

Vice President's Conversation on the Future

Trend Research: Educational Access, Attainment, and Cost

Descriptor Definition

This descriptor white paper draws attention to changes in state funding in support of higher education, and the subsequent impact on student costs. It also discusses workforce development issues, specifically the balance between employer-provided training, training from traditional institutions of higher education and new non-traditional providers, especially those that rely on technology and new forms of credentialing. The white paper includes discussion of the demographics of higher education, and looks specifically at trends in the number of potential students attending Ohio's colleges and universities. These include traditional aged students 18-24 and also "non-traditional" students. Finally, the white paper considers college attainment across a number of demographic categories.

Author Insight¹: Descriptor Relevance

Higher education is a driver of economic opportunity and growth in Ohio. Advanced education and training allows Ohio's citizens to work in new and expanding sectors of the economy, and states with well-trained and well-educated workforces attract jobs and new industries. States with nationally-regarded colleges and universities draw young people and academic talent to the state, with universities acting as "talent clusters," bringing together smart, creative, innovative people in one location. From these clusters come new ideas, and the possibility for innovative products and services. Talent clusters also bring together artists and other creative people, whose work is an important part of the creative economy. Higher education is also a benefit in and of itself, leading to a higher quality of life for those who attain college degrees.

Trend Information and Interpretation

Cost/tuition:

Across the US, state support for higher education—which, among other things, subsidizes lower tuition for students—has declined since the 1980s. Ohio has been no exception, and since the early part of the new century Ohio students pay more for higher education as state support declines. "State appropriations contribute to the ability of the Nation's major public research universities to charge, on average, over \$30,000 dollars less in tuition and fees for state residents than their private counterparts," reports the National Science Foundation. "If per-student state appropriations continue to decline, tuition prices likely will increase in order to maintain the education, research, and service missions of public research universities. Ongoing tuition increases and a greater reliance on tuition and fees from out-of-state and international students to offset declining state appropriations are likely to adversely impact the ability of students from lower- and middle-income families to access an affordable, world-class science and engineering education." (National Science Foundation, 2010) There is every reason to suspect that this trend will continue, and that even more of the cost of higher



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education will be borne by students. This could mean a reduction in the number of students who seek higher education, as the cost-benefit of rising tuitions may not be matched by the ability to secure employment such that student loans may be easily repaid. Stated another way, potential students might chose to opt-out of higher education.

There are efforts underway to help decrease costs by providing technologically-mediated, “stripped down” programs. But a weak signal suggests that the 30-year decline in state support of higher education may be changing, and that states are beginning to see the value of greater state support such that some states are experimenting with tuition-free education. (Inside Higher Ed, 2014a) Free tuition is likely to apply to students who are pursuing technical, STEM-related or workforce-development degrees. Ohio may well become one of those states that transfer revenue from the Lottery or from taxes on gambling or other such measures to make attending college free or greatly reduced.

U.S. Average, Spending Per Student

In 2012, states paid **\$5,906**, and students paid **\$5,189**.



source: “Who Pays for Public Education?” <http://chronicle.com/article/Who-Pays-More/145063>

Workforce development:

Peter Cappelli has observed that where companies once provided extensive training to new employees, they have now effectively “outsourced” such training to colleges and universities, expecting graduates to be fully trained and ready to “hit the ground running” upon being hired by companies. Given increasing tuition costs, the effect is to transfer the cost of training from employers to potential employees. There is a widening gap between the kind of training universities provide and the expectation of employers. (Cappelli, 2012)

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Ohio's Fastest Growing Occupations* 2010–2020

Ohio's Fastest Growing Occupations offer good employment opportunities for job seekers.

Occupational Title	Employment Growth Rate	Average Annual Openings	Average Wage, May 2011
Home Health Aides	55.5%	4747	\$9.79
Personal Care Aides	49.1%	999	\$9.89
Helpers -- Carpenters	46.3%	50	\$13.25
Veterinary Technologists & Technicians	42.8%	138	\$14.63
Petroleum Engineers	42.6%	39	\$52.08
Helpers, Brickmasons, Blockmasons, Stonemasons, & Tile & Marble Setters	42.0%	56	\$15.90
Meeting, Convention, & Event Planners	38.4%	100	\$21.64
Ambulance Driver & Attendants, Except Emergency Medical Technician	37.2%	77	\$9.72
Diagnostic Medical Sonographers	36.6%	119	\$28.24
Helpers-- Pipelayers, Plumbers, Pipefitters, & Steamfitters	35.3%	52	\$12.68
Market Research Analysts & Marketing Specialists	34.7%	855	\$29.43
Physical Therapist Aides	34.0%	76	\$11.84
Fashion Designers	34.0%	34	\$34.05
Interpreters & Translators	31.4%	90	\$23.05
Medical Secretaries	31.3%	1602	\$14.16
Medical Scientists, Except Epidemiologists	31.1%	85	\$32.22
Emergency Medical Technicians & Paramedics	30.6%	450	\$13.97
Physical Therapist Assistants	29.1%	162	\$25.25
Geoscientists, Except Hydrologists & Geographers	29.0%	40	\$33.55
Heating, Air Conditioning, & Refrigeration Mechanics & Installers	28.9%	437	\$21.11
Occupational Therapy Assistants	28.9%	66	\$24.91
Software Developers, Systems Software	28.8%	246	\$40.85
Veterinarians	28.8%	117	\$42.12
Mental Health Counselors	28.7%	199	\$21.66
Actuaries	28.2%	68	\$49.11

*Occupations with at least 500 employment.

Occupations in Ohio with the Most Annual Job Openings 2010–2020

Ohio's annual job openings primarily result from replacement needs.

Occupational Title	Average Annual Openings	Average Wage, May 2011
Retail Salespersons	6,031	\$11.56
Combined Food Preparation & Serving Workers, Including Fast Food	5,812	\$8.73
Cashiers	5,766	\$9.26
Registered Nurses	5,016	\$29.67
Waiters & Waitresses	4,750	\$9.17
Home Health Aides	4,747	\$9.79
Laborers & Freight, Stock, & Material Movers, Hand	4,231	\$12.00
Office Clerks, General	3,294	\$13.71
Customer Service Rep	2,916	\$15.67
Truck Drivers, Heavy & Tractor-Trailer	2,447	\$19.07
Nursing Aides, Orderlies, & Attendants	1,968	\$11.59
Janitors & Cleaners, Except Maids & Housekeeping Cleaners	1,835	\$11.93
Licensed Practical & Licensed Vocational Nurses	1,831	\$19.41
Stock Clerks & Order Fillers	1,772	\$11.49
First-Line Sup of Office & Administrative Support Workers	1,662	\$23.26
Medical Secretaries	1,602	\$14.16
Childcare Workers	1,589	\$10.41
Sales Rep, Wholesale & Manufacturing, Except Technical & Scientific Products	1,537	\$28.04
Packers & Packers, Hand	1,530	\$10.90
Team Assemblers	1,513	\$14.83
Elementary School Teachers, Except Special Education	1,492	\$56,400 †
Farmers, Ranchers, & Other Agricultural Managers	1,462	\$32.54
Maintenance & Repair Workers, General	1,404	\$17.29
Postsecondary Teachers, Except Graduate Teaching Assistants	1,338	\$68,856 †
First-Line Supervisor of Retail Sales Workers	1,332	\$18.35
Accountants & Auditors	1,319	\$31.94
Teacher Assistants	1,301	\$25,510 †
Bookkeeping, Accounting, & Auditing Clerks	1,294	\$16.85
Landscaping & Grounds keeping Workers	1,287	\$11.40

† Annual earnings, typically for a 9½-month school year.

source: *Ohio Job Outlook, 2010-2020 Occupational Trends*,
<http://www.odjfs.state.oh.us/forms/file.asp?id=2250&type=application/pdf>

Employment trends suggest that the fastest growing occupations are in health care, from those who provide direct care to those who offer support services. Many of these occupations require advanced training and education. A key question will be to what degree will Ohio's colleges and universities be able to support training in these occupations? Given cost pressures, demographic realities as well as their long-standing reluctance to pursue higher education, to what degree will Ohio's students express enough interest (in sufficient numbers) to seek out these opportunities?

Many of the jobs listed do not require college degrees, but do require some form of post-secondary training and certification. There is a trend where employers are accepting more post-secondary

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education, but not necessarily a college degree, from potential employees. Even in some technical fields, professional certifications are as valuable a credential as a 2-year or 4-year degree. (Marcus, 2009) In the future, “attainment” may no longer be defined as “college completion” but the acquisition of post-secondary certifications. Many of these certifications are just-in-time, and can be acquired over the course of a lifetime, not only during 18-24 years of age. This will have implications for lifelong learning.

Table 1. Degrees and Certificates Awarded by Ohio Public Institutions in Fiscal Years 2004 – 2013
 Aggregation Level: Type of Degree or Certificate Awarded

Award Level	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	% Change 2004 to 2013	% Change 2008 to 2013	% Change 2012 to 2013
Certificates													
Less than One-Year Award	3,083	3,430	3,885	4,025	3,482	3,639	4,605	4,970	5,210	6,379	107%	83%	22%
One to less than Two-Year Award	1,522	1,683	2,165	2,374	2,741	2,555	2,926	3,688	3,640	3,498	130%	28%	-4%
Two to less than Four-Year Award	8	2	1	0	2	20	24	23	24	17	113%	750%	-29%
Post-baccalaureate certificate	121	202	313	182	287	284	379	363	365	436	260%	52%	19%
Post-master's certificate	54	72	60	62	117	161	134	121	124	144	167%	23%	16%
Certificates Total	4,788	5,389	6,424	6,643	6,629	6,659	8,068	9,165	9,363	10,474	119%	58%	12%
Degrees													
Associate Degree	17,083	17,551	18,497	18,335	19,174	19,429	20,151	21,917	24,061	23,382	37%	22%	-3%
Bachelor's Degree	36,405	36,793	37,648	37,816	38,064	38,493	39,266	41,675	44,622	44,236	22%	16%	-1%
Master's Degree	12,111	12,636	13,164	12,794	12,878	12,916	13,807	13,954	15,303	14,616	21%	13%	-4%
Doctor's degree: research - scholarship	1,433	1,597	1,708	1,657	1,801	1,787	1,604	1,646	1,601	1,641	15%	-9%	2%
Doctor's degree: professional practice	2,050	2,118	2,219	2,234	2,285	2,368	2,505	2,626	2,690	2,786	36%	22%	4%
Doctor's degree: other	0	0	0	0	0	0	0	23	13	16	NA	NA	23%
Degrees Total	69,082	70,695	73,236	72,836	74,202	74,993	77,333	81,841	88,290	86,677	25%	17%	-2%
Grand Total, Certificates and Degrees	73,870	76,084	79,660	79,479	80,831	81,652	85,401	91,006	97,653	97,151	32%	20%	-1%

source: “Degrees and Certificates Awarded by Ohio Public Institutions: Fiscal Years 2004 to 2013”
https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/statistical-profiles/completions/completions_public_04-13.pdf

Providers:

Traditional universities will continue to be the major providers of higher education. Ohio State will likely remain the flagship and most prominent university in the state, and will grow even more selective than its original land-grant mission of “accessibility for all” would indicate. Many other state supported schools and selective private colleges and universities will continue to draw in students, even as those numbers decline or their composition shifts from the predominantly young to more working adults. But in a world of “alternative credentials,” non-traditional providers may enter the market for higher education. Recently, *Wired* magazine has teamed up with the University of Southern California to offer a masters degree in technology, design and business. (Inside Higher Ed, 2014b) *The Economist* magazine offers non-credentialed MBA-level classes. (Economist Education, n.d.) It is possible that education and training—provided over technologically-mediated platforms such as MOOCs or their descendants—might compete for students. If companies such as McKinsey were to offer MBA classes, or if Honda began training in advanced manufacturing (in essence, internal corporate universities extended outward), these would be very attractive to potential student/employees. It would also mean that companies will have reversed a recent trend and will get back into the training business. We may also see growing partnerships between K-12 schools, institutions of higher education and Ohio’s companies to develop extensive apprenticeship programs. Cost pressures and Ohio State University Extension

the potential for other non-traditional providers might mean that smaller colleges and universities could be squeezed out of the higher education market.

Technology/online education:

Massive Open Online Courses (MOOCs) burst on the educational scene three years ago. MOOCs were first developed by faculty at Stanford University, and are video-based lecture courses made freely and widely available over the Internet. (Stanford University, Class Central, 2011-2014) Thousands of students took advantage of these free, high quality courses. While online education has been a fixture of the higher education landscape for the past decade, online education has frequently been associated with the offerings of community colleges and for-profit career colleges. MOOCs, on the other hand, were developed by MIT, Harvard, Stanford and other elite universities, and were financed by Silicon Valley venture capital, giving a luster that online education had yet to receive. Clayton Christensen has proclaimed for the better part of fifteen years that higher education, as with other mature industries, is ripe for “disruption,” and MOOCs appeared to be the disruption that so many had foreseen. (Clayton Christensen, 2015) In the immediate aftermath of the launch of the first MOOCs, some claimed that only a few large, prestigious universities—those who were developing and distributing the MOOCs—would remain and that many, especially smaller less well-financed and less-prestigious colleges and universities, would close. The students who would otherwise attend these institutions would be viewing online courses from the remaining MOOC providers.

Technologically-mediated instruction—indeed, an entire college experience available online—will be a reality for the next two decades, although the disruption predicted by Christenson and others will not likely come to pass. Rather, online-only instruction will appeal most likely to a targeted market/demographic, especially those who seek just-in-time credentials and certification. Recently, Kaplan Higher Education launched "Open College" which is aimed chiefly at adult learners and using a competency-based approach to learning. (Kaplan University, Open College, n.d.) (Competency-based learning means that students must demonstrate competency in the subject of a particular course, usually demonstrated by successful completion of an assessment test. How the student acquires the knowledge of the course can range from taking a formal class, to reading/studying on one's own, to having prior knowledge and experience in the subject. Western Governors University pioneered this approach.) Just-in-time, anywhere/anytime education will appeal to certain types of learners, but not all learners, who will still seek out traditional face-to-face interactions and learning engagements. But a growing segment of higher education will be served by such technologically-mediated online experiences. Many Ohio universities will engage in such practices; Ohio State has already begun developing several MOOCs, including a very popular calculus course. While the disruption predicted by many will not likely occur, it is possible that several of Ohio's smaller colleges and universities will not be able to compete with the online offerings of Ohio State or other state universities.

Lifelong learning:

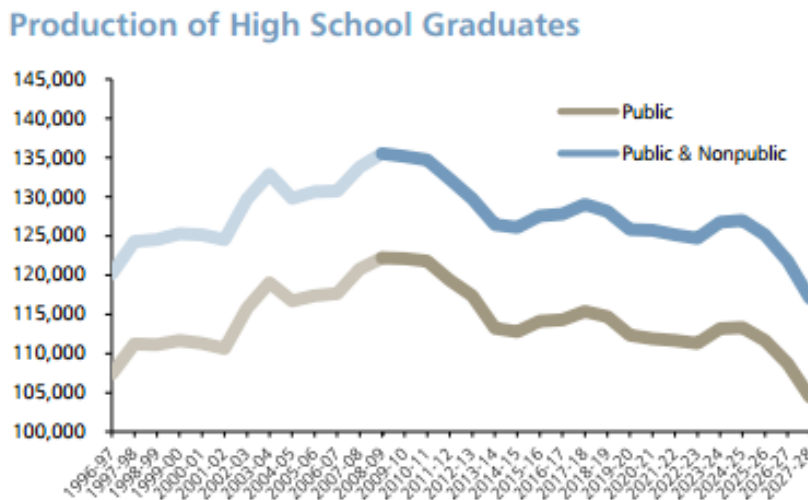
If microcredentials and certifications become valued by employers, and if these are most usefully acquired on an as-needed basis, we are likely to see post-secondary education extend across a person's lifetime, not as an experience one acquires between the ages of 18-24. Life-long learning

thus becomes a fact of one’s working life. A survey from the Organization for Economic Development and Cooperation found that “a large fraction of the adult population does not have the skill levels needed to function effectively in today’s economy and society,” and that “the aging population means that a significant percentage of the workforce left the education and training system more than 20 years ago. With more than one out of three workers in OECD countries over the age of 45, reskilling may be needed.” (One Step Forward Initiative, 2009) Ohio would not be exceptional, and older workers may begin to return to higher education and advanced training to better compete in the future.

Aside from workforce development needs, the aging population in Ohio might begin to return to universities for “mental calisthenics.” As the population ages, they are developing a concern for the health of their brains, and are taking to heart the recommendations of neuroscientists to regularly “exercise” their brains as a way to stave off cognitive decline. (Vitelli, 2012) Ohio’s colleges and universities might find they are educating just as many 60- and 70- year olds who are interested in art, literature and music as they are young people interested in STEM-related career training.

Demographics:

In Ohio, there appears to be a sizeable drop in the number of potential traditional age college students. After peaking at 135,506 in 2008-09, the number of high school graduates in Ohio is estimated to fall to about 124,700 by 2022-23. Ohio colleges and universities, inasmuch as they will continue to define their undergraduate populations in terms of 18-24 year olds, will find themselves competing for a smaller pool of such “traditional” students. They will seek out more students from out of state, and/or will expand their definition of undergraduate education to include more “non-traditional students.”

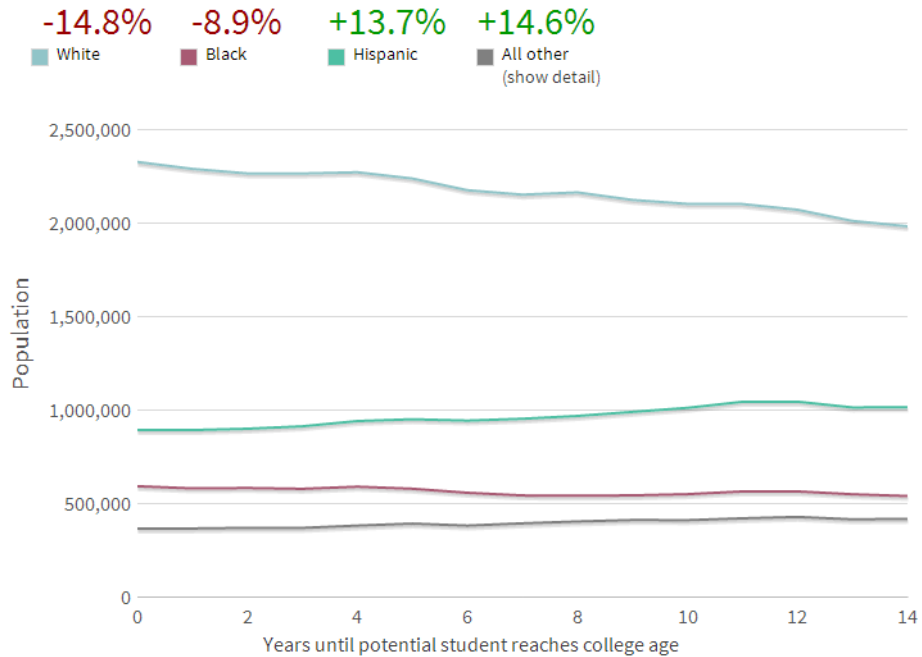


source: “Knocking at the College Door: Ohio” <http://www.wiche.edu/info/knocking-8th/profiles/oh.pdf>

Nationally, the demographic composition of the undergraduate population will appear less white and black and become more Hispanic.

Demographic change over time

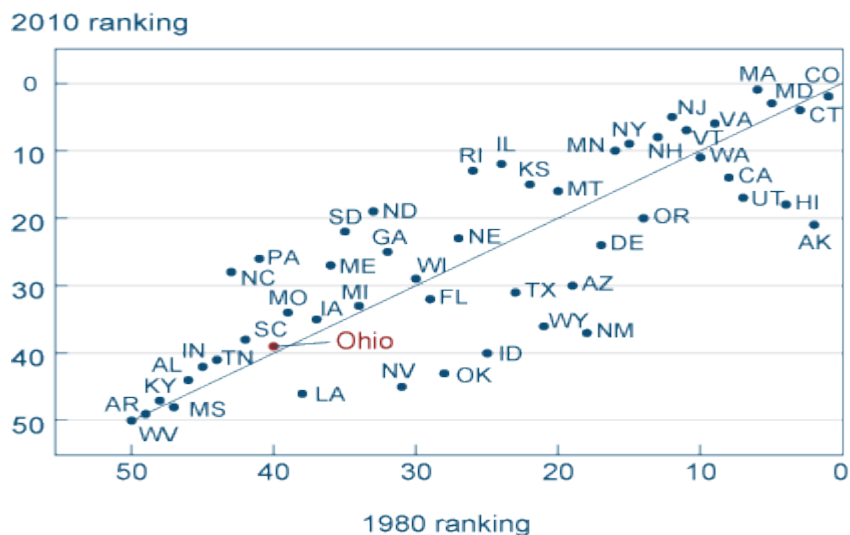
➔ Among those in **the United States** who will reach college age in **0 to 14** years, **those of other races** show the greatest percentage difference.



source: "Prospects: Who Will Reach College Age in the Next 14 Years?" *Chronicle of Higher Education*, January 19, 2014 <http://chronicle.com/article/Who-Will-Reach-College-Age-in/144061#00/5-1>

When considering college attainment rates, Ohio's place in the nation has hardly moved from their 1980 levels, and there is reason to suppose that such rates will not increase appreciable over the next twenty years.

Figure 1. State College Attainment Rankings

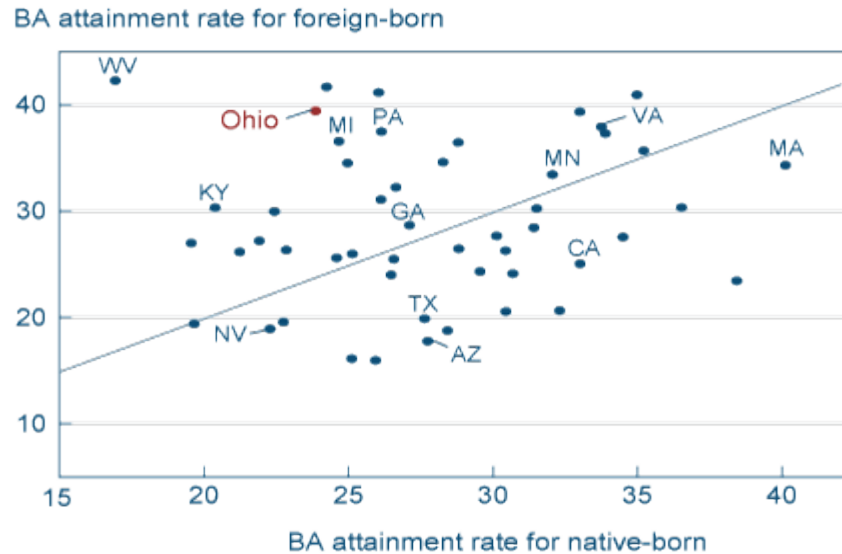


Notes: In the rankings of BA attainment rates for the 50 states, a rank of 1 has the highest attainment rate, and a rank of 50 has lowest attainment rate. Axes rank from lowest attainment to highest attainment.
Sources: Decennial Census (1980); American Community Survey (2010); IPUMS.

Source: *10 Things to Know about the Shape of Ohio’s Skilled Workforce*
<http://www.clevelandfed.org/research/commentary/2012/2012-06.cfm>

In Ohio, foreign-born residents tend to have higher rates of college degree completion—which is in contrast to national patterns—and immigrants would seem to boost Ohio’s national standing. But demographic trends suggest that immigrants are not moving to Ohio, meaning that any benefit to the state’s college completion rates will be negligible.

Figure 4. BA Rates for Foreign- and Native-Born U.S. Residents, 2010



Notes: Foreign-born includes individuals born outside the United States, Puerto Rico, and U.S. territories, excluding individuals born abroad to U.S. parents. Native-born includes all individuals born in the United States, Puerto Rico, and U.S. territories and individuals born abroad to U.S. parents. Source: American Community Survey (2010).

source: *10 Things to Know about the Shape of Ohio's Skilled Workforce*
<http://www.clevelandfed.org/research/commentary/2012/2012-06.cfm>

Author Insights – Possible Trends for the Future

There are four possible outcomes for the trends in educational access, attainment, and cost. Probabilities of occurrence are estimations (given the information available and knowing it will likely change) that provide a starting point for conversations about the future. They can be illustrated as: 1) best possible outcomes, 2) the status quo is maintained, 3) trends go a different/opposite direction and 4) a doomsday scenario.

1. The state increases funding for higher education, which has the effect of reducing tuition costs at state institutions. Indeed, the state legislature passes laws to make tuition-free at Ohio's public colleges, universities and community colleges for eligible citizens. Ohio State remains the flagship (selective) university but students are drawn into other state institutions, who see

Ohio State University Extension

their numbers swell as a result of the low/free tuition. These students focus on developing critical thinking/broad skills in STEM, arts and humanities, not just vocationally-oriented skills. Students study a broad range of subjects, freed from the immediate necessity to find a job to pay for college (student debt withers away). Because the cost of attendance has dropped so dramatically, more students seek out higher education opportunities and Ohio sees an increase in college attainment. There is a marked increase in the number of non-traditional students seeking higher education and advanced training, especially among those over 60 who do not seek job training but who wish to keep their brains supple as they advance in age. Ohio State and other institutions serve as “talent clusters,” not just job training centers, bringing in top academic talent who not only teach students but engage in research and creative activity such that Ohio develops a vibrant innovation economy. This academic talent arrives with an entrepreneurial bent, not only winning national prizes but also contributing to economic and cultural innovation. **Based on 2014 trend information, this outcome has an a priori probability of occurrence of 0.30.**

2. Ohio remains low in national rankings in college attainment. State funding continues to decline, perpetuating the trend started in the 1980s, meaning that tuition continues to rise. Businesses continue to “offload” workforce development and training onto colleges and universities, meaning that the costs of workforce development continue to be borne largely by students. Many students opt out of higher education as a result, making the calculation that the debt loads will not be offset by potential earnings. Some would-be college students turn to alternative forms of training (microcredentials, e.g.) because these are more affordable and appear to be tied closely to workforce development needs. Students tend to focus on career-oriented degrees and certification. Ohio lags behind the rest of the nation in the number of returning adults seeking lifelong learning opportunities. **Based on 2014 trend information, this outcome has an a priori probability of occurrence of 0.40.**
3. New online, non-traditional providers—such as companies like Honda expanding their corporate university operations outward, offering credentials for a wider audience--compete with traditional incumbents. There are overall declines in traditional college attendance, but only because “alternatives to the degree” emerge that satisfy workforce development needs. Many students no longer seek out four-year degrees, but work instead collecting a portfolio of certifications and micro-credentials that are welcomed by area businesses. Because just-in-time training and certification is now industry standard, more non-traditional students seek out this advanced training. Companies once again reinvest in training, meaning that there is less of a burden on universities to carry out such workforce development. High schools and local businesses have established 21st century apprenticeship programs, and so, as a consequence, fewer students attend universities but instead go to work directly for companies. Colleges and universities play a smaller role in workforce development, and see declines in enrollment as a result, but a larger percentage of students seeking broad, liberal education. **Based on 2014 trend information, this outcome has an a priori probability of occurrence of 0.20.**

4. State support for education continues to decline and tuition costs continue to rise, which crowds out many would-be students who cannot afford the debt loads. As a result, college enrollments shrink/decline. Many smaller institutions shutter their doors, and even some state-supported schools must lay off faculty and staff in the face of dramatically smaller enrollments. Ohio's college attainment rank slips even further, and immigration levels are not sufficiently high enough to increase either enrollment or graduation rates. Few working adults seek to update their skills, many others cannot afford the costs to attend, and Ohio's colleges and universities never retool sufficiently to accept larger numbers of non-traditional students. High tech industries such as advanced manufacturing leave the state—or more probably, are never attracted to the state at all-- since they do not have ready access to trained workers or the idea generation that comes from vibrant “talent clusters.” The relatively small number of students who do pursue advanced training are lured to online providers, offering low cost degrees and certifications. But few students avail themselves of these opportunities. **Based on 2014 trend information, this outcome has an a priori probability of occurrence of 0.10.**

References

Peter Cappelli, (2012) *Why Good People Can't Get Jobs: The Skills Gap and What Companies Can Do About It* Wharton Digital Press.

Clayton Christensen (2015) <http://www.claytonchristensen.com/books/innovative-university/>

Economist Education, (n.d.) <http://www.economisteducation.com/courses/>

Inside Higher Ed, (2014a) “2 New Plans for Free Community College Tuition”
<https://www.insidehighered.com/quicktakes/2014/10/02/2-new-plans-free-community-college-tuition>

Inside Higher Ed, (2014b) “Wired Magazine and Southern Cal Collaborate on Master's Degree,”
<https://www.insidehighered.com/quicktakes/2014/10/03/wired-magazine-and-southern-cal-collaborate-masters-degree>

Kaplan University, Open College, (n.d.) <https://opencollege.kaplan.com/>

Jon Marcus, “The ‘Cash Cow’ of U.S. Universities: Professional Certificates Instead of Degrees” *Time*, April 12, 2009 <http://business.time.com/2012/04/09/the-cash-cow-of-u-s-universities-professional-certificates-instead-of-degrees/>

National Science Foundation, (2010) “Diminishing Funding and Rising Expectations: Trends and Challenges for Public Research Universities,” “Public Research University Data and Trends: U.S. and Ohio” (2010)
<http://www.nsf.gov/nsb/sei/companion2/files/StateFacts/NSBPublicResearchUniversityFacts-OH.pdf>

One Step Forward Initiative, "International Trends in Adult Education and Lifelong Learning," (2009)

<http://www.iff.org/sites/default/files/publications/Adult%20Ed%20International%20FINAL.PDF>

Stanford University, Class Central, (2011-2014) <https://www.class-central.com/university/stanford>

Romeo Vitelli , (2012) "Can Lifelong Learning Help As We Age?" *Psychology Today*,

<http://www.psychologytoday.com/blog/media-spotlight/201210/can-lifelong-learning-help-we-age>

Author and Date

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October 9, 2014

¹ Along with the research-based data and statistics included in this document, is information provided by the research paper author(s). Although these author insights are not directly cited with research references, they reflect research, observation, logic, intuition, and well-considered expectations compiled by the author(s). The Author Insights sections of this paper are offered for discussion and to help provide a wider perspective for incorporating the descriptor data into the possible future trends. These conclusions are drawn by the author(s) using their knowledge of the scholarly references and their years of professional experience related to the descriptor, and are provided to help the reader more effectively envision the future impact and effects of the descriptor.

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