Alaskan Native	66	49	57%	69%	74%
Asian or Pacific Islander	168	150	75%	80%	89%
Black/non-Hispanic	809	634	52%	62%	78%
Hispanic	166	136	61%	70%	82%
White, non-Hispanic	8,849	7,404	65%	73%	84%
Nonresident Alien	30	16	69%	81%	53%
Unknown	405	279	62%	65%	69%
Total	10,493	8,668	64%	72%	83%
University Main Campuses					
American Indian or Alaskan Native	150	146	79%	84%	97%
Asian or Pacific Islander	1,015	977	86%	92%	96%
Black/non-Hispanic	4,994	4,605	65%	75%	92%
Hispanic	951	905	75%	82%	95%
White, non-Hispanic	30,531	29,487	79%	88%	97%
Nonresident Alien	1,019	913	71%	74%	90%
Unknown	1,256	1,072	74%	83%	85%
Total	39,916	38,105	77%	86%	95%
Grand Total	86,904	60,513	70%	78%	70%

Six year graduation/retention rates for Ohio's public four-year institutions are 73 percent overall. For students who score over 24 on the ACT, 86 percent graduate, or are still enrolled, in six years. For students who score less than 21 on the ACT 56 percent graduate, or are still enrolled, in six years as shown on the table on page 20. Nationally, for 4-year institutions about 58 percent of first-time, full-time students complete a bachelor's degree or its equivalent within 6 years.^{xxvi} Graduation rates are 65 percent at private not-for-profit institutions, compared with 55 percent for public institutions and 33 percent for private for-profit institutions.^{xxvii}

**Six-Year Graduation and Retention Rates at Four-Year Public Institutions
by Selectivity Status of Institution**

Fall 2003 Cohort of Full-Time, First-Time, Bachelor's Degree-Seeking Students

Average ACT Score of Incoming Class	Number of Students in Cohort	Earned Bachelor's Degree		Earned Associate's Degree	Still Enrolled in Ohio	Total Graduation or Retention Rate
		Same Institution	Different Ohio Institution			
Over 24	9827	77%	3%	1%	6%	86%
Between 22.5 and 24	6314	63%	6%	2%	9%	79%
Between 21 and 22.49	10596	51%	5%	3%	11%	71%
Less than 21	8806	34%	3%	3%	16%	56%
Total 4-Year Public	35543	56%	4%	2%	11%	73%

The following table shows six-year success measures for first-time, full-time, degree-seeking students at Ohio's community colleges and branch campuses by race/ethnicity. Overall 27 percent received a certificate or degree within six years at community colleges and 38 percent received a certificate or degree within six years at university regional campuses. African-American, non-Hispanic students have success rates that are less than half that of whites: at community colleges (11 percent versus 31 percent) and at university regional campuses (16 percent versus 39 percent).

**Six Year Student Success Rates, Fall 2003 First-Time Cohort
Success Rates for Degree-Seeking Fulltime Students**

	Initial Cohort	Any Certificate or Degree	Transferred to Four-Year Institution Without Award	Still Enrolled in 6th Year, with at Least 30 Hours	Total Success Rate
Community Colleges					
American Indian or Alaskan Native	78	3%	0%	9%	12%
Asian or Pacific Islander	172	20%	2%	15%	37%
African-American, Not Hispanic	2,254	11%	3%	7%	20%
Hispanic	386	17%	4%	7%	28%
White, Not Hispanic	11,857	31%	3%	7%	41%
Nonresident Alien	145	17%	2%	8%	28%
Unknown	705	24%	2%	6%	32%
Community College Total	15,597	27%	3%	7%	37%
University Regional Campuses					
American Indian or Alaskan Native	21	33%	0%	5%	38%
Asian or Pacific Islander	92	38%	3%	4%	46%
African-American, Not Hispanic	368	16%	2%	6%	24%
Hispanic	85	35%	6%	5%	46%
White, Not Hispanic	7,281	39%	4%	3%	46%
Nonresident Alien	9	56%	0%	11%	67%
Unknown	246	30%	8%	1%	39%
University Regional Campuses Total	8,102	38%	4%	3%	45%
Grand Total	23,699	30%	3%	6%	39%

What we know about improved services for veterans:

- The Ohio GI Promise changed Ohio’s residence requirements to allow veterans of the U.S. Armed Services, their spouses and dependents to attend Ohio colleges and universities at in-state tuition rates.
- The University System of Ohio has implemented a tracking system for veteran students, service members and their dependents.
- Currently all 36 eligible University System of Ohio institutions are certified as “Servicemember Opportunity Colleges” (SOC). The certification by the *American Council on Education* (ACE) allows all college credit received during military service, approved by the ACE, to transfer to every University System of Ohio institution.

What we know about underrepresented students’ backgrounds:

- Nationally, only 32 percent of households with an annual income of less than \$35,000 set aside any money for college.^{xxviii}
- Nationally, nearly 60 percent of first-year college students discover that, despite being fully eligible to attend college, they are not academically ready for postsecondary studies. Their high school diploma, college-preparatory curriculum, and high school exit exam scores do not ensure college readiness.^{xxix}
- Many high-school students begin their college search in their sophomore or junior year in high school. At this time they take ACT or SAT exams or test preparation courses. They also fill out applications and visit colleges. This is not the true for many low-income students. Their parents are usually not college graduates and are unfamiliar with the admissions process.
- Many parents have little understanding of how much it costs to attend college and of financial aid options. The knowledge deficit is biggest for those who already have the least access to higher education: students from Latino families and from low-income backgrounds.^{xxx}
- Only 62 percent of parents with a high school education or less were aware of Pell Grants, compared to 85 percent of parents with an associate degree. Seventy percent of parents with incomes less than \$28,000 were aware of Pell Grants, compared to 84 percent of those with incomes of \$48,000 or more. Such lack of knowledge about financing a university education creates a barrier that is difficult to overcome for many students and families.^{xxxi}

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Who is underrepresented? How and when are they underrepresented?

We conclude:

- 1) Ohio’s black and Hispanic populations lack the degrees they need to meet workforce demands; the gap is particularly wide for bachelor’s and graduate degrees and for STEM degrees. While first-year enrollment is high, first to second year retention is low.
- 2) Women have made tremendous gains yet a gap exists for doctoral STEM degrees.
- 3) Citizens in many of Ohio’s small, rural Appalachian counties lack the degrees they need to meet workforce demands.
- 4) Adults (over age 24) make up half of the online enrollments.
- 5) The number of bachelor’s degree recipients with one or more years of course work at a community college has grown dramatically.
- 6) Individuals who receive an undergraduate degree in Ohio stay in Ohio.
- 7) Ohio should find ways to increase the number of degrees awarded to adults, low-income, first generation college, underserved racial/ethnic groups, and citizens from rural counties.
- 8) Ohio should find ways to increase the number of degrees awarded in the science, math, engineering and technology to adults, underserved racial/ethnic groups, and women.
- 9) K-12 is a critical tipping point; lack of success in K-12 is a major barrier for many underrepresented students to succeed in college and the workplace.
- 10) Returning to college for the second year is a critical tipping point that is essential for underrepresented students to succeed economically.
- 11) Ohio has many programs designed to assist underrepresented students, but many students and families are not aware of the programs, and many colleges are not aware of successful programs in other colleges and states. Ohio needs a centralized source for all programs that have documented success in delivering high quality education to underrepresented groups.



What are the barriers that prevent underrepresented students from earning degrees? What strategies can overcome these barriers?

The Regents reviewed national research and asked Ohio's colleges and universities to respond to these questions:

- a) Does your institution have exemplary programs with a successful track record in graduating underrepresented Ohioans? Do you have a mechanism to identify underrepresented students prior to entry into college? Does the college have data that shows what happens to the students when they leave the college and enter the workforce?
- b) What do you see as barriers to participation and success in college for underrepresented Ohioans?
- c) How can Ohio assure that more underrepresented Ohioans succeed in college and the workplace?

What we know about barriers:

Colleges identified barriers in five areas -- academic preparedness, economic issues, knowledge/support systems, cultural preparedness and higher education structure/course/program delivery:

- Academic Preparedness:
 - High school graduation requirements and high school exams and college entrance exams are not aligned with college readiness requirements
 - Underrepresented students tend to not take the college core courses
 - Lack of mandatory placement in college readiness courses is an issue for underrepresented students
 - Many underrepresented students attend high schools that lack adequate resources, e.g., internet capability or have limited access to academically rigorous courses
- Economic Issues:
 - Financial aid is not adequate to meet needs
 - Family finances, some students have excessive work hours to make ends meet
 - Reduced state support for child care and early childhood education (Early Learning Initiative) means that many student-parents find it harder to participate and succeed due to child care issues
 - Young Ohioans without children do not have the same financial supports that those with children do (e.g. TANF eligibility, PELL eligibility)
 - Lack of access to internet is an issue for some underrepresented students
 - Underrepresented students tend to overestimate college costs and underestimate financial aid
 - Applying for financial aid is complex and time consuming and the importance of meeting deadlines is not always clear
- Knowledge/Support Systems:
 - Lack of family and college support systems is an issue for underrepresented students
 - Lack of awareness of support systems including advising can be a barrier for underrepresented students
 - Students can be overwhelmed with the paperwork for admissions and financial aid
 - Transportation to college is not available
 - Students often do not understand that college readiness assessments are extremely high-stakes tests and lack of preparation for the skills assessment can lead to high cost in terms of time and money spent on developmental courses
 - Underrepresented students are late decision-makers about attending college (taking ACT/SAT, completing federal financial aid forms and other steps required to navigate the collegiate environment)

- Cultural Preparedness:
 - Underrepresented students lack role models and may have low self- confidence
 - Frequently, for underrepresented students, there is no expectation of going to college, and they may lack knowledge about the culture of going to college, including time management and what is required for academic success in college
 - Sometimes underrepresented students believe that higher education is not necessary, not fully understanding the connection between a college degree and a good-paying job
 - Level of motivation and commitment to educational success on the part of students is an issue; “life issues” seem to disrupt many students’ educational paths, particularly underrepresented students

- Higher Education Structure/Course/Program Delivery:
 - Ohio’s higher education structure is too complicated and difficult to navigate; too many curricular options lead to poor choices on the part of many students
 - Relevant coursework is not available at night or on the weekend
 - Remedial work on a traditional college schedule is not a good fit for underrepresented students
 - Access to baccalaureate programs is limited in some geographic areas
 - A clear curricular pathway from the community college to the university is not always established
 - Pedagogy is often outdated, inappropriate and inconsistent
 - Limited academic support exists
 - Traditional content delivery and pacing is a barrier to adult learners who balance the demands of work and family with the demands of higher education
 - Current framework for delivery of adult education services needs to be reworked, the GED should not be seen as an end point, and clear pathways to connect to higher education certificates should be established
 - Silos exist between support systems and faculty
 - Colleges have an over reliance on part-time faculty
 - Ohio has too much administrative bloat

What Students Say:

A panel of first-generation Sinclair students was convened to better understand the barriers and factors leading to success in college. Many of the students had come to Sinclair via the Fast Forward Center program and were, at one time, high school dropouts. When asked, “What keeps you coming back to college?,” the student panel listed the following:

- Services Leading from Admissions to Enrollment
- Financial Aid
- Counseling/Coaching/Advising
- Quality Classes
- Quality and Caring Instructors
- Quality Campus Facilities and Services (Library, Tutoring, Bookstore)
- Policies that Eliminate Barriers

What we know about strategies to assure success for underrepresented Ohioans:

The Regents asked stakeholders to identify strategies to assure success for underrepresented Ohioans, and colleges and universities made these suggestions. It should be noted that the examples reflect stakeholder feedback and that currently Ohio does not have a centralized source of all statewide programs that have documented success in delivering high quality education to underrepresented groups

- Academic Preparedness:
 - Align high school graduation requirements with college readiness requirements and align college graduation requirements with workforce readiness
 - Encourage community colleges to require incoming students to prepare for college skills assessments prior to testing in order to minimize the number of students placing into developmental education
 - Require assessment and mandatory placement at the collegiate level
 - Offer free tutoring and training in math, writing, technology, study skills to jumpstart the postsecondary

- education experience
 - Provide early intervention and intrusive advising/counseling services
 - Launch a campaign in public schools for students to take a more rigorous curriculum
 - Assess students in high school and inform them of their readiness, take the COMPASS test in high school at a point when students can remedy any deficiencies
 - Offer opportunities to bring collegiate and high school faculty together around issues of engagement, technology and educational innovations
 - Support early education programs so that young Ohioans are ready for kindergarten and their parents have better child care support while in college
- Economic Issues:
 - Provide more financial aid, including low interest emergency loans, more on-campus work-study
 - Create rewards for students upon completion of certificates or degrees
 - Provide technology
 - Blacks and Latinos adults are less likely than whites to access the internet, have a home broadband connection or own a cell phone. According to survey findings from the *Pew Hispanic Center*, 66 percent of blacks and 65 percent of Latinos have access to the internet compared with 77 percent for whites. Fifty-two percent of blacks and 45 percent of Latinos have home broadband access compared with 65 percent for whites. Seventy-nine percent of blacks and 76 percent of Latinos use cell phones for non-voice applications such as accessing the internet, emailing, texting, and instant messaging compared with 85 percent of whites. However, when analyses are completed controlling for similar socioeconomic characteristics (income and education level), there are similar usage patterns for these technologies.^{xxxii}
 - Almost 10 percent of all college freshmen worked 20 or more hours per week while attending school, and almost 16 percent of freshmen at black colleges and universities worked 20 or more hours per week.^{xxxiii}
- Knowledge/Support Systems:
 - Develop coordinated, comprehensive support systems that: a) provide connections with the university community including faculty, staff and students and b) build academic structures such as tutoring support, frequent advising, and easy access to information about progress and completion
 - Clearly define goals by pairing students with peer and faculty mentors who can help them to identify, develop and work toward achieving their goals for college and life. Prior to entering college, university representatives could build their “recruitment pipeline” by offering seminars and workshops for both parents and students on how to prepare for college. As it relates to underrepresented students, this may mean going to where they are: churches, community centers, etc.
 - Provide students more knowledge about collegiate options, financial aid, and being academically prepared for college.
 - Connect with students in middle school and early in high school to emphasize the importance of college going, the need to prepare early and plan the high school curriculum for collegiate work
 - Provide more intrusive advising, e.g., BGSU implemented a new Progress Reporting System, participation in the two components is requested of all faculty members for all students in all courses. Early Alert reports poor attendance and academic performance during the first five weeks of the semester. Mid-Term Grading allows an additional academic performance indicator reported as a letter grade. Timely feedback to students and academic advisors provides critical information to identify and intervene for those in academic difficulty.
- Cultural Preparedness:
 - Develop programs that make “being smart” as prestigious as “being a jock”
 - Connect underrepresented students with successful alumni
 - Work in collaboration with parents to stress the importance of education and give them tools to support their student’s success
 - Create high expectations. In too many cases, a diverse student population is equated with low chances for success. If educators lack high expectations for any population of students, they must be challenged to explore their own attitudes and perceptions. Training in cultural sensitivity and open discussions about personal experience with under-represented students is needed.
 - College/universities should partner with public and private schools to establish programs and activities that will build trust and confidence and establish working relationships with middle/high schools on areas that can promote college attendance and scholarship by underrepresented Ohioans

- Higher Education Structure/Course/Program Delivery/Workforce:
 - Partner with businesses to expose students to latest technology, e.g., Stark and Rolls Royce
 - Create new and innovative pathways to a degree, Apprenticeship to College, which allows electricians to complete a registered apprenticeship program to finish more than half the credits for an associate degree is an example
 - Provide a greater variety of course and major offerings through evening and weekend colleges
 - Reward colleges and universities that offer a more structured curriculum
 - Provide more student engagement, including service learning, internships and undergraduate research opportunities
 - Intensify efforts to survey needs of local employers and provide the same type of recruitment and orientation to adults as provided to high school students, e.g., the Medina Center
 - Reward colleges that implement rigorous academic program review and can prove that students in their academic programs persist, graduate and succeed in the workplace
 - Study the accessibility of state-supported baccalaureate education by geographic region and then take action to make sure Ohioans have reasonable access to such education (OBOR)
 - Collect and examine information about pedagogy and expect and reward good pedagogy (OBOR)
 - Develop alternative delivery methods, outcomes based and accelerated learning, smaller, shorter in length course packages
 - Encourage and reward the development and adoption of contextualized curriculum (OBOR)
 - Increase support for institutions with a track record of serving underrepresented Ohioans
 - Consider giving academic credit to students who have quality on-the-job experience (Credit by Experience) in certain disciplines
 - Increase funding support for Future Jobs and tech-prep programs to prepare students to enter the workforce
 - Increase workplace development opportunities for citizen's to retrain and development skills that increase employment opportunities.
 - Link and leverage federal programs, e.g., TRIO
 - Build sustainable partnerships with communities, businesses and community agencies, e.g., North Central State College's new Urban Higher Education Center, to open in 2011 in downtown Mansfield, promotes minority advancement; improved access to higher education; community and urban development; small business start-ups; and job creation. Focusing on the recruitment, retention and graduation of minority students, it will instill an "education gets you there" vision among young minority students who do not have an expectation of college as a means of improvement and job attainment.
 - Provide more project-based learning in K-12 and higher education
 - Consider partnering (OBR) with the Ohio State University Todd A. Bell National Resource Center on the African American Male whose "Early Arrival" program has contributed to the retention rate of first-year African American males. *(Note: the University of Akron has recently received a grant from the Knight Foundation to support a program to build and strengthen the pipeline for African-American males entering higher education.)*
 - Provide training for low-wage incumbent workers through community colleges with incentives for the employee/employer to complete short skills related training
 - Provide real-time information about regional pockets of workforce needs
 - Develop work related skills and attitudes through:
 - a) Involvement in internships, clinical experiences and practice that give students a real world experience while they are earning academic credit
 - b) Service learning and other opportunities to engage with the larger community can be powerful chances for students to gain work related skills which contributing to the area where they are attending college

What we know about Ohio's efforts to reach underrepresented students:

- All public colleges serve underrepresented students through the federally-funded TRIO programs. TRIO is the umbrella program for Talent Search, Upward Bound, Upward Bound Math/Science, Veterans Upward Bound, Student Support Services, Educational Opportunity Centers, and the Ronald E. McNair Post-Baccalaureate Achievement Program. Nationally, the program serves nearly 840,000 low-income and first-generation students and students with disabilities.
- With the bipartisan support of state leaders, Ohio has minimized tuition increases for the past four years. With

larger enrollment gains and falling average tuition costs, the University System of Ohio beat the national average on two important measures. Ohio's total enrollment grew by 7.7 percent against a national average of 6.3 percent (from 2008 to 2010). Despite a challenging state budget, net tuition revenue per student in Ohio declined by 3.5 percent compared to a nationwide increase of 3.4 percent from 2009 to 2010.^{xxxiv}

- Beginning in fall 2010, over 49,000 college students were able to purchase digital textbooks at up to a 70 percent discount off the new hardcopy book price through a statewide digital learning materials clearinghouse, the *Ohio Digital Bookshelf*.
- The University System of Ohio is offering 90 bachelor's degrees on a university regional campus or a community college site. These degrees could result in 19-57 percent tuition savings for the student compared with the cost of four years at a main university campus.
- All public colleges and universities are moving to the semester system, which should make transfer among institutions easier for students.
- The University System of Ohio received a grant from the *Ohio Community Service Council* to host AmeriCorps members to reach out to traditional and non-traditional students, veterans, historically underrepresented students, and educators about the pathways, resources, support systems, and benefits offered through the System.
- The Ohio State University's ACCESS Collaborative Program works to increase the retention and graduation rates of low-income, full custodial single-parent student enrolled on the Columbus Campus by minimizing barriers that may prevent academic and personal success. This is accomplished by offering: 1) support with childcare and housing, 2) tutoring, 3) scholarships, 4) life-skills programming, 5) Social Services referrals, and 6) a learning-community comprised of students from this population. Participants must maintain a certain GPA in order to receive the maximum benefits provided by the program.
- Performance-based scholarships were offered for one year to low-income parents enrolled at Lorain County, Owens, and Sinclair Community Colleges. The program offered the low-income parents up to \$1,800 for one academic year if they earned at least a "C" in 12 or more credits, or \$900 for making that grade in six to 11 credits. National researchers have examined the program—and they saw some encouraging results.^{xxxv}
- The Ohio State University's Blueprint College's six week family camp for 4th and 5th graders from low income families in Columbus and Newark provides opportunities for parents to learn about college and children to meet with college advisors to learn what they need to meet their college aspirations.
- The Ohio State's Academic Advancement Services provides holistic retention counseling and services for students from underrepresented populations (African American, Hispanic American/Latino, American Indian/Alaskan Native, first generation college students, socioeconomic disadvantaged students from the 31 federally recognized Appalachian Counties in Ohio) and additional student populations (Asian American/Pacific Islanders). These services address both the cognitive and non-cognitive variables that impact academic performance and influence student retention and graduation.
- The Ohio Learns! Gateway was launched in September 2010 and offers web-based Advanced Placement courses and other 9-12 web-based courses for high school students. It also serves as a one stop site for anyone interested in college level distance or e-learning and lists courses and degree and certificate programs from Ohio two-and four-year, public and private, higher education institutions.
- In 2011, a student portal, <http://students.uso.edu>, an online resource connecting future Ohio college students with detailed information on how to prepare, apply, and pay for an education at Ohio's public universities, community colleges, and adult career centers was launched. The first phase is geared toward middle and high school students. It includes interactive communication tools such as chat, a "find answers" database, and email to engage prospective students. Future phases will add more personalized services for student users, including high-tech college planning tools that make it easy for students to 1) identify low-cost pathways to degrees, and 2) view interactive profiles on college credit transfer.
- Ohio's success in garnering a four-year \$400 million *Race to the Top Grant* will help Ohio address the need for students to be college and workforce ready.
- Ohio University's *Kids on Campus* program is targeted to first and sixth graders in six counties and designed to help students and families think about the impact of college at an early age and document improvements in education skills and attitudes toward college.
- Ohio's colleges are frequently identified as models for retooling the U.S. workforce. As an example, Sinclair Community College and its work with displaced workers was highlighted in a recent *New York Times* business article.^{xxxvi}
- Seven colleges (Clark State, Kent State at Stark, Kent State at Trumbull, Kent State at Tuscarawas, Lakeland, Northwest State, and Sinclair) are participating in Project Win-Win to track down students who dropped out, but were close to earning an associate degree.
- Apprentice programs are now in place where students can matriculate to the community colleges and receive credit for trades training. Articulation agreements for other adult education programs are also in place. In 2007, there were 41,000 first-year students in the *Adult Basic and Literacy Education* program, and 16 percent, or 6500, subsequently enrolled in Adult Workforce Education or college. There were 11,000 first-year students in Adult Workforce Education, and 23 percent, or 2500, subsequently enrolled in college.
- Policies have been developed to offer college credit to high school students for a score of 36 or higher on the *College Level Examination Program* (CLEP) tests.

- Eastern Gateway offers free tutoring and training in math, writing, technology, study skills to jumpstart the postsecondary education experience.
- Akron’s “Computer for a Dollar” program offers used computers to enrolled students who maintain a 2.0 or higher GPA, are low-income, and have no computer in their home. The student is required to write a one page essay explaining how a computer will assist them in college.
- Bowling Green’s *Progress Reporting System* provides intrusive advising. Participation in the two components is requested of all faculty members for all students in all courses. *Early Alert* reports poor attendance and academic performance during the first five weeks of the semester. *Mid-Term Grading* allows an additional academic performance indicator reported as a letter grade. Timely feedback to students and academic advisors provides critical information to identify and intervene for those in academic difficulty.
- The University of Cincinnati offers special housing and intrusive advising for low-income, first-generation college students. To be in the program, students must sign a contract agreeing to a curfew, they must observe daily “quiet hours”; they must maintain a 2.25 GPA and agree to no alcohol, drugs, or going home for the first five weeks on campus or working at a job more than 20 hours a week. They receive tutoring, mentoring, and a special study-skills class. One student said, “For the third-generation student, they know what college is. For the first-generation students, we’re slowing putting all the pieces together.”^{xxxvii}

What we know from research about students’ success:

- Research identifies four specific focus areas for data collection and analysis to improve students’ postsecondary outcomes: pre-college background; current education environment; coordination and alignment of efforts; and evaluation of education practices, interventions, and classroom experiences.^{xxxviii}
 - Pre-College Background: Students differ widely in their readiness for postsecondary education, which affects their postsecondary success. Experiences in elementary and secondary education, socioeconomic influences, and family background are major factors influencing how students achieve in college.
 - Collegiate Environment: A student’s collegiate environment, such as institutional structures and policies, instructional practices, peer and psychological factors and family and work circumstances affect retention and academic success. Colleges must examine data regarding what approaches work for which students under what circumstances in order to make timely, targeted interventions and investments in areas with high potential payoff.
 - Alignment and Coordination of Efforts: The positive effects of aligning academic standards are amplified if they are consistent and sustained through strong coordinated efforts. Areas of coordination that are particularly important include alignment of standards between K–12 and postsecondary and joint efforts between academic and student affairs to support student achievement. Empirical data on how well prepared high school students are for college-level courses is essential to modifying 11th and 12th grade curricula to ensure that students graduate ready for such courses without needing remediation.
 - Evaluation of Educational Practices, Interventions, and Classroom Experiences: The individual classroom and other types of educational interactions with students are decisive. Studies have identified specific education practices that increase the likelihood of student success, including high expectations for all students, curricular and behavioral integration, pedagogies involving active learning and collaboration, frequent feedback, time on task, respect and engagement with diversity, and frequent contact with faculty. The data implications of such practices for colleges are clear: collecting information about students’ participation in educational experiences is vital in order to know impact of different approaches on their academic achievement.
- While colleges and universities routinely review their own student data on persistence and other success factors, usually these data are internal to the institution. A 2009 analysis of retention at four-year colleges calls for institutions to compile additional information with benchmarks and allows them to compare the performance of their students with those of peer institutions.^{xxxix} While most colleges have extensive information about their efforts to increase student success and benchmark these efforts over time, frequently this information is not comparable with that collected by similar institutions.
- Many student success data gaps have been identified in recent reports.^{xl} They include student specific information related to preparation prior to college attendance, participation in remedial education, courses taken in college, academic program enrollment/major, transfer to other institutions, interventions provided to individual students, and post-enrollment workforce participation. Some gaps relate to the lack of interface among state data systems and between public and private institutions. Another problem is the tendency of institutions and states to focus their data collection and analyses efforts on younger, full-time college students while not addressing the needs of part-time and adult populations. There also are gaps in the analyses of alternative delivery mechanisms, such as eLearning technologies.

What we know about other states’ and colleges’ efforts to reach underrepresented students:

- The University of Wisconsin has a *Working Class Student Union*, an innovative group that offers Madison’s working-class students the same sort of emotional support, camaraderie, and chance to speak with a collective voice.
- Florida enacted the *Partnership for Minority and Underrepresented Student Achievement Act*, which works with school districts to identify minority and underrepresented students for participation in Advanced

Placement course and provides information on college entrance exams. It requires public high schools to provide the exams to all enrolled 10th grade students, and to use the test results to identify students ready to enroll in advanced courses, as well as those needing additional assistance.

- Texas' *T-STEM* initiative supports 35 *T-STEM* Academies, which each year produce 3,500 Texas high school graduates from diverse backgrounds prepared to pursue study and careers in STEM-related fields, seven *T-STEM* Centers that facilitate the transformation of teaching methods, teacher preparation, and instruction in STEM fields, and a *T-STEM* Network that promotes broad dissemination and adoption of promising practices to improve mathematics and science performance for students across Texas.
- The Nevada System of Higher Education established partnerships between the Institutional Research Directors and Academic Officers at public higher education institutions to regularly identify students who fail to return in any given semester but are close to obtaining a degree. Using data in this way enables institutions to reach out immediately to drop-outs who need only a few credits to graduate, help them finish, and in doing so, improve overall degree completion rates.
- Durham Technical Community College has implemented an early alert program, primarily in the area of developmental education, to identify students who are unlikely to persist as evidenced by missing class or poor academic performance in a course. In addition to these data, Durham is tracking multiple interventions at the individual student level.
- The South Dakota Board of Regents is leveraging relationships with state agencies to locate residents with 90 or more credits who left college prior to degree completion. They plan to merge student transcript data with the state's Department of Motor Vehicles records to determine where college stop-outs reside within the state and provide encouragement and support needed for them to finish their degrees.
- The University of Alaska has a mandatory course placement policy for students who do not meet basic skills standards in reading, writing, and mathematics.
- Broward College requires students who need remediation to take a prescribed curriculum taught in a learning community.
- Indiana's Core 40 Scholars Initiative is designed to better prepare students for success in higher education and the workforce through more rigorous high school coursework.
- Baltimore County Community College's Achievement Gap Initiative with intervention for African-American students has resulted in improved outcomes for pass rates, retention, completion, and graduation.^{xii}
- Washington's *Integrated Basic Education and Skills Training* (I-BEST) pairs English as a Second Language and Adult Basic Education instructors with professional-technical instructors in the classroom to provide students with literacy education and workforce skills at the same time.
- The Washington State Board for Community and Technical Colleges identified key academic benchmarks that students must meet to successfully complete degrees and certificates. These measures, once achieved, substantially improve the likelihood of students completing degrees. Achievement measures fall into four categories:
 - Building towards college-level skills (basic skills gains, passing pre-college writing or math)
 - First-year retention (earning 15 then 30 college level credits)
 - Completing college level math (passing math courses required for either technical or academic associate degrees)
 - Completions (degrees, certificates, apprenticeship training)

The *Student Achievement* measures focus students and institutions on shorter term, intermediate outcomes that provide meaningful momentum toward degree and certificate completion. Colleges track student progress using the Achievement benchmarks on a quarterly basis and use this data to provide students and faculty with immediate feedback and opportunities for interventions to improve performance where necessary.

- Some states, such as Florida have used P-20/workforce longitudinal data systems to develop feedback reports. Examples include:
 - Feedback reports from higher education to K-12, from high schools to middle schools, from middle schools to elementary schools, and from elementary schools to early childhood programs, provide educators and policymakers with information about how students from one particular school or program performs at the next level of education.
 - Student academic performance and growth reports assess whether students who entered middle school or high school at low performance levels are improving fast enough to get them on track to enter college or careers by the time they graduate from their current schools.
 - Longitudinal graduation/completion reports, disaggregated by student prior performance, allow states to determine whether some high schools are more effective than others in getting at-risk students to graduate.
 - Reports, based on the analysis of the relationship between course completion, course grades, exam results and later success, provide states with the ability to assess whether certain benchmarks or course taking patterns are accurate indicators of future success.^{xiii}

2 What are barriers for underrepresented citizens? How can they be overcome?

We conclude:

1) Ohio must take bold actions to overcome academic preparedness, economic, knowledge and support systems, cultural preparedness, and higher education structure/course/program delivery barriers for underrepresented citizens.

2) Ohio and many other states have many programs designed to assist low-income, underrepresented students, but many students and families are not aware of the programs, and many colleges are not aware of successful programs in other colleges.



How does Ohio's degree production compare with the nation?

Recognizing the importance of having a well-educated population to meet workforce demands, leaders in many states, including Ohio, have adopted statewide goals to increase the number of degrees produced.

What we know about Ohio's degree production:

- Ohio produces about the same number of bachelor's degrees per 100,000 population as the nation as shown on the table below (521 vs. 522).
- Ohio is below in associate degrees (243 vs. 256, or 95 percent) and has improved its relative position in the past decade.
- Ohio's largest gap is at the graduate and professional level (236 vs. 266) and is about 10 percent below the nation.
- Other states are ramping up degree production faster than Ohio, and Ohio has lost ground in its relative position for producing bachelor's and graduate and professional degrees when compared to the nation in the past decade.

Degrees Per 100,000 Population - Ohio

Award Level	1999	2009
Ohio Population	11,335,454	11,542,645
Associate Degrees Awarded	19,417	28,028
Associate Degrees per 100,000 Population	171	243
Bachelor's Degrees Awarded	49,691	60,093
Bachelor's Degrees per 100,000 Population	438	521
Graduate and Professional Degrees Awarded	22,030	27,273
Graduate and Professional Degrees per 100,000 Population	194	236

Source: Bureau of Economic Analysis; HEI; IPEDS

Note: Ohio data taken from L:\Performance_Group\Statistical Profiles\Completions\FY_2009\completions_all_00-09.xlsx

Degrees Per 100,000 Population - Nation

Award Level	1999	2009
U.S. Population	279,040,168	307,006,550
Associate Degrees Awarded	546,804	787,325
Associate Degrees per 100,000 Population	196	256
Bachelor's Degrees Awarded	1,148,947	1,601,368
Bachelor's Degrees per 100,000 Population	412	522
Graduate and Professional Degrees Awarded	538,387	816,487
Graduate and Professional Degrees per 100,000 Population	193	266

Source: Bureau of Economic Analysis; IPEDS

3 How does Ohio's degree production compare with the nation?

We conclude:

- 1) Ohio must improve degree production at the graduate level.
- 2) Ohio has made progress during the last decade, but still must "catch up" with other states in degree production.

4

What are the contribution of various types of institutions to degrees?

What we know:

Over 123,000 degrees were awarded by postsecondary education: public, private not-for-profit and private for-profit in Ohio in 2009. (63% were awarded by public institutions, 27% by private not-for-profit, and 10% private for-profit).

For 1 to 2 year awards (7,400),

- 59% were awarded by the private for-profit institutions
- 35% were awarded by public institutions
- 6% were awarded by private not-for-profit institutions

For master's degree (21,500),

- 60% were awarded by public institutions
- 38% were awarded by private not-for-profit private institutions
- 2% were awarded by the private for-profit private institutions

For associate degrees (28,000),

- 69% were awarded by public institutions
- 23% were awarded by the private for-profit institutions
- 8% were awarded by private not-for-profit institutions

For doctoral degrees (2,200),

- 79% were awarded by public institutions
- 21% were awarded by private not-for-profit private institutions

For baccalaureate degrees (60,100),

- 64% were awarded by public institutions
- 34% were awarded by private not-for-profit private institutions
- 2% were awarded by the private for-profit private institutions

For first-professional (law and medical) degrees (3,600),

- 65% were awarded by public institutions
- 35% were awarded by private not-for-profit private institutions

What we know about STEM degrees:

- The U. S. labor market is projected to grow faster in science and engineering than any other sector in the coming years. Innovation in science produced approximately half of our economic growth over the last 50 years. More than two-thirds of these jobs will require a bachelor's or master's degree.^{xliii}
- Statistics for American high school students give rise to concern for our students' education in math and science. Less than 40 percent of U.S. students take a science course more rigorous than general biology, and a mere 18 percent take advanced classes in physics, chemistry or biology. Only 45 percent of U.S. students take math coursework beyond two years of algebra and one year of geometry.^{xliiv}
- More than 40 percent of all of Ohio's awards and degrees are in STEM fields and awards and degrees represent:
 - 87% of the 1 to 2 year awards, certificates or diplomas (6,400 awards)
 - 54% of the associate degrees (15,000 degrees)
 - 27% of the baccalaureate degrees (16,500 degrees)
 - 27% of the master's degrees (5,800 degrees)
 - 62% of the doctoral degrees (1,400 degrees)
 - 58% of the first-professional (law and medicine) degrees (2,100 degrees)

4

How does Ohio's degree production compare with the nation? What are the contributions of various institutional sectors to degree attainment?

We conclude:

- 1) Public and private colleges and universities are producing substantial numbers of degrees.
- 2) With the demands of a knowledge economy, Ohio should focus on awarding more STEM degrees, particularly at the baccalaureate level.

Ohio has a strong, diverse higher education system with contributions from public, private not-for profit, and private for profit institutions. Ohio has realized improvements in degree attainment and degrees granted. Ohio must move more aggressively to catch up with other states. Students have many pathways to attain a degree. Students can take college courses in high school. Students can enroll in Tech Centers and transfer to community colleges. Students may begin at a two-year institution and transfer to four-year institutions or earn their bachelor's degrees on the community college or regional branch campus. Others may transfer from four to two-year institutions, or among four-year institutions, or between public and private institutions. Ohio has created cost-effective pathways for Ohioans to earn degrees by making four-year degrees available on two-year and branch campuses. Ohio has made substantial progress in moving toward a common semester system, integrating the Adult Basic Literacy and the Adult Workforce Education programs into the University System of Ohio, serving veterans and becoming more affordable for all students. Additional efforts are needed to target education services to Ohio's adults, low-income and underrepresented racial/ethnic populations, and some rural counties. Ohio must create high expectations and challenge students from all income levels and racial/ethnic groups to improve their future through higher education.



What are the linkages among the economy, employers, and higher education?

The economic downturn has compromised the financial security of millions of working families. Economists agree that job creation is the key component to a sustained economic recovery. It is not enough to “create jobs, any jobs.” States must be concerned about the mix of jobs, or risk seeing the employment base shift toward a lower-value-added, lower-wage composition.^{xlv}

Job creation and redesigning postsecondary education are near the top of the National Conference of State Legislatures’ (NCSL) eleven issues for 2011 and are major challenges for Ohio.^{xlvi} A strong system of higher education focused on driving economic advancement and efficiency is the foundation of Ohio’s competitiveness in attracting investment, fostering entrepreneurship, and creating jobs.

Work is being redefined by a technology and information-driven global economy. With this transformation, advanced knowledge and skills and a postsecondary degree or credential – will be increasingly valued in the marketplace for both new entrants in the labor force and those already employed.

To answer this question, statistics about the workplace, educational attainment and per capita income, employer surveys, unemployment statistics, income of Ohio’s college graduates, internships, and Ohio’s Third Frontier and job creation were analyzed.

What we know about the changing workplace:

- Every year, more than one-third of the entire US labor force changes jobs.
- Today’s students will have 10-14 jobs by the time they are 38.
- 50 percent of workers have been with their company less than 5 years.
- Each year, more than 30 million Americans are working in jobs that did not exist in the previous quarter.
- Employers plan to hire more people with a bachelor’s degree.^{xlvii}
- Even in these times, jobs go unfilled because of a mismatch between skills and experiences of job applicants and those demanded by employers.^{xlviii}
- Increases in the proportion of a region’s population with a bachelor’s degree result in wage increases for all workers in the region, regardless of education level.^{xlix}
- Employers are asking employees to take on more responsibilities and to use a broader set of skills than in the past, to work harder to coordinate with other departments, to face more complex challenges and to have higher levels of learning and knowledge.^l
- Most employers think colleges and universities need to make some improvements in preparing students effectively for a global economy.^{li}
- Employers’ top priorities for student learning outcomes in college are: effective oral and written communication, critical thinking and analytical reasoning, knowledge and skills applied to real world settings; the ability to solve complex problems and the ability to connect choices and actions to ethical decisions.^{lii}
- Increasing educational attainment leads to substantial economic gains. Nationally, an increase of one percent in graduation rates for associate and bachelor’s degrees would produce an increase of \$291 billion in income.^{liii}

What we know about the national labor force participation for women:

Nationally, the labor force participation rate for women—the percentage of all adult women who are working or looking for work—rose steadily during the latter half of the 20th century.

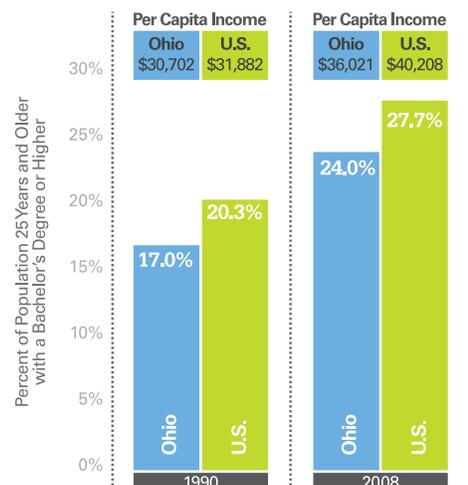
- This rate increased from about 33 percent in 1950 to 61 percent in 1999. During the first decade of this century, it has held steady at around 61 percent. In contrast, men’s labor force participation rate has declined steadily since the 1950s. The labor force participation rate of adult women (age 20 and older) was still significantly lower than that of adult men, 61 percent versus 75 percent in 2009.
 - The jobs working women perform also have changed as their market activity has increased. A larger share of women now works in management, professional, and related occupations. In 2009, women accounted for 51 percent of all persons employed in these occupations.
 - One reason for the shift in occupations is women’s greater educational attainment. Among women age 25–64 in the labor force, 36 percent held college degrees in 2009, compared to 11 percent in 1970. Over the same period, the proportion of women workers with less than a high school diploma fell from 34 percent to 7 percent.
 - During the past four recessions, the unemployment rate among women rose less than the rate for men. During the most recent recession, the unemployment rate among women (age 20 and older) rose from 4.4 percent to 7.7 percent; by comparison, the rate for men (age 20 and older) more than doubled, from 4.4 percent to 9.9 percent. The relatively large increases in the jobless rates among men can be attributed to their concentration in more cyclically sensitive occupations, such as manufacturing production and construction.^{iv}
- Education pays for both women and men, but the pay gap persists.
 - Earnings for both women and men typically increase with higher levels of education. However, the male-female pay gap persists at all levels of education for full-time workers (35 or more hours per week). At all levels of education, women earned about 75 percent as much as their male counterparts in 2009.
 - Earnings of full-time female workers have risen by 31 percent since 1979, compared to a 2 percent rise in male earnings. In addition, earnings for women with college degrees rose by 33 percent since 1979 while those of their male counterparts rose by 22 percent.
 - While women are more likely than men to work in professional and related occupations, they are more highly represented in the lower-paying jobs within this category. For example, in 2009, professional women were more likely (nearly 70 percent) to work in the relatively low-paying education (with \$887 median weekly earnings) and health care (\$970 median weekly earnings) occupations, compared to 32 percent of male professionals.
 - In 2009, only 7 percent of female professionals were employed in the relatively high paying computer (\$1,253 median weekly earnings) and engineering fields (\$1,266 median weekly earnings), compared to 38 percent of male professionals.^{iv}

What we know about Ohio’s educational attainment and per capita income:

Ohio’s future is its capacity to educate, attract, and retain citizens who are able to work smarter and learn faster. Educational attainment is more important than ever before for individuals and the state. The chart shows that Ohio has made progress during the last two decades, but still must “catch up” with other states in educational attainment and per capita income.

Educational Attainment and Per Capita Income

1990 and 2008



What we know about Ohio’s employees’ and employers’ needs:

Ohioans need to earn college degrees to help them obtain better jobs and employers want highly qualified workers. Ohio’s workforce realities:

- One in four workers has a low-wage job (\$9.71 an hour)
- One in three Ohio adults has only a high school diploma or GED and approximately 18 percent of the state’s adult population does not have a high school diploma
- Ohio’s prime working-age adults (25-54) are ranked 21st among states in the percent with a high school diploma or GED, and 42nd in the percent without any postsecondary education.
- About 75 percent of Ohio’s current workforce will still be working in 2020.
- Four in 10 Ohio employers report having a hard or very hard time finding qualified workers.^{lvi}

What we know about education and unemployment:

The connection between employment and education is strong and clear. The recession has widened the employment divide between college-educated and non-college-educated workers. As noted in the table below, the unemployment rate for workers 25 years and older with a bachelor’s degree or higher was 4.5% in January 2011, compared with 10.7% for those with a high-school diploma. The 6.2 percentage point gap is more than twice as large as the 2.6 percentage point gap that existed in December 2007.^{lvii}

Seasonally adjusted unemployment rate	January 2010	January 2011
Less than a high school diploma	17.6	16.5
High school graduates	11.5	10.7
NATIONAL AVERAGE	9.2	8.5
Some college or associate’s degree	9.0	8.5
Bachelor’s degree or higher	5.1	4.5

Source: U.S. Bureau of Labor Statistics, February 2011

- National forecasts show that as the economy struggles to recover and jobs return, there will be a growing disconnect between the types of jobs employers need to fill and the numbers of Americans who have the education and training to fill those jobs. By 2018, 63 percent of all jobs will require at least some postsecondary education. Employers will need 22 million new workers with postsecondary degrees. However, under the current trajectory, the nation will fall short by three million workers.^{lviii}
- By 2018, 57 percent of Ohio’s jobs will require at least some postsecondary education. Between 2008 and 2018, new jobs in Ohio requiring postsecondary education and training will grow by 133,000 while jobs for high school graduates and dropouts will grow by 29,000. Ohio will also create 1.7 million job vacancies both from new jobs and job openings due to retirements with 967,000 of these job vacancies requiring postsecondary credentials.^{lix}

What we know about education and first-year income:

The chart on page 36 shows income by degree level and discipline for recent college graduates. The average first-year earnings is \$36,000 to \$37,000+ and slightly higher for graduates with associate degrees (\$37,670 for associates vs. \$36,330 for bachelor’s).

1st-Year Earnings of Ohio Resident Spring Term Graduates (Ohio Public Only)

Current dollars (not adjusted for inflation)

For confidentiality purposes, data is suppressed when the number of graduates is fewer than 6.

Discipline Area	2004		2008	
	Number Estimated to be Employed Full-Time	Average Full-Time Salary	Number Estimated to be Employed Full-Time	Average Full-Time Salary
Associate Degree				
Arts & Humanities	531	\$30,482	541	\$30,900
Business	795	\$31,709	746	\$31,432
Education	72	\$24,471	93	\$23,266
Engineering	647	\$37,385	673	\$44,729
Health	2,289	\$40,380	2,608	\$41,413
Law	54	\$30,648	76	\$32,883
Natural Science & Mathematics	287	\$31,558	277	\$34,152
Services	216	\$33,042	239	\$32,310
Social & Behavioral Sciences	138	\$30,371	124	\$25,137
Trades and Repair Technicians	62	\$33,211	25	\$30,788
Dual Major	58	\$34,193	108	\$32,918
Other	12	\$34,597		
Associate Degree Total	5,161	\$36,093	5,510	\$37,670
Bachelor's Degree				
Arts & Humanities	1,215	\$28,399	1,149	\$29,505
Business	1,838	\$34,040	1,765	\$37,838
Education	1,105	\$29,081	1,127	\$30,718
Engineering	900	\$42,968	850	\$48,712
Health	923	\$47,140	1,286	\$46,489
Law	3	N/A	19	\$34,553
Natural Science & Mathematics	604	\$31,933	629	\$35,973
Services	281	\$28,986	314	\$29,794
Social & Behavioral Sciences	1,257	\$27,506	1,275	\$28,570
Trades and Repair Technicians	22	\$35,135		
Dual Major	92	\$31,754	106	\$37,475
Bachelor's Degree Total	8,240	\$33,635	8,520	\$36,330

What we know about education and salary after five years:

After five years, bachelor's degree holders in Ohio have realized more than 50 percent salary increases while associate degree and master's degree graduates had 34 percent increases as noted below.

Employment and Earnings Trends for Spring 2004 Graduates from Ohio Public Institutions who Began Working Full-Time within One-Half Year of Graduation

Degree Level	Cohort of Graduates Employed Full-Time in Ohio in 4th Quarter of 2004		Mean Salary for Graduates Assumed to be Working Full-Time in Ohio		
	Number in Cohort	Number still employed full-time in Ohio in 5th year	1st Year	5th Year	% Change
Associate Degree	5,264	4,261	\$36,081	\$48,185	34%
Bachelor's Degree	8,617	6,248	\$33,645	\$51,282	52%
Master's Degree	2,656	2,050	\$48,988	\$65,477	34%

Sinclair has recently obtained employment data from the Ohio Department of Jobs and Family Services to more accurately track Sinclair graduates who gain employment after completing their studies. Based on early analysis, it appears that graduates' wages increase significantly (50 to 60 percent) after completion.

Wage Increases	Prior to Graduation	After Completion
Median	\$292/week	\$466/week
Average	\$333/week	\$511/week

What we know about where students live when they graduate:

Individuals who receive their degrees in Ohio stay in Ohio. The table below shows that almost 90 percent who receive an associate degree stay in Ohio the first year after college and about three-fourths who receive bachelor's and master's degrees stay in Ohio.

Degree Level	2008	
	Number of Graduates	Percent Retained
Less than Associate Award	1,992	87%
Associate Degree	9,759	88%
Bachelor's Degree	19,101	73%
Master's Degree	3,880	79%
Doctoral Degree	265	56%
First-Professional Degree	1,615	57%
All Award Levels	36,612	77%

What we know about internships and coops:

- Experts believe that internship recruiting will largely replace entry-level recruiting in the next few years.^{lx}
- To strengthen education and employment linkages, Ohio plans to make a significant investment of \$100 million dollars with its internship and coop initiative.
- Almost 65,000 students engaged in internships/co-ops in 2009-10, which represents a three year increase of 39% as noted below.

	2006-07	2009-10	% Increase
Community Colleges	14,427	20,805	44%
University Main/Regional	32,045	43,946	37%
Statewide Total	46,472	64,651	39%

What we know about higher education and job creation:

Ohio's Third Frontier has been at the center of high tech job creation.

- The estimated return on investment for the Third Frontier includes more than 41,000 jobs created, 500 new companies created and an increase in venture capital invested from \$243 million in 2004 to \$446 million in 2008. (Source: Ohio Board of Regents Staff)
- From its launch in 2002, Third Frontier had granted about \$1 billion to research collaborations, entrepreneur support organizations, venture capital authorities, and companies. Those grants have generated a \$6.6 billion economic impact on Ohio.^{lxi}
- By a nearly two-to-one margin, voters approved a \$700 million, four-year extension for Ohio's Third Frontier through 2016.

- From CEOs to scientists to venture capitalists, nearly everyone in the industry says Third Frontier has been absolutely critical to the success of Ohio's growing biomedical industry, which now boasts more than 1,600 organizations with a combined payroll of nearly \$4 billion, according to BioOhio.^{lxii}

National reports highlight improvements for Ohio's economy:

- Ohio posted major gains in a recent report comparing economic growth among states. Overall, in the "Knowledge Jobs" category, Ohio climbed six places; moving from 22nd nationally to 16th.
- Ohio was one of the top five states making improvements according to four indicators, including "Non-industry Investment in R&D," which shows gains in federal, state, university, and nonprofit research and development, and "Migration of U.S. Knowledge Workers," which shows the state is becoming more competitive in attracting talent from around the country.^{lxiii}

Colleges and the University System of Ohio are actively seeking resources and developing programs to assist Ohioans in obtaining high-paying jobs and to promote local economic development. A few examples:

- Eastern Gateway Community College received a five-year \$14 million federal grant to implement the Hope Coalition that will provide eligible low-income residents with the opportunity to obtain education and training for a healthcare career job. The grant will support program growth in the college's service district of Columbiana, Jefferson, Mahoning, and Trumbull counties. Eastern Gateway's grant was one of 17 awarded nationally. It is anticipated that more than 2,000 Ohioans, including TANF recipients and other low-income individuals who are chronically unemployed will be served by this program.
- A Ph.D. in Materials Science and Engineering program designed to support the steady growth of an advanced materials industry cluster in the region was approved for Youngstown State University (YSU). The Ph.D. program will enhance Youngstown's role as an urban research university and drive economic growth in the region. In addition to coursework, the program will require a significant internship component and other outreach activities with local industry. (Note: Before the new Ph.D. program can accept students, it must be approved by the Higher Learning Commission of the North Central Association of Colleges and Schools. Upon approval, it will be YSU's first Ph.D. program).
- Ohio's Adult Basic and Literacy Education (ABLE) programs helped 11,611 unemployed adults find paid employment and achieved an 88 percent success rate for students working toward a GED or secondary school diploma. This contribution to the state's economy showcases

ABLE's expanding role in raising the educational attainment of Ohio.^{lxiv}

- Ohio is strengthening the educational pipeline to post-secondary certificates and college credentials for learners entering the University System of Ohio through an ABLE provider. This will include a series of local pilots supported by grants from the Ohio Board of Regents and the Joyce and Lumina Foundations, testing increased efforts at integrated curriculum, career advising and learning assessment, and a consistent effort to lower costs and improve instruction.
- While Ohio is recognized for its comprehensive higher education data system, it does not link data systems across the P-20 /workforce spectrum. (Note: The Board of Regents is now designing web portals designed to better align curriculum with employers needs so that more Ohioans will be prepared for the workplace. The Board of Regents can serve as an important Clearinghouse for workforce and educational information of value to students and employers.)
- Ohio is supporting science, technology, engineering, math and medicine (STEM) through grants, including to the Northwest Ohio STEM Consortium to support plans to create a STEM school and hub in Northwest Ohio, use technology to engage more students in existing Northwest Ohio STEM programs, build a robust database of programs available to students, and grow new STEM partnerships between public and private organizations. Growing Ohio's future STEM workforce with programs like the STEM Initiative is essential to Ohio's ability to attract investment and retain advanced companies in Ohio. (Note: The STEM Committee was established in HB 119 of the 127th General Assembly.)
- Ohio has established Centers of Excellence, which are the basic building blocks of universities as economic drivers, to create jobs, and strengthen Ohio's ability to bring innovative technologies to commercialization. Nationally recognized programs in key areas of academic study serve as the platform for world-class centers of research, which in turn are the home to intellectual talent and attract public and private investment. Research centers attract private capital looking for inventions to build into businesses, creating jobs and economic prosperity. Ohio's Centers of Excellence are aligned with the industries that drive the state's economy, or contribute significantly to the state's ability to attract and retain talent and include advanced energy, biomedical and health care, agriculture, food production and bioproducts, enabling technologies – materials and sensors, advanced transportation and aerospace, and cultural and societal transformation.
- An Ohio public private partnership was awarded a \$30 million award from the American Recovery and Reinvestment Act to extend broadband access throughout 28 western Ohio counties and create more than 300 jobs. A strong technology backbone is essential for

rural communities to be competitive in business and for citizens to take advantage of digital learning. Funding from the award will support the construction of more than 700 miles of high-capacity fiber and plans to directly link rural and underserved communities, including K-12 schools, state and local government offices, health care facilities, community colleges and universities. Ohio's successful application for the grant was coordinated by the Ohio Middle Mile Consortium.

- Ohio has joined forces with Microsoft in an innovative public-private partnership to provide free technology training to individuals across the state. Through Elevate America, Microsoft will

work with the University System of Ohio's adult workforce centers to distribute nearly 60,000 vouchers for free, online technology training and certification. Elevate America provides a wide variety of resources to individuals seeking skills and job resources.

- The Ohio Skills Bank supports regional partnerships in twelve designated economic regions. The purpose of the Bank is to address critical occupational and skill shortages within the regions and create convenient, customized learning pathways that prepare adult learners to fill available jobs by matching industry needs to student programs.

5 What are the linkages among the economy, employers, and higher education?

We conclude:

- 1) Work is being redefined by a technology and information-driven global economy. A postsecondary degree or credential is increasing valued in the marketplace for both new labor force entrants and those already employed. While gaining ground, Ohio is behind other states in the educational attainment of its citizens.
- 2) Four in 10 Ohio employers report having a hard time finding qualified workers.
- 3) Ohio's associate and bachelor's graduates stay in Ohio and earn high wages.
- 4) Ohioans are making significant investments to improve the economic well-being of the state with the Third Frontier, new student internships for businesses, and other programs designed to improve the lives of Ohioans.
- 5) Ohio is realizing some improvements in its economic competitiveness.
- 6) Ohio needs better data across the P-20/workforce spectrum to help students be more successful and meet employers' needs.

Section 2

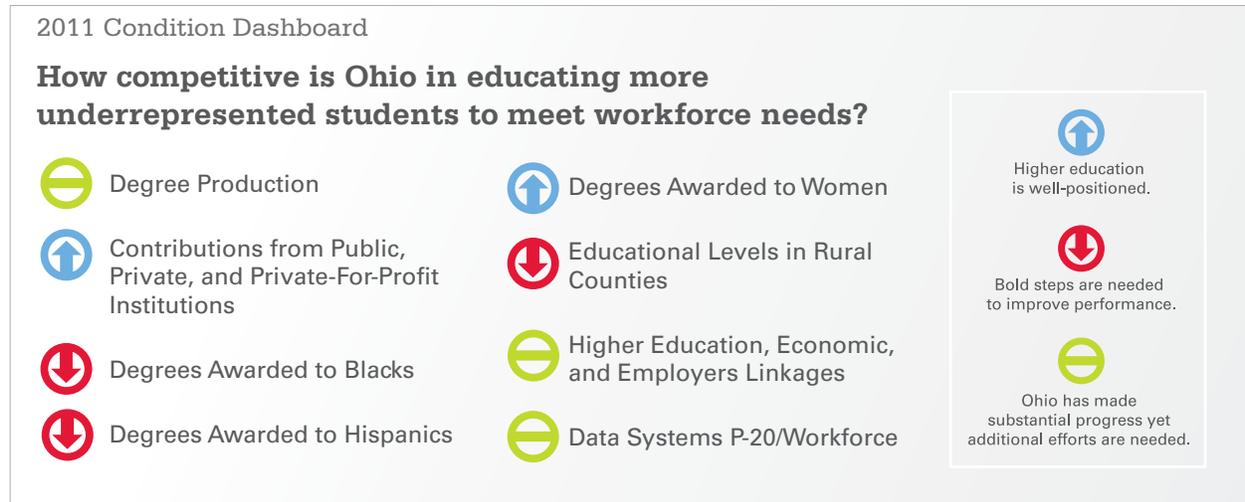
Higher Education, the Economy, and the Workforce

summary

Ohio has made substantial progress in developing higher education, economy, and employer linkages with its investments in the Third Frontier and internships. Still, many Ohioans are unemployed or underemployed. Higher education must increase its efforts to provide skills and credentials, particularly to those who are underrepresented in higher education to meet Ohioans' needs for better jobs and employers' needs for a better educated workforce.

Section 3 Summary

If Ohio is to produce more underrepresented graduates in the numbers and disciplines needed for a thriving 21st century economy, how competitive is higher education? The Regents assess higher education's condition in the following dashboard:



When we assess the current condition of the University System of Ohio to meet the workforce needs of business and industry and to educate more underrepresented students, we conclude:

- Ohio is improving degree attainment and degrees granted
- More Ohioans must earn degrees
- Ohio must find ways to increase the number of degrees awarded to adults, under represented racial/ethnic groups, and citizens in rural counties
- Ohio must find ways to increase the number of degrees awarded in the science, math, engineering, technology and medical fields to adults, underrepresented racial/ethnic groups and women
- Ohio has a strong, diverse, high quality higher education system
- Ohio's higher education institutions are making noteworthy contributions to Ohio's workforce and economy and to its future economic strength
- Ohio's return on investment from the Third Frontier has been substantial
- Colleges and universities must make some improvements in preparing students effectively for a global economy
- Ohio has made substantial progress in moving toward a common academic calendar, in integrating the adult career centers into the University System of Ohio and streamlining less expensive pathways to degrees
- Ohio has achieved success in growing its online offerings
- Ohio has improved services for veterans and their families
- Ohio needs better data across the P-20/workforce spectrum to help students succeed.

Higher education can help all Ohioans obtain better jobs and better lives. Giving Ohioans the opportunity to enroll in college is important, but degrees change lives. Those who earn a degree in Ohio stay in Ohio. College graduates earn salaries necessary for a middle class life. Workers with a bachelor's degree or higher have unemployment rates half that of workers with a high school diploma. By 2018, most of Ohio's jobs will require college yet only 32% of Ohioans have associate degrees or higher. Ohio must ensure that all citizens have not only access to higher education, but also the opportunity to succeed.

Current federal and state budgetary realities threaten the education of underrepresented students. Support for federally funded financial aid programs for low-income students is uncertain. States and the federal government are likely to make overall cuts which could jeopardize specialized programs for underrepresented students. What can be done? Higher education must place a high priority on educating more underrepresented students and find creative ways to do so in an environment of the same or fewer resources.

Stakeholder Feedback

Written Respondents:

OACC
 Ohio Faculty Council
 Ohio Faculty Senate
 Belmont Technical College
 Bowling Green
 Central State University
 Cincinnati State
 Edison
 Kent State
 Lakeland
 Lorain County
 Northeastern Ohio Colleges of Medicine and Pharmacy
 North Central
 Ohio University
 The Ohio State University
 Sinclair
 Southern
 University of Akron
 Youngstown
 Zane State

Presentations by Colleges to the Board of Regents:

Tally Hart, Senior Advisor for Economic Access, The Ohio State University
 Dr. Valerie Lee, Interim Vice Provost for Diversity and Inclusion, The Ohio State University
 Dr. Brenda Hass, Interim Dean, University College, Shawnee State University
 Dr. David Todt, Provost and Vice President for Academic Affairs, Shawnee State University
 Dr. Brian Bridges, Vice Provost for Diversity, Access and Equity, Ohio University
 Dr. John Cuppoletti, OFC Chair, University of Cincinnati
 Tony Parker, Student
 Daniel Derwaldt, Student
 Dawn Morton, Student
 Patrick Furr, Student

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John R. Kasich, Governor
Jim Petro, Chancellor

University System of Ohio
Board of Regents