



ACCESS AND SUCCESS – APPALACHIAN OHIO

Report 1: Analysis Of Selected State And National Data

November 2007

Prepared by: Voinovich School of Leadership and Public Affairs, Ohio University

PREFACE

This document is the first of five reports that will be completed as part of a two-year study titled, *Access and Success—Appalachian Ohio: College Access, Retention, Postsecondary Pathways, and Completion*. The rationale behind the overall study is that organizations committed to assisting Appalachian Ohio students to access and complete a postsecondary program need more and better data to develop effective programming. The data necessary to support program decisions include the current college going rate, barriers to enrollment and completion, degree completion rate, and the issues and decisions of high school and college students that affect their success in higher education.

Much of the current college access information for Appalachian Ohio was initially researched through the 1992 *Appalachian Access and Success* study. The current two-year project will replicate portions of that study, update the original data, and collect additional information on degree completion and entry into the workforce. As sources of secondary data are much more robust and comprehensive today than they were in the early 1990's, these new resources will be explored in depth to address the research questions throughout the study. This document is the first installment of the

secondary data analysis.

While several key data sources have been tapped for this report, the research team will continue to work with these as well as other secondary data sources throughout the project as they are rich with information related to the issues addressed in this study. For the final report, institutional research offices at colleges and universities within the 29-county region will have been contacted and invited to share information that can be aggregated to address the research questions. Data from the Ohio Board of Regents' Higher Education Information System will continue to be used, as will other statewide and national databases such as the Integrated Postsecondary Education Data System (IPEDS).

For this and other portions of the study, the research designs, data sources, and analysis protocols will be thoroughly documented to facilitate replication in subsequent years and application to similar projects in other geographic regions. Through this initial work, a few areas have been identified and noted in which secondary sources were incomplete, or where two sources of the same data did not coincide.

TABLE OF CONTENTS

PREFACE	i
ACKNOWLEDGEMENTS	v
EXECUTIVE SUMMARY	1
INTRODUCTION	3
Description of Data Sources	4
<i>Ohio Board of Regents</i>	4
<i>Ohio Department of Education Local Report Cards</i>	4
<i>National Center for Education Statistics Integrated Postsecondary Education Data System</i>	4
COLLEGE ACCESS AND RETENTION	9
College Readiness Behaviors of Appalachian Ohio High School Students	9
<i>Rigorous high school curriculum</i>	9
<i>College coursework while in high school</i>	10
<i>Postsecondary enrollment options</i>	10
<i>Ohio College Tech Prep</i>	10
<i>College entrance exams</i>	11
<i>Advanced Placement</i>	11
The College Going Rate	12
<i>First-generation college students</i>	12
Persistence in Postsecondary Programs	14
Retention, Graduation and Transfer	14
<i>Retention rate</i>	15
<i>Graduation rate</i>	17
<i>Transfer-out rate</i>	17
Tuition Trends	19
<i>In-state tuition and fees</i>	19
AREAS OF STUDY AND WORKFORCE PREPARATION	23
Ohio's Current and Projected Workforce Needs	23
<i>Industry drivers</i>	26
Areas of Study for Appalachian Ohio Students	27
Congruence between Appalachian Students' Areas of Study and Workforce Needs	28
SUMMARY AND NEXT STEPS	31
Appendix A – Map of Appalachian Ohio and economic development regions	33
Appendix B – Employment projections for Appalachian Ohio economic development regions	34
Appendix C – Enrollment data from IPEDS for profile institutions	37
Appendix D – Gender and full-time/part-time status of profile institutions	40
Appendix E – Faculty by full- or part-time status for profile institutions	41
Appendix F – Number of degrees for top five program areas in each institution, 2002-03	42
Appendix G – Percent of first-time undergraduates who graduated high school in past 12 months by geographic origin, Fall 2006	44
Appendix H – List of STEM-related fields as defined by the Ohio Science and Engineering Alliance	45
REFERENCES	47

LIST OF TABLES AND FIGURES

Table 1. Profile Institutions	5
Table 2. Institutions Type	5
Table 3. Institutions Locale	5
Table 4. Profile Institution Subgroup	6
Table 5. Percent of first time college freshmen who took a high school curriculum to prepare for college	9
Table 6. District Average Percent of Students Taking College Courses While in High School	10
Table 7. Average Entrance Exam Score (ACT scale)	11
Table 8. First-generation college students	14
Table 9. Retention rates of first-time part-time bachelor’s (or equivalent) degree-seeking undergraduates enrolled in fall and re-enrolled the following fall	15
Table 10. Retention rates of first-time part-time bachelor’s (or equivalent) degree-seeking undergraduates enrolled in fall	16
Table 11. 2004 Retention Rate Summary	16
Table 12. 2005-2006 Graduation rates (150% of normal time) and transfer-out rates	17
Table 13. Graduation rates (150% of normal time) and transfer-out rates	18
Table 14. Average graduation rates by type for profile institutions and nationally	18
Table 15. Average in-state tuition and fees	19
Table 16. In-state tuition trends	21
Table 17. Average in-state tuition and fees	21
Table 18. Number and % of degrees for top five program areas in each institution, 2005-2006 Institutions with majority of students from Appalachian Ohio counties	24
Table 19. Number of degrees awarded in selected STEM-related and medical-related programs 1998-2006 for Appalachian Ohio postsecondary institutions with 50% or more of enrollment from Appalachian Ohio counties	26
Table 20. Ohio University-STEM-Related Baccalaureate Degrees Conferred to Students from Appalachian Ohio Counties	29
Figure 1. Map of Appalachian Ohio Profile Institutions	7
Figure 2. Percent of graduates taking college entrance exams 2005–06	10
Figure 3. Average Entrance Exam Score (ACT Scale)	11
Figure 4. Percent of districts with one or more graduates taking at least one AP test, 2005–06	13
Figure 5. Percent of AP test takers with score of 3 or above	13
Figure 6. College going rate of recent graduates to Ohio colleges and universities	13
Figure 7. Average persistence to second year for students from Ohio public school districts enrolled in Ohio colleges	14
Figure 8. Average in-state tuition and fees	20

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This portion of the two-year study, Access and Success-Appalachian Ohio, was funded by the Ohio General Assembly through the Appalachian New Economy Partnership, which is dedicated to developing the infrastructure of education, business and government

in Ohio's 29 Appalachian counties. Ohio University's Voinovich School of Leadership and Public Affairs and Center for Higher Education are jointly conducting this two-year study. Researchers include Ms. Amy Jennings, Dr. Lesli Johnson, Dr. Barry Oches, Ms. Marsha Lewis, and Dr. Anirudh V.S. Ruhil at the Voinovich School and Dr. Valerie Martin Conley at the Center for Higher Education. Ohio University graduate students Ann Deaton and Mayla Puckett provided valuable support during the preparation of this report. The authors thank Lindsey Siegrist for providing all the layout design.

All the partners in this ongoing project acknowledge the work of the late Wayne White and the late Dewey Lykens. Dewey was one of the primary investigators on the 1992 Access and Success study. Wayne was the founding executive director and led the Ohio Appalachian Center for Higher Education from 1993 to 2004.

EXECUTIVE SUMMARY

This document is the first product of a two-year research effort addressing postsecondary education access and completion for students from the 29 Appalachian Ohio counties. Appalachian Ohio is of particular importance for research that informs education policy, as the region has historically had a lower college going rate, a less educated workforce, and a higher rate of poverty and overall unemployment than the rest of the state.

This report uses existing data sources to look at the characteristics, college readiness behaviors, rates of college enrollment, and college choices of recent high school graduates and to profile the colleges and universities in the region. The following is a summary of some of the findings from the secondary data sources:

- ~ A lower percentage of Appalachian Ohio students take a high school curriculum to prepare them for college than students from the rest of the state. From 2001 to 2005, the percentage of Appalachian Ohio high school students taking either a minimum or a full core high school college preparatory curriculum remained relatively steady.
- ~ In recent years, Ohio has offered various options for students to enroll in college courses while still in high school. Based on recent high school graduates enrolled in college in Ohio, Appalachian Ohio school districts, on average, have a slightly higher percentage of students taking at least one college course while still in high school, as compared to the rest of the state.
- ~ Approximately the same percentage of Appalachian and non-Appalachian public school districts in Ohio reported having one or more 2005-06 high school graduates taking advantage of the Postsecondary Enrollment Options program (PSEO) that allows college courses to be taken while in high school. Isolating only districts with reported PSEO participation, the percentage of graduates in 2005-06 who took at least one PSEO course was also similar among the two district types.
- ~ Based on the 2006-07 Local Report Card data from the Ohio Department of Education (ODE), approximately 80 percent of Appalachian Ohio public school districts and 89 percent of public school districts in the rest of the state reported having at least one 2006 high school graduate enrolled in the Ohio College Tech Prep program. Overall, approximately 14 percent of Appalachian high school graduates in 2006 and 13 percent of non-Appalachian high school graduates participated in Ohio College Tech Prep.
- ~ Approximately 58 percent of Appalachian Ohio districts had one or more 2006 high school graduates taking an Advanced Placement test, while 72.5 percent of non-Appalachian districts in Ohio had one or more 2006 graduates taking an Advanced Placement test.
- ~ Approximately 40 percent of recent graduates from high schools in Appalachian Ohio enrolled in Ohio colleges in 2004. Statewide, approximately 45 percent of recent graduates enrolled in Ohio colleges that same year. Appalachian Ohio's enrollment in Ohio colleges was five to seven percentage points below the statewide percentage each year from 2001 through 2005. These figures do not include recent graduates enrolling in college in other states, or some students enrolled in Ohio's private colleges and not receiving state aid. Statewide, the Ohio Board of Regents estimates the overall college going rate of recent graduates in 2004 as 57 percent. Assuming that Appalachian Ohio lags behind the rest of the state by the overall margin of five to seven percentage points as indicated by the in-state data, the college going rate for Appalachian Ohio can be estimated at approximately 51 percent. This rate is up considerably from the 1992 estimate of between 31 and 43 percent. However, since Appalachian Ohio has a population with lower educational attainment than Ohio as a whole, increased progress related to higher education participation

is needed for this region to achieve parity with the rest of the state.

- ~ The percentage of first generation college students is higher for Appalachian Ohio than for the rest of the state. The trend for the five years shown indicates that the proportion of first-generation college students is decreasing statewide.
- ~ Appalachian Ohio's persistence rate from first to second year of college is lower than that of the rest of the state. In addition, the percentage of all recent high school graduates in Ohio who continue to attend college after their first year has deteriorat-

ed from 2001 through 2005. One possible explanation for this decline in persistence is the increase in college tuition across the same five year period.

- ~ Ohio's future economic growth is seen as heavily dependent on an educated workforce with a focus on science, technology, engineering, and mathematics. Medical services fields are also predicted as high job-growth areas for the state. Based on the secondary data sources analyzed in this report, it appears that Appalachian Ohio students are increasingly seeking degrees in some fields that support the state's current and emerging growth sectors, especially the medical field.

INTRODUCTION

We know an educated workforce attracts jobs—economic forecasts show that more than 60 percent of new jobs will require a college degree. And yet, Ohio is...37th in producing college graduates. My goal is clear...In 10 years, we will increase the number of Ohioans with a college degree by 230,000, and we will increase the graduation rate among those who start college by 20 percent...If we do this right, education will feed the economy. Success will bring more success. And beneficiaries of our efforts will not only be students in the classroom, but all Ohioans.

~Ohio Governor Ted Strickland
State of the State Address, March 14, 2007

...The income concentration of today owes more to the generation of high incomes from work spurred by the imbalance between the demand for skilled workers and their available supply. Nonetheless, the trends are troublesome. Corporate managers persistently identify the lack of skilled workers as one of today's greatest ongoing problems and are willing to bid up pay packages to acquire them.

~Alan Greenspan
The Age of Turbulence (2007), p. 398

This document is part of an effort to get a current picture of higher education in Appalachian Ohio, looking specifically at the characteristics, college readiness behaviors, rates of college enrollment, and college choices of recent high school graduates as well as profiling the higher education institutions in the region. Appalachian Ohio is defined by most, and for this study, as the 29 counties in the southern and southeastern portion of the state that were designated “Appalachian” by the federal government following the Appalachian Regional Development Act of 1965. Appalachian Ohio is of particular importance for policy research, as the region has historically had a lower college going rate, a less educated workforce, and higher rates of poverty and overall unemployment than the rest of the state. Increasing the educational attainment level of Appalachian Ohio residents will allow individuals, the region, and the state as a whole to be more competitive in the increasingly

knowledge-driven economy.

This study updates and builds upon previous college access research, most notably the 1992 Access and Success study. Through secondary data analysis and surveys of high school seniors, parents, and high school counselors, that study found that the college going rate in the Appalachian Ohio counties was substantially lower than state and national rates. In fact, the report concluded that Appalachian Ohio’s college going rate in the early 1990s was 10 to 20 percent lower than the state of Ohio as a whole and 20 to 30 percent lower than the national college going rate at the time. While 80 percent of the high school seniors surveyed indicated they wanted to continue their education beyond high school, it was estimated that only about one third actually went to college. The study identified individual, familial, institutional and regional influences affecting college access.¹

Five research questions are addressed in this report. They include:

1. What percentage of high school students living in Appalachian Ohio attends college or some form of postsecondary education?
2. Where do high school students living in Appalachian Ohio seek higher education degrees? In what fields are they seeking these degrees?
3. Are the selected areas of study of students entering higher education congruent with Ohio’s current and projected workforce needs?
4. Of the high school students living in Appalachian Ohio who attend college, what percentage returns for the second term of their entry year? What percentage persists to a degree or certification?

¹ Crowther, T., Lykens, D., & Spohn, K. (1992). *Report of the Appalachian Access and Success Project to the Ohio Board of Regents*. Athens: Institute for Local Government Administration and Rural Development, Ohio University/Shawnee State University.

5. What are the college readiness behaviors of high school students living in Appalachian Ohio?

The report also identifies gaps and compatibility issues of the secondary data sources as well as areas for further research throughout the two-year project.

Description of Data Sources

Multiple sources were tapped to provide data for the analyses included in this report, and references are provided for each source. The majority of information utilized to address the research questions came from three key data sources, each of which is described below.

Ohio Board of Regents

Much of the data on college going rate, college readiness behaviors, and specific trajectories from county of residence or high school to specific colleges in Ohio were extracted from the Ohio Board of Regents' Higher Education Information (HEI) system. This system contains data supplied by Ohio's colleges and universities. The HEI system includes data on students, finances, faculty, and infrastructure of Ohio's institutions of higher education. Student data include percentages of students who attend specific postsecondary institutions by high school and county, degree choices, pre-college readiness behaviors such as college entrance exams, etc. Institutions report data based on yearly reporting schedules and the data are maintained by year, enabling some trend analysis. Establishment of the HEI database allows for a more comprehensive and accurate analysis of statewide and regional college going rates than was previously possible. For example, the 1992 Access and Success study relied on reports from high school counselors on the college going rate for individual high schools, and the report acknowledged the high error rate of those self reports. One limitation of HEI data is that High School Transition Reports and other databases do not track students who choose to go out of state for higher education or attend private institutions that do not report data to the Ohio Board of Regents for all students, including part-time students not receiving Ohio Choice grants.²

Ohio Department of Education Local Report Cards

The Ohio Department of Education (ODE) makes available all public school district- and building-level accountability data via an online data warehouse. Beginning with the 2006-07 Local Report Cards, ODE is reporting some college readiness indicators such as percent of students participating in Tech Prep or Postsecondary Enrollment Options programs, taking and passing Advanced Placement Exams, etc. These data have been included in this report to supplement the college readiness data available through the Ohio Board of Regents databases.

National Center for Education Statistics Integrated Postsecondary Education Data System

The Integrated Postsecondary Education Data System (IPEDS) of the National Center for Education Statistics (NCES) collects and maintains publicly accessible information on postsecondary institutions nationwide for purposes of accountability related to the U.S. Department of Education. All postsecondary institutions that participate in federal student aid programs are required to report data to NCES.

IPEDS College and University Profiles

IPEDS databases were used to describe the landscape of postsecondary education in Appalachian Ohio. This includes institutions located within the 29 county region as well as those located in West Virginia and Kentucky that are known anecdotally to serve a significant number of students from these counties. These out-of-state schools are located in counties adjacent to the Appalachian Ohio region, or in urban areas within 50 miles of a county in the region. In total, 34 institutions are included in this profile of postsecondary schools serving Appalachian Ohio.

Within this profile, institutions are classified based on their source of control (public or private) and level (two- or four-year). There are 24 public schools and 10 private schools. Fifteen of these institutions are two-year, and nineteen are four-year. Only one school, Chatfield College, is a private two-year institution. The remaining nine private schools are four-year. Fourteen of the public schools are two-year, and ten are four-year. Indicators are averaged or summarized over the institutions by source of control and level to provide

² Ohio Board of Regents (2005). *Making the Transition from High School to College in Ohio 2005: A Statewide Perspective*. Columbus, Ohio.

Table 1. Profile Institutions

ID#	Institution Name	Location	Type	Locale designation		Percent receiving federal grant aid	
				2001	2005	2001	2005
200873	Allegheny Wesleyan College	Salem, OH	B	4	41	79	62
201283	Belmont Technical College	Saint Clairsville, OH	C	4	23	59	57
201751	Chatfield College	Saint Martin, OH	A	7	42	78	65
205957	Franciscan University of Steubenville	Steubenville, OH	B	2	13	20	20
203155	Hocking College	Nelsonville, OH	C	6	32	41	45
203331	Jefferson Community College	Steubenville, OH	C	2	13	54	52
203456	Kent State University-East Liverpool Campus	East Liverpool, OH	C	4	31	57	65
203492	Kent State University-Salem Campus	Salem, OH	D	4	41	48	44
203483	Kent State University-Tuscarawas Campus	New Philadelphia, OH	C	6	41	44	43
203845	Marietta College	Marietta, OH	B	2	13	29	28
204264	Muskingum College	New Concord, OH	B	7	32	31	28
204820	Ohio University-Chillicothe Campus	Chillicothe, OH	D	6	32	50	55
204802	Ohio University-Eastern Campus	Saint Clairsville, OH	D	4	41	47	48
204857	Ohio University-Main Campus	Athens, OH	D	6	32	15	14
204839	Ohio University-Southern Campus	Ironton, OH	D	4	22	57	64
204866	Ohio University-Zanesville Campus	Zanesville, OH	D	5	32	43	46
205443	Shawnee State University	Portsmouth, OH	D	6	31	51	44
205966	Southern State Community College	Hillsboro, OH	C	6	41	47	51
206154	Tri-State Bible College	South Point, OH	B	4	22	*	100
201946	University of Cincinnati-Clermont College	Batavia, OH	C	7	21	33	39
205203	University of Rio Grande	Rio Grande, OH	B	7	42	20	49
206446	Washington State Community College	Marietta, OH	C	2	13	45	46
204255	Zane State College	Zanesville, OH	C	5	32	75	55
156231	Ashland Community and Technical College	Ashland, KY	C	2	13	50	63
157331	Maysville Community and Technical College	Maysville, KY	C	6	32	65	67
157386	Morehead State University	Morehead, KY	D	6	33	48	48
237181	Bethany College	Bethany, WV	B	7	41	24	36
237242	Cabell County Career Technology Center	Huntington, WV	C	2	22	14	25
444954	Marshall Community and Technical College	Huntington, WV	C	2	22	*	46
237525	Marshall University	Huntington, WV	D	2	22	31	27
237640	Ohio Valley University	Vienna, WV	B	2	23	89	33
238014	West Virginia Northern Community College	Wheeling, WV	C	2	13	60	68
237686	West Virginia University at Parkersburg	Parkersburg, WV	D	2	13	42	51
238078	Wheeling Jesuit University	Wheeling, WV	B	2	13	35	25

* Missing data

Table 2. Institutions Type

Type	Description	Total
A	Private not-for-profit, 2-year	1
B	Private not-for-profit, 4-year or above	9
C	Public, 2-year	14
D	Public, 4-year or above	10
Total		34

Table 3. Institutions Locale*

2001 Value	Label
1	Large city
2	Mid-size city
3	Urban fringe of large city
4	Urban fringe of mid-size city
5	Large town
6	Small town
7	Rural
2005 Value	Label
11	City: Large
12	City: Midsize
13	City: Small
21	Suburb: Large
22	Suburb: Midsize
23	Suburb: Small
31	Town: Fringe
32	Town: Distant
33	Town: Remote
41	Rural: Fringe
42	Rural: Distant
43	Rural: Remote
-3	{Not available}

*Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Institutional Characteristics, Student Financial Aid, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

Table 4. Profile Institution Subgroup

ID#	Institution Name	Location
201283	Belmont Technical College	Saint Clairsville, OH
203155	Hocking College	Nelsonville, OH
203331	Jefferson Community College	Steubenville, OH
203456	Kent State University-East Liverpool Campus	East Liverpool, OH
203492	Kent State University-Salem Campus	Salem, OH
203483	Kent State University-Tuscarawas Campus	New Philadelphia, OH
204820	Ohio University-Chillicothe Campus	Chillicothe, OH
204802	Ohio University-Eastern Campus	Saint Clairsville, OH
204839	Ohio University-Southern Campus	Ironton, OH
204866	Ohio University-Zanesville Campus	Zanesville, OH
205443	Shawnee State University	Portsmouth, OH
205966	Southern State Community College	Hillsboro, OH
201946	University of Cincinnati-Clermont College	Batavia, OH
205203	University of Rio Grande	Rio Grande, OH
206446	Washington State Community College	Marietta, OH
204255	Zane State College	Zanesville, OH

a more overall picture of postsecondary education in Appalachian Ohio. All the schools within this profile are operated as nonprofit organizations; there are no private for-profit institutions serving this area.

Geographic level

In selecting the institutions to include in the profile, the researchers encountered a primary limitation of the national postsecondary institution database. While the residence of first-time, full-time degree- or certificate-seeking undergraduates is a variable collected by IPEDS, it is collected at the state level. County-level counts cannot be extracted to determine the enrollment of Appalachian Ohio students for any institution. County-level data would have enabled the researchers to identify any postsecondary school nationwide with students enrolled from Appalachian Ohio counties.

Additionally, Appalachian institutions cannot be isolated by any current designation in IPEDS relating to rural or low-income serving institutions.³ Selecting institutions using the IPEDS degree of urbanization variables (any rural designation) and percent of full-time, first-time degree- or certificate-seeking students

3 As of 2005, IPEDS uses urban-centric locale codes to identify the geographic status of a school on an urban continuum ranging from “large city” to “rural.” They are assigned through a methodology developed by the U.S. Census Bureau’s Population Division in 2005. The NCES locale codes used on IPEDS files through 2004 were less specific. Low-income serving institutions are defined as those having at least 50% of full-time first-time degree/certificate-seeking students receiving federal grant aid. (Source: Goan, S.K., & Cunningham, A.F. (2007). *Differential Characteristics of 2-Year Postsecondary Institutions* (NCES 2007-164). Washington, DC: U.S. Department of Education, National Center for Education Statistics.)

receiving federal grant aid (at least 50 percent) does not identify all the institutions in Appalachian Ohio, or presumably for any area designated in Appalachia.

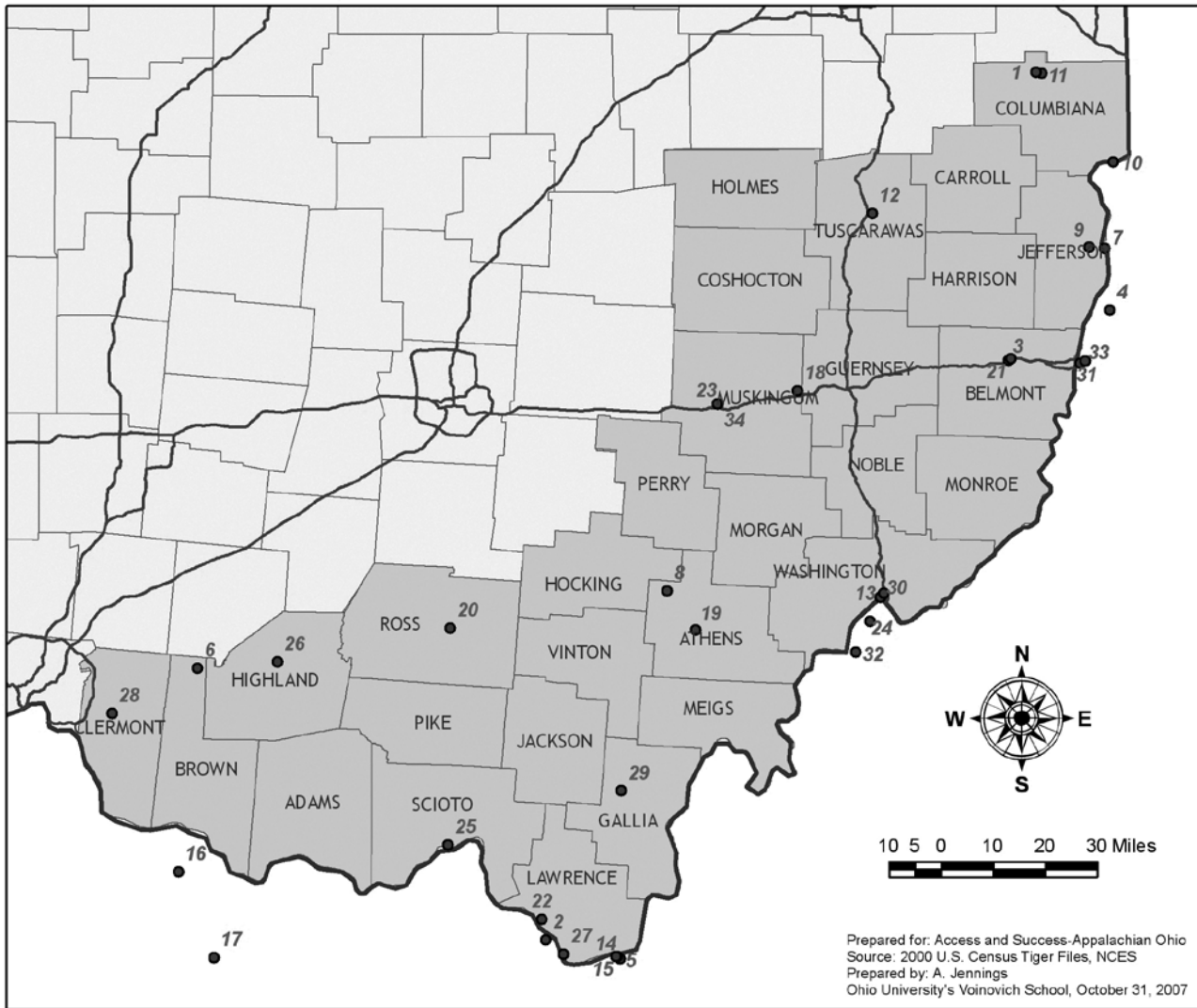
Profiles

Indicators applicable to the Appalachian Ohio institutions were selected from the IPEDS Peer Analysis System (<http://nces.ed.gov/ipeds/pas>). The data were accessed from the Institution Level and downloaded to create tables displaying the information on each school and to provide an overall profile of the institutions in Appalachian Ohio. The focus institution selected was Ohio University – main campus, and the 33 other schools were added as comparison institutions. These schools were accessed by using the IPEDS ID number found through the NCES College Navigator online search tool (<http://nces.ed.gov/collegenavigator>) for the institutions known to serve Appalachian Ohio, as described above.

Within this group of profile institutions that are located in the 29 Appalachian Ohio counties or in contiguous counties of border states, a subgroup of institutions was identified in order to look more specifically at Appalachian Ohio students. This subgroup includes the 16 institutions in the region identified as having 50 percent or more of their total enrollment from Appalachian Ohio counties.⁴ Table 4 indicates the subgroup of profile institutions.

4 Higher Education Information System - *Autumn Enrollment by County: 2006* [Data file]. Columbus: Ohio Board of Regents. Total enrollment includes all enrolled, including postsecondary options, certificate programs, and all degree programs. Total enrollment from Appalachian counties was divided by total enrollment for each institution.

Figure 1. Map of Appalachian Ohio Profile Institutions



Prepared for: Access and Success-Appalachian Ohio
 Source: 2000 U.S. Census Tiger Files, NCES
 Prepared by: A. Jennings
 Ohio University's Voinovich School, October 31, 2007

Profile Institutions

- 1 Allegheny Wesleyan College
- 2 Ashland Community and Technical College, KY
- 3 Belmont Technical College
- 4 Bethany College, WV
- 5 Cabell County Career Technology Center, WV
- 6 Chatfield College
- 7 Franciscan University of Steubenville
- 8 Hocking College
- 9 Jefferson Community College
- 10 Kent State - East Liverpool
- 11 Kent State - Salem
- 12 Kent State - Tuscarawas
- 13 Marietta College
- 14 Marshall Community and Technical College, WV
- 15 Marshall University, WV
- 16 Maysville Community and Technical College, KY
- 17 Morehead State University, KY
- 18 Muskingum College
- 19 Ohio University
- 20 Ohio University - Chillicothe
- 21 Ohio University - Eastern
- 22 Ohio University - Southern
- 23 Ohio University - Zanesville
- 24 Ohio Valley University, WV
- 25 Shawnee State University
- 26 Southern State Community College
- 27 Tri State Bible College
- 28 University of Cincinnati - Clermont College
- 29 University of Rio Grande
- 30 Washington State Community College
- 31 West Virginia Northern Community College, WV
- 32 West Virginia University - Parkersburg, WV
- 33 Wheeling Jesuit University, WV
- 34 Zane State College

The student-level data available for this subgroup of institutions affords a more precise picture of Appalachian Ohio college students than that of the entire group of colleges included in the institutional profile, and this subset was used in this report to profile Appalachian students' areas of study and their congruence with Ohio's current and emerging workforce needs. Both profile sets are useful for extracting information from the national higher education data system to address the research questions in this study.

Not included in the profile institutions are Ohio colleges or universities outside the Appalachian region. It should be noted that a significant number of students from Ohio's Appalachian counties attend

institutions within Ohio but outside of the Appalachian region. The Ohio State University (OSU), for instance, is the destination for several hundred Appalachian Ohio students who choose an institution outside the Appalachian region. In 2006, approximately 3,000 students from the 29 Appalachian Ohio counties were enrolled at OSU.⁵ For the purposes of this report, OSU and other postsecondary institutions outside of the region were not profiled, as students from the region make up a relatively small percentage of their student bodies.

⁵ Higher Education Information System - Autumn Enrollment by County: 2006 [Data file]. Columbus: Ohio Board of Regents. Total enrollment includes all enrolled in all degree programs, including graduate programs.

COLLEGE ACCESS AND RETENTION

Critical factors were identified and analyzed to better understand Appalachian students' choices, successes, and issues related to college access and retention to degree completion. These included: 1) college readiness behaviors in high school; 2) postsecondary enrollment rates for first-time, full-time students who recently graduated from high school; 3) persistence rates for college students; and 4) degree completion rates for Appalachian Ohio postsecondary institutions.

College Readiness Behaviors of Appalachian Ohio High School Students

Research on college access tells us that the foundation for success in college must be laid well before a student enrolls. Choices and behaviors in high school, such as enrolling in rigorous courses, taking college entrance exams, and participating in high school-to-college bridge programs influence college enrollment and success.⁶ Both the Ohio Board of Regents and the Ohio Department of Education collect data on many of these readiness behaviors.

⁶ Lumina Foundation for Education. (2001). *What We Know*. Indianapolis, IN. Ohio Board of Regents. (2005). *Making the Transition from High School to College in Ohio 2005: A Statewide Perspective*. Columbus, Ohio. Ohio Board of Regents. (2007). *Performance Report for Ohio's Colleges and Universities, 2006*. Columbus, Ohio.

Rigorous high school curriculum

Table 5 summarizes five years of data on the percentage of students in Ohio's public school districts who take a high school curriculum that is either classified as "minimum college preparatory" or "core." A minimum college preparatory curriculum is defined by the Ohio Board of Regents as four courses in English and three courses each of math, science, and social studies. A core high school curriculum is defined as four courses of English, math, and social studies, and three science courses including biology, chemistry, and physics.

As the data indicate, Appalachian Ohio school districts, on average, have a lower percentage of students taking a high school curriculum to prepare them for college than non-Appalachian districts. These data are based on recent high school graduates enrolled as first-year college students. From 2001 to 2005, the percentage of Appalachian Ohio high school students taking both a minimum and a full core high school college preparatory curriculum remained relatively steady, while the rest of the state dropped slightly. In 2001, the district average percent of college freshmen from Appalachian high schools who had taken the minimum college prep curriculum was approximately 8 percentage points lower than for non-Appalachian high schools. By 2005, that gap had narrowed to 3 percentage points. The same pattern holds true for the core curriculum. In 2001, the gap between Appalachian and non-Appalachian high schools was almost 5 percent;

Table 5. Percent of first time college freshmen who took a high school curriculum to prepare for college

	2001	2002	2003	2004	2005
Ohio freshmen with minimum core	69.4	69.9	69.4	65.8	65.5
Appalachian freshmen with minimum core	62.5	64.9	62.7	61.9	62.6
Non-Appalachian freshmen with minimum core	70.3	70.6	70.3	66.3	65.8
Ohio freshmen with full core	23.6	23.4	22.8	21.6	21.2
Appalachian freshmen with full core	19.2	20.6	18.2	17.9	19.1
Non-Appalachian freshmen with full core	24.2	23.8	23.3	22.1	21.5

Source: Ohio Board of Regents Profiles of Recent Graduates Enrolled as First Year College Students, 2001-2005

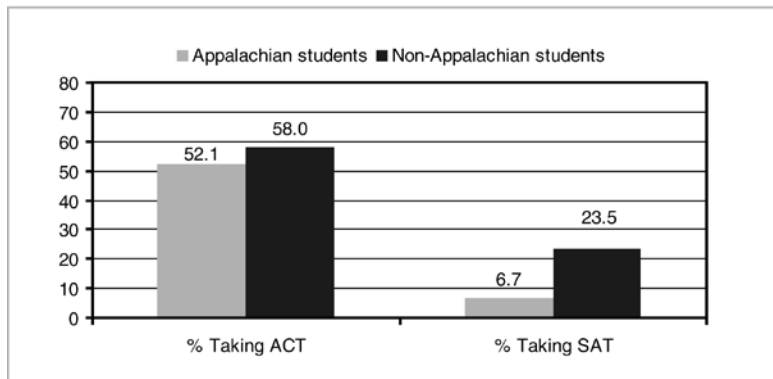
Table 6. District Average Percent of Students Taking College Courses While in High School

	2001	2002	2003	2004	2005
Ohio districts	7.5%	7.6%	8.0%	8.1%	9.2%
Appalachian Ohio districts	10.0%	8.1%	10.0%	9.5%	10.1%
Non-Appalachian Ohio districts	6.8%	7.4%	7.5%	7.7%	8.9%

Note: Percents based on unweighted average of district-level percentages.

Source: Ohio Board of Regents Profiles of Recent Graduates Enrolled as First Year College Students, 2001-2005

Figure 2. Percent of graduates taking college entrance exams 2005–06



Source: Ohio Department of Education Local Report Cards, 2006-07

in 2005 that gap had narrowed to just over 2 percent. However, this narrowing of differences between Appalachian and non-Appalachian students is not based on significant progress of Appalachian students, but on the slight decline in the percentage of students in the rest of the state choosing a rigorous high school curriculum.

College coursework while in high school

In recent years, Ohio has offered various options for high school students to enroll in college courses while still in high school. Those options include the Postsecondary Enrollment Options (PSEO) program and the Ohio College Tech Prep program. The data concerning students who take advantage of these and other early enrollment opportunities show that, among recent high school graduates enrolled as first-year college students in Ohio, Appalachian school districts, on average, have a slightly higher percentage of students taking at least one college course prior to graduating from high school.

Postsecondary enrollment options

The PSEO program was established by the Ohio General Assembly in 1989 to permit students from public or chartered high schools to earn college credit while

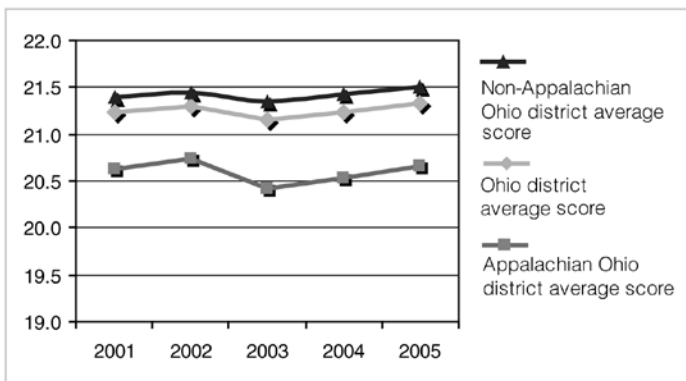
in high school through the successful completion of college courses. Based on the 2006-07 Local Report Card data from ODE, approximately the same percentage of Appalachian and non-Appalachian public school districts in Ohio reported having at least one 2006 high school graduate taking advantage of PSEO courses (46 percent of Appalachian districts and 47 percent of non-Appalachian districts). Another way to examine PSEO participation is to look at the average percentage of students in participating districts who take advantage of the option. Isolating only districts with any reported PSEO participation, the reported percentage of graduates in 2006 who took at least one PSEO course was also similar among the two district types, with approximately 6 percent of 2006 graduates, on average, in Appalachian districts and slightly over 8 percent of 2006 graduates, on average, in non-Appalachian districts taking advantage of the PSEO option.⁷

Ohio College Tech Prep

The Ohio College Tech Prep program, offered jointly by the Ohio Department of Education and the Ohio Board of Regents, allows students to explore career options, choose rigorous, relevant coursework, and often

⁷ Percentages based on unweighted average district-level percentages.

Figure 3. Average Entrance Exam Score (ACT Scale)



Note: Percents based on unweighted averages of District-level percentages

Source: Ohio Board of Regents Profiles of Recent Graduates Enrolled as First Year College Students, 2001-2005

Table 7. Average Entrance Exam Score (ACT scale)

	2001	2002	2003	2004	2005
Ohio district average score	21.2	21.3	21.2	21.2	21.3
Appalachian Ohio district average score	20.6	20.7	20.4	20.5	20.7
Non-Appalachian Ohio district average score	21.4	21.4	21.4	21.4	21.5

Note: Percents based on unweighted averages of District-level percentages

earn college credit while in high school.⁸ Based on the 2006-07 Local Report Card data from ODE, approximately 80 percent of Appalachian Ohio public school districts and 89 percent of public school districts in the rest of the state reported having at least one 2006 high school graduate enrolled in the Ohio College Tech Prep program while they were in high school. Overall, approximately 14 percent of Appalachian high school graduates in 2006 and 13 percent of non-Appalachian high school graduates participated in Ohio College Tech Prep.

College entrance exams

Taking a college entrance exam is another important college readiness activity in which high school students participate. Students who take a college entrance exam are proactively preparing to apply for and enter college. While not all colleges in Ohio require college entrance exams, high school counselors often encourage all students who are thinking about college to take the exams in order to be prepared if they decide to apply to a college that requires it. Figure 2 indicates Appalachian Ohio has a lower percentage of students taking college entrance exams than students in the rest of the state. The percentage is slightly lower for the ACT exam and

considerably lower for the SAT exam.

Academic achievement upon entrance to college can influence whether a student stays in college. Table 7 and figure 3 indicate that, for students who choose to take college entrance exams, students from Appalachian Ohio tend to lag behind the rest of the state on their college entrance exam scores. The change from year to year nearly parallels the rest of the state. In 2003, there was a 1.0 point difference between Appalachian Ohio and the rest of the state on students' average ACT exam score. In 2005, the difference was 0.8 points.

Advanced Placement

Advanced Placement (AP) courses are another important college readiness behavior for high school students, and Appalachian Ohio has historically lagged behind the rest of the state in the percentage of students taking AP courses. School administrators indicate that it is often difficult for small, rural districts to offer several AP courses because there are relatively few students interested and able to take the courses. Offering an AP science course for 5 or 6 students, for example, takes a class period of the science teacher's time and serves only a small number of students.

In order to offer Advanced Placement courses in small districts with limited resources, high schools are beginning to use technology to join multiple sites

⁸ Ohio College Tech Prep (2007). Retrieved October, 2007 from <http://www.techprephio.org>.

with one instructor. The Ohio Appalachian Center for Higher Education (OACHE), Ohio College Tech Prep, and other programs are partnering colleges and high schools to offer AP classes. Beginning with the 2006-07 District Report Cards, The Ohio Department of Education began providing data by school district on how many high school graduates have taken an AP course and the percentage of AP test takers scoring a 3 or above (a 3 is required to get college credit for the AP course). Figures 4 and 5 compare Appalachian and non-Appalachian districts based on the percentage of districts with at least one 2006-07 graduate taking an AP course and the percent of students receiving a 3 or above on an AP test. Only 57.5 percent of Appalachian Ohio districts had one or more 2006 graduates taking an AP test, while 72.5 percent of non-Appalachian districts in Ohio had one or more 2006 graduates taking an AP test.

Of those students who did take an AP test, those in Appalachian districts were less likely to earn at least a 3 on the test. The average percentage of 2006 graduates in Appalachian Ohio districts earning a 3 or above was 55 percent, compared to 65 percent for non-Appalachian districts (see figure 5).

These data can be used as baseline to measure the future progress of initiatives designed to increase students' access to, and selection of, AP courses.

The College Going Rate

In order to approximate the percentage of high school students from Appalachian Ohio attending some form of postsecondary education, records of students going from high school to college in Ohio were accessed from the Ohio Board of Regents Profiles of Recent Graduates Enrolled As First Year College Students datasets for the years 2001 through 2005. It is important to note that these data include only students who go to a college in Ohio that reports information to the Ohio Board of Regents and does not include those going out of state or to private, in-state institutions that do not report these data. Figure 6 shows the rate of in-state Ohio college enrollment for recent high school graduates for the five years from 2001 to 2005. Appalachian Ohio figures are approximately five to seven percentage points lower than the Ohio percentages each year for the five-year period.

Using national and state data, the Ohio Board of Regents estimates that 57 percent of Ohio's recent

high school graduates went directly on to college somewhere in the United States in 2004.⁹ If Appalachian Ohio's in-state college going rate for recent high school graduates is five to seven percentage points lower than the statewide rate, it can be estimated that the overall Appalachian Ohio college going rate is five to seven percentage points lower than the statewide estimate, or approximately 51 percent. This assumes that roughly the same percentage of Appalachian Ohio students are uncounted in the Ohio college figures, meaning the same rates of Appalachian Ohio students as students elsewhere in Ohio attend colleges in Ohio that do not report the data to the Ohio Board or Regents, or go out of state for school.

Although based on incomplete data, the 2004 estimated college going rate of 51 percent for Appalachian Ohio students is up significantly from the college going rate reported in the 1992 Access and Success study. In that study, the college going rate for Appalachian Ohio was estimated at somewhere between 31 and 43 percent. Based on estimates from school district personnel, these figures were problematic for reasons indicated in the original study, but represented the best data available at the time. The current two-year study will include surveys of high school and college students as well as data collection from Institutional Research offices, providing additional detail to strengthen the existing college going rate estimates.

First-generation college students

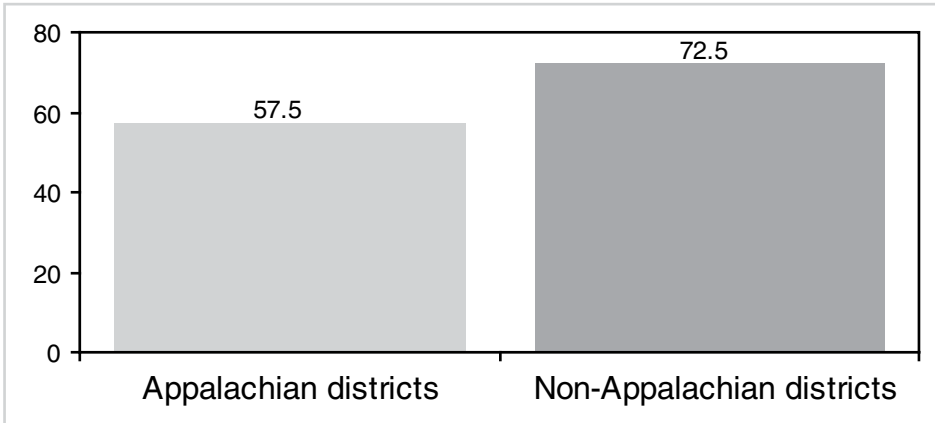
There are several factors to consider when predicting the needs of high school students making the decision to attend college. One important indicator is whether or not the student is among the first in his or her family to attend college.¹⁰ The Ohio Board of Regents tracks and reports first-generation college student enrollment by high school. These data are useful for describing the populations served by high schools and postsecondary institutions as well as for planning programs to serve first-generation college students who may need additional support to persist in higher education. Table 8 indicates the percentage of recent high school graduates enrolled as first-year college students at postsecondary institutions in Ohio who are first-generation college students.

The data indicate that the percentage of post-

⁹ Ohio Board of Regents (2005). *Making the Transition from High School to College in Ohio 2005: A Statewide Perspective*. Columbus, Ohio.

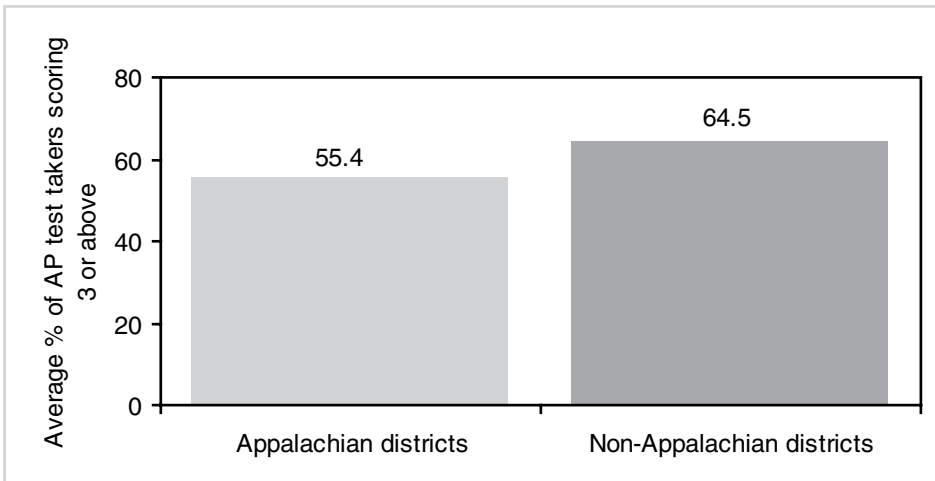
¹⁰ Lumina Foundation for Education (2001). *What We Know*. Indianapolis, IN.

Figure 4. Percent of districts with one or more graduates taking at least one AP test, 2005-06



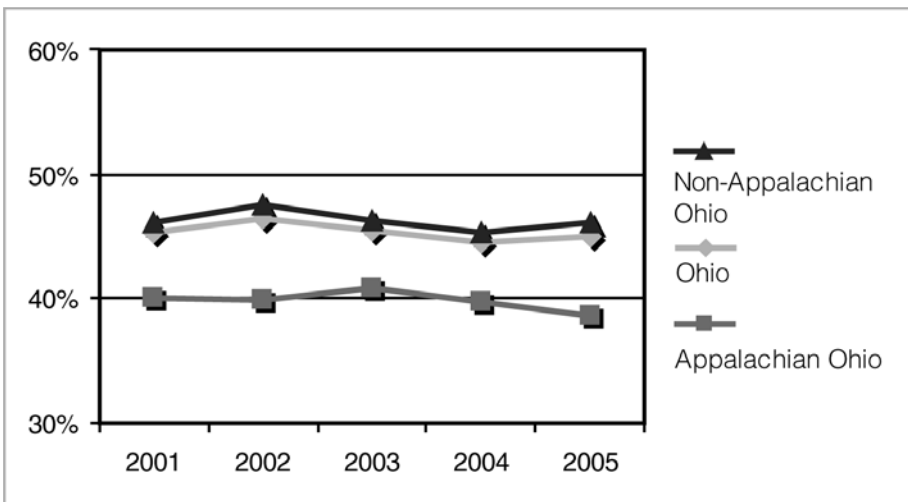
Source: Ohio Department of Education, Local Report Cards 2006-07

Figure 5. Percent of AP test takers with score of 3 or above



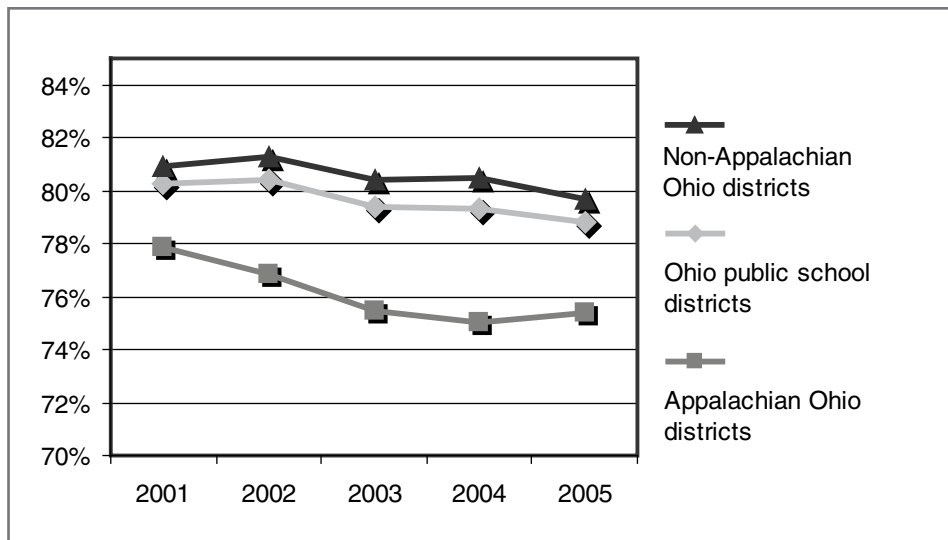
Source: Ohio Department of Education, Local Report Cards 2006-07

Figure 6. College going rate of recent graduates to Ohio colleges and universities



Source: Ohio Board of Regents Profiles of Recent Graduates Enrolled as First Year College Students, 2001-2005. Does not include some students enrolled in Ohio colleges, such as part-time students in private colleges not receiving the Ohio Choice grant.

Figure 7. Average persistence to second year for students from Ohio public school districts enrolled in Ohio colleges



Source: Ohio Board of Regents Profiles of Recent Graduates Enrolled as First Year College Students, 2001-2005

Table 8. First-generation college students

	2001	2002	2003	2004	2005
Ohio	46.2%	43.6%	44.0%	43.3%	42.8%
Appalachian Ohio	53.7%	50.9%	52.9%	51.9%	51.2%
Non-Appalachian Ohio	45.0%	42.5%	42.7%	42.0%	41.6%

Source: Ohio Board of Regents Profiles of Recent Graduates Enrolled as First Year College Students, 2001-2005

secondary students who are first generation college students is higher for Appalachian Ohio than for the rest of the state. A larger proportion of Appalachian Ohio students are the first in the family to attempt to educate themselves beyond a high school diploma. The trend for the five years shown indicates that the proportion of first-generation college students is decreasing statewide.

Persistence in Postsecondary Programs

Getting to college is a necessary but insufficient component of access and success. The longer students stay in a postsecondary program, the more they increase their viability in the workforce and their lifelong earning potential.¹¹ Figure 7 summarizes data from the Ohio Board of Regents on persistence from the first to the second year of college for students enrolled in Ohio colleges and universities. Based on an average of percentages by school district, it is clear that Appalachian Ohio's persistence rate is lower than that of the rest of the state. The pattern also indicates that persistence from first to second year has deteriorated for all recent high school graduates from 2001 through 2005. According to the available data, Appalachian

Ohio students experienced a more precipitous drop in persistence from 2001 to 2004 than the rest of the state, but showed a slight upswing from 2004 to 2005. One possible explanation for the overall deterioration in persistence is the recent increases in college tuition. All types of public postsecondary institutions in Ohio have experienced tuition increases in recent years. For instance, from FY 2005-06 to FY 2006-07, technical colleges experienced an average tuition increase of 6 percent.¹²

Retention, Graduation and Transfer

National databases can be used to access retention, graduation and transfer data for all institutions in Appalachian Ohio and six institutions from border counties in West Virginia and Kentucky known to serve significant numbers of Appalachian students. Although the available data include information for all students attending these campuses (not just students from Appa-

¹¹ Governor's Commission on Higher Education and the Economy (2004). *Building on Knowledge, Investing in People: Higher Education and the Future of Ohio's Economy*. Columbus, Ohio.

¹² Ohio Board of Regents (2007). *The Performance Report for Ohio's Colleges and Universities, 2006*. Columbus, OH.

Table 9. Retention rates of first-time part-time bachelor’s (or equivalent) degree-seeking undergraduates enrolled in fall and re-enrolled the following fall for profile institutions

		Average Retention Rates			
		2003	2004	2005	2006
Private not-for-profit, 2- year	Full-time	*	31.0	56.0	41.0
	Part-time	*	13.0	29.0	50.0
Private not-for-profit, 4- year or above	Full-time	75.8	75.3	70.6	70.7
	Part-time	66.0	51.5	36.7	62.0
Public, 2-year	Full-time	62.0	56.6	57.9	58.9
	Part-time	51.3	48.6	42.9	51.5
Public, 4-year or above	Full-time	62.6	63.5	62.6	61.5
	Part-time	33.9	51.1	41.6	44.5

* Missing data

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Enrollments, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

Note: Profile institutions include the colleges located within the 29 Appalachian Ohio counties as well as some located in WV and KY that serve a number of students from Appalachian Ohio

lachian Ohio counties), the rates can provide some indication of the trends in student retention, graduation, and transfer. The IPEDS variables used are: a) Full-time and part-time retention rates (under Enrollments – Retention Rates); b) Graduation rate, total cohort (under Frequently Used / Derived Variables); and c) Transfer-out rate, total cohort (under Frequently Used / Derived Variables).

Retention rate

IPEDS defines the 2003 retention rate as the percent of the fall cohort of first-time degree/certificate seeking undergraduates (minus exclusions from the 2002 fall cohort) that re-enrolled at the institution as either full- or part-time in fall 2003. Exclusions include students who left the institution for the following reasons: death, total and permanent disability, military service, official church mission service, or foreign aid service of the Federal Government, such as in the Peace Corps. Students enrolled for the first-time in the preceding summer term are also included in the fall 2002 cohort. Students that completed a program prior to fall 2003 are included in the re-enrollment count for two-year and less-than four-year institutions. Retention rates are available for 2003 to 2006.

With the exception of the private two-year institution in 2006, the average retention rate in all types of institutions in the profile was higher for full-time students than part-time students in all years from

2003 to 2006. However, the part-time retention rate is more sensitive to changes in the percentage of students retained because there are fewer part-time students enrolled, especially for some of the private four-year institutions.

The private four-year institutions in the profile had the highest average retention rates in all years except 2005. The full-time rate dropped for 2005 and 2006 (70.6 and 70.7 percent) compared to 2003 and 2004 (75.8 and 75.3 percent).

Among the private four-year institutions, Tri-State Bible College had the highest full-time retention rate, at 100 percent for the years when data is available. There was little distinction among the other four-year private institutions. Cabell County Career Technology Center also had high full-time retention rates, around 90 percent, while the remaining public two-year institutions had similar rates ranging between 52 and 64 percent for 2003 through 2006. Retention rates for public four-year institutions also generally hovered between 53 and 64 percent over the period. Ohio University’s main campus had the highest full-time retention rate within this category (above 80 percent) but showed decreasing rates each year from 83 percent in 2003 to 80 percent in 2006.

The Appalachian Ohio institutions profiled had similar retention rates to the average nationwide for both full-time and part-time students in 2004. Public four-year institutions in the profile had slightly higher retention rates than the nation for both full- and part-

Table 10. Retention rates of first-time part-time bachelor's (or equivalent) degree-seeking undergraduates enrolled in fall for profile institutions*

Sector	Institution Name	Full-time Retention Rates				Part-time Retention Rates			
		2003	2004	2005	2006	2003	2004	2005	2006
Private not-for-profit, 2-year	Chatfield College	*	31	56	41	*	13	29	50
	Allegheny Wesleyan College	*	74	63	50	*	53	100	20
Private not-for-profit, 4-year or above	Bethany College	81	80	74	66	*	*	*	*
	Franciscan University of Steubenville	85	87	86	80	*	67	0	100
	Marietta College	77	71	73	67	*	45	15	78
	Muskingum College	*	73	69	73	*	*	*	*
	Ohio Valley University	70	61	74	68	*	0	0	*
	Tri-State Bible College	*	100	*	100	*	100	50	100
	University of Rio Grande	66	61	54	60	66	44	55	14
	Wheeling Jesuit University	*	71	72	72	*	*	*	*
	Public, 2-year	Ashland Community and Technical College	52	50	57	57	43	41	43
Belmont Technical College		58	56	53	53	48	64	42	45
Cabell County Career Technology Center		90	87	90	92	95	88	90	86
Hocking College		56	52	52	57	47	29	32	39
Jefferson Community College		58	43	48	54	40	62	30	48
Kent State University-East Liverpool Campus		*	59	67	62	*	55	47	56
Kent State University-Tuscarawas Campus		*	59	57	65	*	40	52	71
Marshall Community and Technical College		†	46	47	53	†	42	51	47
Maysville Community and Technical College		58	45	48	59	35	31	14	52
Southern State Community College		*	53	53	49	*	41	35	48
University of Cincinnati-Clermont College		*	62	63	62	*	57	36	52
Washington State Community College		*	63	59	49	*	55	49	53
West Virginia Northern Community College		*	53	52	53	*	38	38	33
Zane State College		*	64	64	59	*	37	42	49
Public, 4-year or above	Kent State University-Salem Campus	*	64	61	54	*	61	44	46
	Marshall University	72	70	72	73	39	52	41	44
	Morehead State University	*	68	66	69	*	53	33	62
	Ohio University-Chillicothe Campus	57	58	54	55	34	33	33	28
	Ohio University-Eastern Campus	66	57	57	53	*	75	0	29
	Ohio University-Main Campus	83	82	81	80	60	78	63	70
	Ohio University-Southern Campus	56	53	54	54	33	40	80	50
	Ohio University-Zanesville Campus	62	66	60	56	43	33	25	27
	Shawnee State University	58	55	61	60	20	26	38	29
West Virginia University at Parkersburg	47	62	60	61	8	60	59	60	

† Institution not active in current year
* Missing data

Table 11. 2004 Retention Rate Summary**

2004 Retention Rate		Profile Institutions	National Institutions
Private not-for-profit, 2-year	Full-time	31.0	71.2
	Part-time	13.0	59.5
Private not-for-profit, 4-year or above	Full-time	75.3	74.0
	Part-time	51.5	59.3
Public, 2-year	Full-time	56.6	57.6
	Part-time	48.6	41.1
Public, 4-year or above	Full-time	63.5	59.6
	Part-time	51.1	49.9

* Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Enrollments, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

**Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Enrollments, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

Table 12. 2005-2006 Graduation rates (150% of normal time) and transfer-out rates as of August 31, 2006 for profile institutions

	Cohort year	Average Graduation rate (%)	Average Transfer-out rate (%)
Private not-for-profit, 2-year	2002	16.7	9.3
Private not-for-profit, 4-year or	1999	56.5	3.9
Public, 2-year	2002	27.9	10.7
Public, 4-year or above	1999	32.3	20.9

Source: U.S. Department of Education, National Center for Education Statistics, *Integrated Postsecondary Education Data System, Graduation Rates, Collection Years 2001 to 2006*; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

time students, and the public two-year retention rate for part-time students is noticeably higher than the national benchmark. The 2004 retention rates for the single private two-year institution profiled were significantly lower than the national benchmark (see table 11).

Graduation rate

The most recently available graduation rate is defined as that of first-time, full-time degree- or certificate-seeking students for the 1999 cohort (four-year institutions) and 2002 cohort (less-than-four-year institutions) who completed within 150 percent of the anticipated time necessary to finish their chosen program.

The private four-year institutions in the profile had the highest average graduation rate (56.5 percent). The public two-year and four-year institutions had average rates of 27.9 percent and 32.3 percent respectively, and the region's only private two-year institution had a 16.7 percent graduation rate (see table 12).

Two of the private four-year institutions had a graduation rate over 60 percent, Bethany College and Franciscan University of Steubenville. Overall, the rates within this category ranged from 38.9 percent to 68.0 percent. Of the public two-year institutions, Cabell County Career Technology Center had the highest graduation rate at 89.8 percent while similar institutions' graduation rates ranged between 7.2 percent and 40.3 percent. Ohio University's main campus had the highest rate for public four-year institutions, at 70.9 percent (see table 13).

Comparing average graduation rates among the profile institutions by type with the nationwide graduation rate by type shows that the public two-year institutions in Appalachian Ohio have a higher graduation rate than the national benchmark. Two thirds of the

public two-year institutions in the profile have higher graduation rates than the national average.

The private and public four-year institutions have lower average graduation rates than institutions nationwide. Ohio University's main campus, Bethany College and Franciscan University of Steubenville are the only four-year institutions in the profile to surpass the national benchmark for graduation rates. Muskingum College meets the nationwide graduation rate.

Transfer-out rate

The transfer-out rate is the percentage of students in the 1999 or 2002 cohort (first-time degree/certificate seeking undergraduates) that is known to have transferred out of the reporting institution within 150 percent of the normal time necessary to graduate. The data collection screen for this item in IPEDS states, "A school is required to report only on those students that the school knows have transferred to another school. A school must document that the student actually transferred. If it is not part of your mission, you may report transfer-out data if you wish ... you must enter at least one zero in a field on this screen."¹³ It is important to note this caveat stating the provision for not reporting the number of students who transfer out of the institution when interpreting these data.

On average, the reported transfer rate of the 1999 cohort in public four-year institutions is over 20 percent. The two-year institutions averaged around 10

¹³ The Integrated Postsecondary Education Data System (IPEDS) - Web-based Data Collection Screens: 2005-06 [Data Input Instructions]. Atlanta, GA: National Center for Education Statistics. Retrieved October 25, 2007, from <http://nces.ed.gov/ipeds/surveys/>. The documented changes to the surveys for 2006-2007 include no changes to the graduation rates section of data entry surveys.

Table 13. Graduation rates (150% of normal time) and transfer-out rates as of August 31, 2005 for profile institutions*

Type	Institution name	Cohort year	Graduation rate (%)	Transfer-out rate (%)
Private not-for-profit, 2-year	Chatfield College	2002	16.7	9.3
	Allegheny Wesleyan College	1999	38.9	0.0
Private not-for-profit, 4-year or above	Bethany College	1999	68.0	30.9
	Franciscan University of Steubenville	1999	74.6	0.0
	Marietta College	1999	56.0	0.0
	Muskingum College	1999	63.9	0.0
	Ohio Valley University	1999	52.3	0.0
	University of Rio Grande	1999	38.5	0.3
	Wheeling Jesuit University	1999	60.0	0.0
	Public, 2-year	Ashland Community and Technical College	2002	21.7
Belmont Technical College		2002	29.0	7.8
Cabell County Career Technology Center		2002	89.8	1.2
Hocking College		2002	25.6	17.2
Jefferson Community College		2002	24.3	11.8
Kent State University-East Liverpool Campus		2002	10.5	14.7
Kent State University-Tuscarawas Campus		2002	16.7	11.7
Marshall Community and Technical College		2002	7.2	20.2
Maysville Community and Technical College		2002	40.3	7.0
Southern State Community College		2002	24.1	21.9
University of Cincinnati-Clermont College		2002	19.9	8.9
Washington State Community College		2002	38.0	0.0
West Virginia Northern Community College		2002	12.1	11.4
Zane State College		2002	31.4	0.0
Public, 4-year or above		Kent State University-Salem Campus	1999	20.1
	Marshall University	1999	43.0	16.1
	Morehead State University	1999	36.5	0.0
	Ohio University-Chillicothe Campus	1999	23.0	26.8
	Ohio University-Eastern Campus	1999	28.6	38.9
	Ohio University-Main Campus	1999	70.9	21.2
	Ohio University-Southern Campus	1999	22.8	14.8
	Ohio University-Zanesville Campus	1999	32.5	33.3
	Shawnee State University	1999	26.5	20.9
West Virginia University at Parkersburg	1999	18.9	18.6	

Table 14. Average graduation rates by type for profile institutions and nationally**

Type	Graduation rates	
	Profile *	National **
Public, 4-year or above	32.3%	52.6%
Public, 2-year	27.9%	23.9%
Private not-for-profit, 4-year or above	56.5%	63.5%
Private not-for-profit, 2-year	16.7%	58.1%

*Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Graduation Rates, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

** Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Graduation Rates, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

Table 15. Average in-state tuition and fees for profile institutions

Type of institution	2001	2002	2003	2004	2005	2006
Private not-for-profit, 4-year or above	12,640	12,099	11,534	12,081	13,607	14,334
Private not-for-profit, 2-year	5,125	5,500	5,875	6,250	7,000	7,000
Public, 4-year or above	3,041	3,449	3,859	4,232	4,427	4,703
Public, 2-year	2,313	2,623	2,807	2,967	3,031	3,186

Source: U.S. Department of Education, National Center for Education Statistics, *Integrated Postsecondary Education Data System, Student Charges, Collection Years 2001 to 2006*; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

percent, and the private four-year institutions had the lowest average at 3.9 percent (see table 12).

Nearly all private four-year institutions show a transfer rate of 0.0 percent. Because transfer-out rate is an optional IPEDS field in the data collection system and is dependant upon the mission of the institution, there may be students that transferred out of these institutions unknown to the institution or that the institution did not report. However, Bethany College reported a transfer-out rate of 30.9 percent, one of the highest of all institutions in the profile.

The public two-year institutions that reported transfer-out data had transfer rates between 7.2 percent and 21.9 percent. Marshall Community and Technical College and Southern Community College both had rates over 20 percent.

The public four-year institutions not associated with Ohio University reported transfer rates between 16.1 percent and 21.2 percent. Ohio University's main campus had a transfer-out rate of slightly over 20 percent.

Tuition Trends

Using the national databases, tuition trends for all institutions in Appalachian Ohio and the select institutions from border counties in West Virginia and Kentucky can be analyzed. Tuition cost is a variable that affects access, persistence, and degree completion for students throughout the state, and may be particularly salient for a large percentage of Appalachian Ohio students because their family income is, on average, lower than that of the rest of the state.

The tuition and fees for each institution were compared using the average for each year for all undergraduates. Tuition may be charged per term, per course, or per credit. The IPEDS variables used are listed under Student Charges as student charges for undergraduate and graduate students (academic year

programs). The variables selected were: a) in-district average tuition for full-time undergraduates; b) in-state average tuition for full-time undergraduates; and c) out-of-state average tuition for full-time undergraduates. Data were obtained for the academic years 2001-02 through 2006-07 in order to coincide with data obtained from the Ohio Board of Regents used in other parts of this study.

For comparison purposes, national data was obtained from the report, *Changes in Patterns of Prices and Financial Aid*, published by the National Center for Education Statistics (NCES) in November 2005.¹⁴ Although the data utilized by NCES is from 2001-02, this is the most recent report available detailing the on-campus price of attendance at the national level.

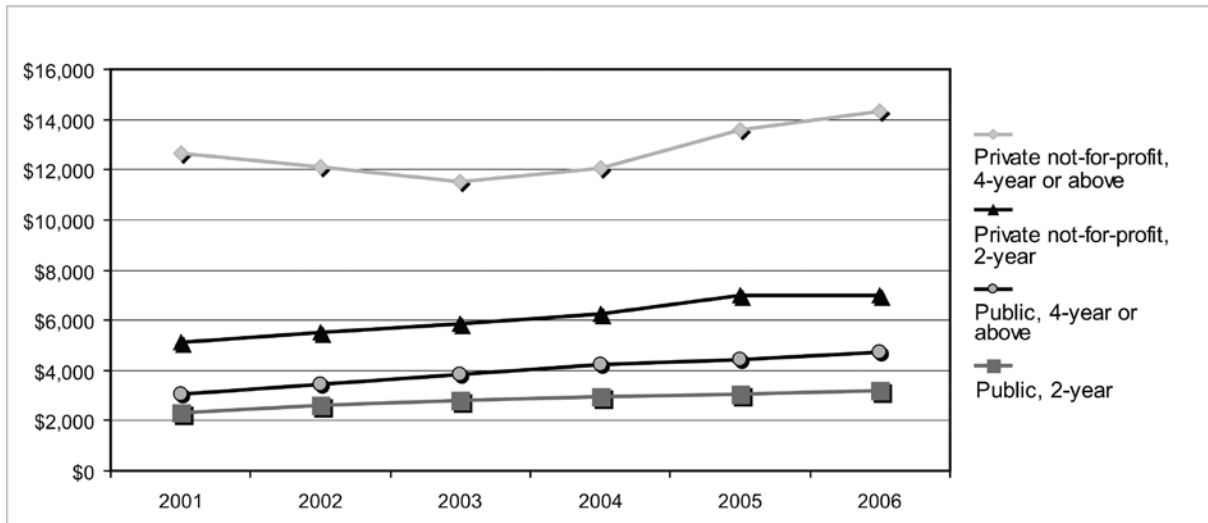
In-state tuition and fees

Two institutions provide an in-district discount over the in-state tuition and fees: Jefferson Community College and University of Rio Grande. At Jefferson Community College, this discount amounted to \$150 from 2001-2004, increasing to \$180 for 2005 and 2006. University of Rio Grande provided a discount that varied from year to year (2001-2002: \$192; 2003: \$557; 2004: \$105; 2005: \$238; 2006: \$240). Please note that these in-district variations are not reported in the tables devoted to comparing details related to in-state and out-of-state tuition and fees.

On average, private four-year institutions had the highest in-state tuition and fees in all years, followed in order by private two-year, public four-year, and then public two-year institutions. Also, the tuition trend at private four-year institutions differs from the

¹⁴ Cunningham, A.F. (2005). *Changes in Patterns of Prices and Financial Aid* (NCES 2006-153). Washington, DC: U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007, from <http://nces.ed.gov/pubsearch>.

Figure 8. Average in-state tuition and fees



other three types of institutions. The average in-state tuition and fees at private four-year institutions decreased from 2001 to 2003, then increased at a greater rate from 2004 to 2006, while the average in-state tuition and fees for the other three types of institutions increased steadily over the entire period (see table 15 and figure 8). Note that tuition and fees vary according to the number of courses and length of program, so a change in the average may represent a change in the courseload for the average student in response to the per-credit/course tuition.

The average in-state tuition and fees at private four-year institutions ranged from \$2,520 to \$20,650 in 2001, increasing to between \$3,360 and \$23,200 in 2006. Most institutions of this type showed steady average tuition increases from 2001-2006 of 3.5 percent to 7.6 percent annually. Most public two-year institutions showed a steady increase between 2001 and 2006, while Cabell County Career Technology Center held their average in-state tuition and fees at \$1,800 for all the years for which they reported tuition (2002 to 2006). Maysville Community and Technical College had a higher-than-average increase in in-state tuition from 2001 to 2004 (11.3 percent). However, a slight drop in average in-state tuition and fees in 2005 and a smaller increase in 2006 resulted in an overall average annual increase of 10.3 percent. Cabell County Career Technology Center and West Virginia Northern Community College, both in West Virginia, consistently had the lowest average in-state tuition and fees in the period.

Public four-year institutions had average in-state tuition and fees between \$1,436 and \$5,493 in 2001,

increasing to between \$1,746 and \$8,727 in 2006. Ohio University's main campus had the highest average cost for all years, and West Virginia University at Parkersburg had the lowest. Trends over time in four-year institutions, public and private, were steeper for Morehead State University and Shawnee State University, both with average annual increases over 10 percent.

The average in-state tuition for private and public four-year institutions was lower for the profile institutions of Appalachian Ohio than the national average, with the public institutions having a greater advantage over institutions nationwide than the private institutions. However, the public two-year institutions had average in-state tuition and fees 42.1 percent higher than the national average for institutions in this category.

Table 16. Average Undergraduate In-state tuition* trends

Type	Name	State	2001	2002	2003	2004	2005	2006	Average Annual Change
Private not-for-profit, 2-year	Chatfield College	OH	5,125	5,500	5,875	6,250	7,000	7,000	5.3%
Private not-for-profit, 4-year or above	Allegheny Wesleyan College	OH	2,520	3,000	3,360	3,360	3,360	3,360	4.9%
	Bethany College	WV	20,650	12,000	12,760	13,228	14,370	15,750	-4.4%
	Franciscan University of Steubenville	OH	13,520	14,020	14,670	15,320	16,070	16,970	3.9%
	Marietta College	OH	18,838	19,762	20,356	21,170	22,070	23,200	3.5%
	Muskingum College	OH	12,850	13,500	14,200	14,920	15,700	16,600	4.4%
	Ohio Valley University	WV	8,380	8,880	9,500	10,740	11,700	12,750	7.2%
	Tri-State Bible College	OH	**	**	4,800	4,800	4,800	4,800	0.0%
	University of Rio Grande	OH	8,736	9,168	6,449	6,015	13,392	13,530	-6.0%
	Wheeling Jesuit University	WV	15,625	16,463	17,710	19,175	21,000	22,050	5.9%
Public, 2-year	Ashland Community and Technical College	KY	1,450	1,920	2,370	2,760	2,352	2,616	10.3%
	Belmont Technical College	OH	2,400	2,496	2,496	2,592	2,688	2,916	3.3%
	Cabell County Career Technology Center	WV	**	1,800	1,800	1,800	1,800	1,800	0.0%
	Hocking College	OH	2,289	2,700	3,004	3,168	3,348	3,546	7.6%
	Jefferson Community College	OH	2,040	2,340	2,460	2,580	2,730	2,880	5.9%
	Kent State University-East Liverpool Campus	OH	3,002	3,707	3,968	4,326	4,586	4,770	8.0%
	Kent State University-Tuscarawas Campus	OH	3,002	3,707	3,968	4,326	4,586	4,770	8.0%
	Marshall Community and Technical College	WV	**	**	**	2,580	2,580	2,664	0.5%
	Maysville Community and Technical College	KY	1,450	1,920	2,370	2,760	2,352	2,616	10.3%
	Southern State Community College	OH	2,700	2,925	3,015	3,120	3,213	3,390	3.9%
	University of Cincinnati-Clermont College	OH	2,676	2,994	3,198	3,414	3,633	3,861	6.3%
	Washington State Community College	OH	2,442	2,917	3,150	2,940	3,192	3,129	4.2%
	West Virginia Northern Community College	WV	1,632	1,680	1,680	1,752	1,752	1,824	1.9%
	Zane State College	OH	2,670	2,991	3,015	3,420	3,623	3,825	6.2%
Public, 4-year or above	Kent State University-Salem Campus	OH	3,002	3,707	3,968	4,326	4,586	4,770	8.0%
	Marshall University	WV	2,236	2,468	2,746	3,340	3,454	3,572	8.1%
	Morehead State University	KY	2,710	2,926	3,364	3,840	4,320	4,870	10.3%
	Ohio University-Chillicothe Campus	OH	3,246	3,564	4,008	4,248	4,323	4,581	5.9%
	Ohio University-Eastern Campus	OH	3,246	3,564	4,008	4,248	4,323	4,581	5.9%
	Ohio University-Main Campus	OH	5,493	6,336	7,128	7,770	8,235	8,727	8.0%
	Ohio University-Southern Campus	OH	2,988	3,282	3,693	4,026	4,146	4,395	6.6%
	Ohio University-Zanesville Campus	OH	3,246	3,564	4,008	4,248	4,323	4,581	5.9%
	Shawnee State University	OH	2,808	3,528	4,050	4,608	4,896	5,202	10.8%
	West Virginia University at Parkersburg	WV	1,436	1,548	1,620	1,668	1,668	1,746	3.3%

* Average tuition and fees for all undergraduates
** Missing data

Table 17. Average in-state tuition and fees

Type of institution	Profile Institutions*	National Institutions**	Percent Difference
Private not-for-profit, 4-year or above	12,640	14,770	-14.4
Private not-for-profit, 2-year	5,125	#	n/a
Public, 4-year or above	3,041	4,141	-26.6
Public, 2-year	2,313	1,628	42.1
		# Data not published	

* Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Student Charges, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

** Source: Cunningham, A.F. (2005). *Changes in Patterns of Prices and Financial Aid (NCES 2006-153)*. U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/pubsearch>.

AREAS OF STUDY AND WORKFORCE PREPARATION

Success in accessing and completing a postsecondary program is an accomplishment in itself, and ideally leads to successful employees and productive citizens who make a living wage and help grow the state's economy. Individuals with more education earn more and generate more tax revenues. A recent College Board report indicates that, in 2005, the typical full-time worker in the U.S. with a bachelor's degree earned \$50,900, which was 62 percent more than the \$31,500 earned by the typical full-time worker with only a high school diploma.¹⁵ The lag in Ohio's per capita income compared to the national level is attributed in large part to the state's lower educational attainment rates.¹⁶ The goal is that an increasing number of Ohio's citizens will successfully complete a degree or certificate program in an area that has current and future employment opportunities. In order to design programs and supports that lead to this goal, policymakers and practitioners must have data on what college students from Appalachian Ohio are choosing to study and whether or not these areas of study are congruent with Ohio's current and projected workforce needs.

Ohio's Current and Projected Workforce Needs

An important research question in this study is whether or not college students from Appalachian Ohio are selecting areas of study congruent with Ohio's current and projected workforce needs. The Ohio Department of Job and Family Services' Bureau of Labor Market Information recently produced a series of reports highlighting the demand for employment in Ohio through the year 2014.¹⁷ The reports provide detail on the types of jobs that are projected to grow in the next decade and the workforce education levels necessary to support these growth industries.

In general, individuals with more education

and training will enjoy better job opportunities in the years ahead. Growth rates over the 2004-2014 period are estimated at 13.5 percent for occupations requiring some level of postsecondary training, compared to 4.9 percent for occupations requiring only on-the-job training or experience in a related job. Occupations that generally require a moderate amount of on-the-job training for a worker to achieve average job performance are projected to grow the slowest, reflecting the concentration of many production occupations in declining manufacturing industries. Educational cluster analysis also reinforces the point that all employment categories requiring any type of postsecondary training are expected to grow faster than the statewide average. This analysis shows the highest projected rate of job growth to be in categories where most workers have some college or a college degree.¹⁸

For the three economic development regions in Appalachian Ohio (see Appendix A), the specific industry sectors that are expected to grow from 2004 through 2014 are the service-providing sectors. The goods-producing sectors such as mining and manufacturing are expected to continue to decline throughout the period, with the exception of the construction sector. The service-providing sectors expected to experience the most growth for all three Appalachian Ohio economic development regions are financial activities; professional and business services (including professional, scientific and technical services); and education and health services (see Appendix B).

In addition to these general employment trend projections, Ohio's state leaders are making targeted investments designed to fundamentally shift the state's economy away from traditional manufacturing and goods production and towards knowledge-based enterprises likely to be more competitive in the global economy. Specifically, Ohio is focusing on several technology-based sectors for investment. This focus on technology industries is a national trend, and the data on job prospects and earnings potentials for individuals

¹⁵ Baum, S., & Ma, J. (2007). *Education Pays: The Benefits of Higher Education for Individuals and Society*. New York: College Board.

¹⁶ Ohio Board of Regents (2007). *The Performance Report for Ohio's Colleges and Universities, 2006*. Columbus, OH.

¹⁷ Ohio Department of Job & Family Services (2006). *Ohio Job Outlook to 2014*. Columbus, OH: Ohio Department of Job and Family Services.

¹⁸ Ohio Department of Job & Family Services (2006). *Ohio Job Outlook to 2014*. Columbus, OH: Ohio Department of Job and Family Services.

Table 18. Number and % of degrees* for top five program areas in each institution, 2005-2006
 Institutions with 50% or more of enrollment from Appalachian Ohio counties

Institution	Award level	Top Five Programs 2006	2006 Percent	2006 Number	2003 Number
University of Rio Grande	Bachelor's	Education	33%	57	
	Bachelor's	Business, management, marketing, and related support services	18%	32	
	Bachelor's	Health professions and related clinical sciences	10%	18	22
	Bachelor's	Communication, journalism, and related programs	6%	10	
	Bachelor's	Engineering technologies/technicians	5%	9	16
	Bachelor's	Social sciences	5%	9	
University of Rio Grande (Community College)	Associate	Health professions and related clinical sciences	58%	126	75
	Associate	Education	20%	43	
	Associate	Engineering technologies/technicians	8%	17	11
	Certificate	Business, management, marketing, and related support services	6%	12	
	Associate	Computer and information sciences and support services	3%	7	NA
Belmont Technical College	Certificate	Health professions and related clinical sciences	33%	108	57
	Associate	Health professions and related clinical sciences	16%	53	NA
	Associate	Business, management, marketing, and related support services	13%	44	
	Associate	Engineering technologies/technicians	13%	42	56
	Associate	Computer and information sciences and support services	9%	29	NA
Hocking College	Certificate	Natural resources and conservation	22%	641	600
	Certificate	Business, management, marketing, and related support services	24%	674	
	Certificate	Health professions and related clinical sciences	10%	290	319
	Certificate	Personal and culinary services	5%	155	
	Certificate	Agriculture, agriculture operations, and related sciences	4%	103	
Jefferson Community College	Certificate	Health professions and related clinical sciences	21%	49	57
	Associate	Liberal arts and sciences, general studies and humanities	16%	37	
	Associate	Business, management, marketing, and related support services	13%	31	
	Associate	Engineering technologies/technicians	10%	24	20
	Associate	Security and protective services	10%	23	
Kent State University-East Liverpool Campus	Associate	Health professions and related clinical sciences	78%	80	23
	Associate	Business, management, marketing, and related support services	9%	9	
	Associate	Liberal arts and sciences, general studies and humanities	7%	7	
	Associate	Legal professions and studies	4%	4	
	Associate	Security and protective services	2%	2	
Kent State University-Tuscarawas Campus	Associate	Health professions and related clinical sciences	27%	63	43
	Associate	Liberal arts and sciences, general studies and humanities	25%	59	
	Associate	Engineering technologies/technicians	17%	39	34
	Associate	Business, management, marketing, and related support services	11%	25	
	Associate	Computer and information sciences and support services	7%	17	20
Southern State Community College	Associate	Health professions and related clinical sciences	17%	62	NA
	Certificate	Health professions and related clinical sciences	17%	62	55
	Associate	Liberal arts and sciences, general studies and humanities	27%	97	
	Associate	Business, management, marketing, and related support services	20%	73	
	Associate	Computer and information sciences and support services	6%	22	16
	Associate	Public administration and social service professions	5%	19	

Table 18. continued

Institution	Award level	Top Five Programs 2006	2006 Percent	2006 Number	2003 Number
University of Cincinnati-Clermont College	Associate	Business, management, marketing, and related support services	25%	74	
	Associate	Education	18%	53	
	Associate	Legal professions and studies	9%	26	
	Associate	Liberal arts and sciences, general studies and humanities	10%	31	
	Associate	Security and protective services	7%	21	
Washington State Community College	Associate	Health professions and related clinical sciences	30%	129	75
	Associate	Business, management, marketing, and related support services	14%	61	
	Associate	Engineering technologies/technicians	10%	43	31
	Certificate	Health professions and related clinical sciences	10%	43	NA
	Associate	Liberal arts and sciences, general studies and humanities	10%	41	
Zane State College	Associate	Business, management, marketing, and related support services	23%	74	
	Associate	Health professions and related clinical sciences	19%	59	52
	Associate	Computer and information sciences and support services	17%	52	23
	Associate	Engineering technologies/technicians	9%	29	27
	Associate	Security and protective services	8%	26	
Kent State University-Salem Campus	Associate	Health professions and related clinical sciences	32%	43	37
	Bachelor's	Health professions and related clinical sciences	15%	21	NA
	Associate	Liberal arts and sciences, general studies and humanities	13%	18	
	Associate	Education	12%	16	
	Associate	Business, management, marketing, and related support services	12%	16	
Ohio University-Chillicothe Campus	Associate	Health professions and related clinical sciences	53%	101	47
	Associate	Business, management, marketing, and related support services	23%	45	
	Associate	Liberal arts and sciences, general studies and humanities	10%	20	
	Associate	Security and protective services	9%	18	
Ohio University-Eastern Campus	Associate	Liberal arts and sciences, general studies and humanities	100%	12	
Ohio University-Southern Campus	Associate	Health professions and related clinical sciences	47%	69	16
	Associate	Business, management, marketing, and related support services	16%	24	
	Associate	Liberal arts and sciences, general studies and humanities	16%	23	
	Associate	Security and protective services	10%	15	
	Associate	Communications technologies/technicians and support services	6%	9	7
Ohio University-Zanesville Campus	Associate	Health professions and related clinical sciences	85%	131	82
	Associate	Liberal arts and sciences, general studies and humanities	7%	11	
	Associate	Communications technologies/technicians and support services	6%	10	7
Shawnee State University	Associate	Health professions and related clinical sciences	27%	169	108
	Bachelor's	Business, management, marketing, and related support services	11%	69	
	Bachelor's	Social sciences	11%	65	
	Bachelor's	Education	9%	58	
	Bachelor's	Biological and biomedical sciences	6%	34	NA

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

* "2006 Percent" is percent of all degrees awarded by institution

Note: STEM-related and health-related programs highlighted

Table 19. Number of degrees* awarded in selected STEM-related and medical-related programs 1998-2006 for Appalachian Ohio postsecondary institutions with 50% or more of enrollment from Appalachian Ohio counties

	1998	1999	2005	2006
All STEM-related degrees	1013	1147	2109	2106
All Healthcare-related degrees	1263	1260	1736	1892

Source: Ohio Board of Regents HEI Student Count by Subject Field and Degree Level Awarded, 1998-2006.

*Degree total includes all degree levels/certificates awarded

working in science, technology, engineering, and math (STEM)-related occupations supports these efforts. For instance, the estimated average earnings in all STEM-related occupations as of May 2005 were \$64,560, compared to \$37,870 for all occupations in general.¹⁹ Statewide programs that improve the math and science education of students from K-12 through graduate school are being implemented, and Ohio is continuing to research specific knowledge-based industries and occupations for future development.

Industry drivers

In 2005, the Ohio Department of Development commissioned a comprehensive study of Ohio's current and future industry drivers, and how the state could support the emergence of a sustainable, knowledge-based economy. In response, Deloitte Development, LLC and Cleveland State University produced a report providing an extensive examination of Ohio's growth opportunities and emerging technologies. According to the Deloitte/Cleveland State study, there are seven key driver industries in Ohio:

- ~ Chemicals and polymers
- ~ Environmental technology
- ~ Clinical medicine and related industries
- ~ Motor vehicle/parts manufacturing
- ~ Logistics/distribution
- ~ Corporate/administrative functions
- ~ Food processing/manufacturing

Further, Deloitte's report identifies the following as emerging growth areas:

- ~ Polymers/customized chemicals
- ~ Medical equipment and research

- ~ Fuel cells
- ~ Nanotechnology
- ~ Information technology
- ~ Micro-electrical-mechanical systems (MEMS)²⁰

These diverse, emerging industries are considered strong growth opportunities for Ohio because of their congruence with the state's current key driver industries. However, to realize this economic potential, the report stressed that Ohio must gain competitive advantage in terms of higher educational attainment. Deloitte's report indicated a list of state weaknesses, one being Ohio's lack of experienced talent capable of managing and operating new and high-growth companies. The study indicated that the southeast region (Appalachian Ohio) underperforms related to educational attainment.²¹

The Deloitte/Cleveland State report also included a gap analysis of Ohio's economic development goals and current conditions, and suggested several recommendations to close the gap. These recommendations are as follows:

- ~ Build university strength in applied chemistry and technology development with true industry partnerships and standards.
- ~ Extend undergraduate cooperative education and internship programs to graduate levels.
- ~ Support professional master's degrees in sciences related to Ohio's industrial strengths.
- ~ Fund non-degree supplemental training for skills needed in driver industries.
- ~ Build on community college and career centers to develop technical skills.
- ~ Sustain world-class basic chemistry skills and research.

¹⁹ Terrell, N. (2007). *STEM Occupations*. Occupational Outlook Quarterly, Spring 2007, 29.

²⁰ Deloitte Development, LLC. (2005) *Industry-based competitive strategies for Ohio: Managing three portfolios*, 216.

²¹ Deloitte, 61-62.

- ~ Work with elementary and secondary schools to enhance soft skills for entry-level workers.²²

In addition to the STEM-related industries, the Deloitte/Cleveland State report identified the hospital industry as another of Ohio's key drivers due in large part to the existence within the state of several world-class medical facilities. However, there continues to be a statewide shortage of medical personnel, particularly highly skilled and specialized nursing staff. As a result of the escalating gap between demand and supply in this area, the Deloitte/Cleveland State study offers several suggestions for hospitals including the following:

- ~ Work with universities to offer nursing scholarships that require recipients to work in Ohio for a contracted amount of time after graduation.
- ~ Facilitate relationships among Ohio's education, research, intermediary facilities, and companies that can commercialize ideas into products.
- ~ Encourage educational institutions to support degree programs in life sciences.
- ~ Align academic and applied technology resources.²³

Areas of Study for Appalachian Ohio Students

Using existing secondary data sources, it is difficult to discern what areas of study college students from Appalachian Ohio are choosing. To gain an accurate accounting, this information will need to be collected individually from Institutional Research offices at colleges and universities in the Appalachian Ohio Region. In the absence of a comprehensive secondary data source, the method used in this first report is an examination of the colleges and universities in the Appalachian Ohio region with a student body that is largely from the 29 Appalachian Ohio counties (see table 4). In order to determine that subset of institutions, we consulted the Ohio Board of Regents HEI data on enrollment by county for Ohio's public colleges and universities. This data was utilized to calculate the total number of first-year college students enrolled in 2006 at each college or university in Ohio who were from Appalachian Ohio counties. We divided that number by the 2006 total enrollment of each institution in the 29 counties. This provided the approximate percentage of students at each college or university whose county of residence was an Appalachian Ohio county. Sixteen institutions

were identified as having 50 percent or more of their students originating from an Appalachian Ohio county. Once these institutions were identified, data on the degrees granted from these 16 colleges and universities were extracted from IPEDS. To determine the fields of study with the largest number of degrees or certificates awarded, the number of completions for each program (using the 2-digit 2000 CIP code) was pulled from IPEDS for each of the profile institutions. The expanded Completions area in IPEDS identifies awards/degrees conferred by program (2000 CIP classification) and award level, as well as by the race/ethnicity and gender of the graduate. This profile was created by selecting the grand total of associate's degrees, bachelor's degrees, and certificates below the baccalaureate level for first majors from all 2-digit CIP codes programs. Data was pulled for 2005-06, the most recent year for which it was available.

Table 18 indicates the top five fields of study at each of the colleges and universities with a majority of students from Appalachian Ohio and includes the number of degrees granted in each program area. Health-related programs, as well as science, technology, engineering, and math (STEM)²⁴ programs are highlighted in the table. These two areas were chosen for analysis because both are identified as important growth areas for Ohio's workforce.²⁵

Seven institutions had engineering technologies/technicians degrees (either at the associate's or bachelor's degree level) as one of their top five programs. This field of study includes the largest number of graduates from a STEM (science, technology, engineering and math) major. Other STEM-related programs in the top five programs by institution included computer and information sciences and support services (included in the top five list of five institutions), communications technologies (included in the top five list of two institutions), and biological and biomedical sciences (included in the top five list of one institution). All but two of the profiled institutions had health professions and related clinical sciences as one of their top five programs based on number of degrees granted.

Combined, the 14 institutions with health

²⁴ For this report, STEM fields were identified using the criteria defined by the Ohio Science and Engineering Alliance, <http://www.ohiosea.org/stem/allstem.html>. See Appendix H. It is important to note that there are STEM-related degrees within other program areas not highlighted, for example Management Information Systems may be housed under Business, management, marketing, and related support services.

²⁵ Deloitte Development, LLC. (2005) *Industry-based competitive strategies for Ohio: Managing three portfolios*.

²² Deloitte, 59.

²³ Deloitte, 94.

professions and related clinical services as one of their top five program areas based on number of graduates in 2006 had increased the number of health-related degrees or certificates from 1,068 degrees/certificates in 2003 to 1,676 degrees/certificates in 2006. The seven institutions that had engineering technologies degrees in their top five lists in 2006 produced roughly the same amount of engineering technologies degrees/certificates in 2006 as in 2003. The five institutions with computer and information sciences as one of their top five degree granting programs in 2006 had increased the number of degrees in that field from 59 in 2003 to 127 in 2006. (See Appendix F for complete list of 2002-03 top five program areas and number of graduates for Ohio colleges and universities with a majority of their students from Appalachian Ohio.)

Another data source, the Ohio Board of Regents HEI database, provides data on the number of degrees and certificates awarded by field and degree status for all publicly-supported postsecondary institutions. As the data are not disaggregated by student's county of residence, Appalachian students' fields of study cannot be specifically identified. However, using the subgroup of institutions in the region with a majority of students from Appalachian Ohio, the number of graduates by field and degree status data give some indication of what Appalachian students are choosing as major areas of study over time. Table 19 provides the number of degrees awarded for selected STEM and medical-related fields for the 16 colleges and universities with 50 percent or more of their total enrollment made up of students from Appalachian Ohio counties. As the table indicates, students getting degrees in health-related programs in this subgroup of institutions increased from 1,263 students in 1998 to 1,892 students in 2006. Students getting degrees in selected STEM-related programs in this subgroup increased even more over the time period, from 1,013 students in 1998 to 2,106 in 2006 (a 200 percent increase).

By analyzing the institutions in Appalachian Ohio that serve a preponderance of students from the same region, some inferences can be drawn about the degree choices Appalachian Ohio students are making. A more precise analysis can be made by examining students whose residence at the time of their enrollment in college or university was one of the Appalachian Ohio counties. This successfully isolates students from Appalachian Ohio, but can only be accomplished by extracting data from the Institutional Research offices at each college and university in the region. Although this will

be done over the course of the overall study, only data from Ohio University's main and regional campuses (provided by Ohio University's Office of Institutional Research) has been collected for inclusion in this report. Ohio University is the largest institution of higher education in the region, and its regional campuses are located in such a way that they are accessible throughout the region. Also, because of Ohio University's size, students are able to choose from a broad range of majors. Examining what programs Appalachian Ohio students are enrolling in at Ohio University can serve as an approximation of the fields that currently interest the region's students.

Table 20 provides the total number of bachelor's degrees conferred to students whose county of residence upon enrollment at one of Ohio University's six campuses was an Appalachian Ohio county. Selected STEM-related bachelor's degrees were flagged (see Appendix H for STEM areas), and the percentage of STEM-related degrees was calculated. Approximately one in five students from Appalachian Ohio completed a baccalaureate program in one of the selected STEM-related majors in 2004, and that figure showed minimal change in 2007.

Congruence between Appalachian Students' Areas of Study and Workforce Needs

Based on the secondary data sources analyzed in this report, it appears that Appalachian Ohio students are increasingly seeking degrees in some fields that support the state's current and emerging growth sectors. However, caution should be used in interpreting these results, as all but one of the secondary sources did not allow the disaggregation of students from Appalachian Ohio counties. The data used were from institutions identified as having a majority of their student body from Appalachian Ohio counties. For the Ohio University data that did allow disaggregation of Appalachian Ohio students, approximately one in five students from the region completed a bachelor's degree in a STEM-related field in 2004 and in 2007. These analyses are imprecise, but give some indication of the trends in areas of study for students from Appalachian Ohio.

Table 20. Ohio University STEM-Related Baccalaureate Degrees Conferred to Students from Appalachian Ohio Counties

	# Bachelor's Degrees conferred to students from Appalachian Ohio Counties	# STEM-Related Bachelor's Degrees	STEM-related degrees as % of all Bachelor's Degrees conferred to students from Appalachian Ohio Counties
2003-04	1221	272	22.2%
2006-07	1228	243	19.8%

SUMMARY AND NEXT STEPS

The secondary data compiled for this report indicate that Appalachian Ohio has made progress since 1992 in the percentage of its young people who are able to enroll and succeed in a postsecondary program. Appalachian Ohio is closing the gap with the rest of the state on several key indicators of college success, including preparation while in high school, college entrance exam scores, college enrollment and persistence. For other indicators, Appalachian Ohio remains significantly lower than the rest of the state. For instance, participation in Advanced Placement courses is still a problem for students in Appalachian Ohio high schools.

Although much progress has been made, those working in the field of college access know that this progress is not sufficient. Appalachian Ohio students lag behind other Ohio students in rates of preparation and access, and Ohio lags behind the nation in some of these key indicators as well. Therefore, in order to catch up and compete in the knowledge-based economy of today and tomorrow, Appalachian Ohio needs to make even greater gains than the state and nation as a whole.

Many of the secondary data sources used for this report were not even available when the 1992 Access and Success study was completed. Others were available, but difficult to access, less reliable, or not as robust as current sources. While still incomplete, current secondary sources can be tapped to help answer a

number of research questions related to college access and retention. The Ohio Board of Regents' HEI databases are rich and will continue to be analyzed for future reports during this two-year project, as will national, state, and sub-state data from IPEDS and other sources.

What the secondary sources cannot provide is detailed information on the perspectives and decision-making processes of Appalachian Ohio students and parents as they consider what to do after high school. They also do not provide complete information about the barriers to college access and completion for particular subgroups of students, such as those from Appalachian counties. In order to gather this information, survey research is needed. As this report is being completed, the research team is fielding the first of two surveys targeting high school seniors in Appalachian counties. In the spring of 2008, parents of these high school seniors will be surveyed, high school counselors will be interviewed, and Institutional Research offices at the postsecondary institutions in the region will be asked to provide additional data on Appalachian Ohio students' chosen majors. These efforts to collect data from students, families, high schools and colleges will provide a richer, more complete picture of current supports, barriers, and attitudes related to college access and success.

Appendix A

– Map of Appalachian Ohio and economic development regions



Appendix B

– Employment projections for Appalachian Ohio economic development regions
Southern Ohio - Economic Development Region 7

Industry Employment Projections Report 2004–2014

<i>Industry</i>	<i>2004 Annual Employment</i>	<i>2014 Projected Employment</i>	<i>Change in Employment 2004-2014</i>	<i>Percent Change 2004-2014</i>
Total Employment	145,100	154,000	8,900	6.1%
Goods-Producing	34,900	34,100	-800	-2.3%
Natural Resources and Mining	9,400	8,500	-900	-9.6%
Construction	5,300	6,200	900	17.0%
Manufacturing	20,300	19,400	-900	-4.4%
Service Providing	101,100	110,900	9,800	9.7%
Trade, Transportation, and Utilities	25,200	26,300	1,100	4.4%
Retail Trade	17,700	18,600	900	5.1%
Financial Activities	4,400	5,000	600	13.6%
Finance and Insurance	3,400	3,900	500	14.7%
Real Estate and Rental and Leasing	1,000	1,100	100	10.0%
Professional and Business Services	6,100	7,200	1,100	18.0%
Education and Health Services	20,800	24,400	3,600	17.3%
Leisure and Hospitality	11,400	12,900	1,500	13.2%
Government	27,800	29,500	1,700	6.1%
Federal Government	2,200	2,200	0	0.0%
State Government	5,000	5,200	200	4.0%
Local Government	20,500	22,100	1,600	7.8%
Self-Employed, Private Household and Unpaid Family Workers	9,000	9,000	0	0.0%

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, April 2007.

Appendix B

– Employment projections for Appalachian Ohio economic development regions
Southern Ohio - Economic Development Region 10

Industry Employment Projections Report 2004–2014

<i>Industry</i>	<i>2004 Annual Employment</i>	<i>2014 Projected Employment</i>	<i>Change in Employment 2004-2014</i>	<i>Percent Change 2004-2014</i>
Total Employment	237,300	247,800	10,500	4.4%
Goods - Producing	62,600	59,200	-3,400	-5.4%
Natural Resources and Mining	13,000	12,100	-900	-6.9%
Construction	9,600	11,100	1,500	15.6%
Manufacturing	40,100	36,000	-4,100	-10.2%
Service Providing	159,700	173,700	14,000	8.8%
Trade, Transportation, and Utilities	44,700	47,500	2,800	6.3%
Retail Trade	30,400	32,200	1,800	5.9%
Information	2,700	2,900	200	7.4%
Financial Activities	7,100	7,900	800	11.3%
Finance and Insurance	5,300	5,900	600	11.3%
Real Estate and Rental and Leasing	1,700	2,000	300	17.6%
Professional and Business Services	12,000	14,000	2,000	16.7%
Education and Health Services	31,700	36,800	5,100	16.1%
Leisure and Hospitality	20,400	21,500	1,100	5.4%
Arts, Entertainment & Recreation	2,000	2,100	100	5.0%
Accommodation and Food Services	18,400	19,500	1,100	6.0%
Other Services	9,600	10,400	800	8.3%
Government	31,600	32,700	1,100	3.5%
Federal Government	1,900	1,900	0	0.0%
State Government	3,100	3,100	0	0.0%
Local Government	26,500	27,800	1,300	4.9%
Self-Employed, Private Household and Unpaid Family Workers	15,000	14,900	-100	-0.7%

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, April 2007.

Appendix B

– Employment projections for Appalachian Ohio economic development regions
Southern Ohio - Economic Development Region 11

Industry Employment Projections Report 2004–2014

<i>Industry</i>	<i>2004 Annual Employment</i>	<i>2014 Projected Employment</i>	<i>Change in Employment 2004-2014</i>	<i>Percent Change 2004-2014</i>
Total Employment	82,900	88,400	5,500	6.6%
Goods -Producing	20,000	18,800	-1,200	-6.0%
Construction	3,600	3,900	300	8.3%
Service - Providing	57,700	64,500	6,800	11.8%
Trade, Transportation, and Utilities	12,600	13,400	800	6.3%
Retail Trade	9,300	10,000	700	7.5%
Information	600	700	100	16.7%
Financial Activities	3,400	3,900	500	14.7%
Professional and Business Services	3,500	4,200	700	20.0%
Professional, Scientific & Technical Services	1,600	1,900	300	18.8%
Education and Health Services	10,100	12,100	2,000	19.8%
Leisure and Hospitality	6,800	7,700	900	13.2%
Government	18,000	19,600	1,600	8.9%
Federal Government	800	800	0	0.0%
State Government	5,000	5,200	200	4.0%
Local Government	12,100	13,600	1,500	12.4%
Self-Employed, Private Household and Unpaid Family Workers	5,200	5,200	0	0.0%

Source: Ohio Department of Job and Family Services, Bureau of Labor Market Information, April 2007.

Appendix C

– Enrollment data from IPEDS for profile institutions

Enrollment figures for 2001 through 2006 are provided for each profile institution, showing time trends as well as a summary of enrollment for each type of institution. The IPEDS variable used was obtained from the Enrollments area under race/ethnicity, gender, attendance status, and level of student. The level of student was designated as undergraduate total, and then the variable Grand Total was selected. National data for these indicators is taken from Enrollment in Postsecondary Institutions, Fall 2005; Graduation Rates, 1999 and 2002 Cohorts; and Financial Statistics, Fiscal Year 2005 (NCES 2007-154).²⁶

Public four-year institutions in the Appalachian Ohio region have the highest total enrollment, considering the combined undergraduate enrollment at the two largest universities totals between 25,000 and 30,000 over the time period. Five public four-year institutions have steadily increased at least 2.4% annually in undergraduate enrollment from 2001 to 2006. The undergraduate enrollment at branch campuses of both Ohio University's Eastern campus and Marshall University have seen an average decline in undergraduate enrollment of 3.9% and 3.3% per year.

Public two-year institutions are the second largest type in the profile. Two public two-year institutions have shown a notable (at least 2%) average annual decline in undergraduate enrollment from 2001-2006, including the largest of this type, Hocking College, with a 2.5% average annual loss. Cabell County Career and Technology Center had the largest decline of over 9% annually, with enrollment dropping from 582 to 327 over the period. Significant gains (at least 2% annually) were shown in five of the fourteen institutions; the greatest gains were Maysville Community and Tech-

nical College (15.8%) and Ashland Community and Technical College (7.3%).

Five of the nine private four-year institutions had measurable change in undergraduate enrollment; two institutions declined at least 4% (Tri-State Bible College and Allegheny Wesleyan College), and three increased by at least 2% annually, showing steady gains each year (Franciscan University of Steubenville, Marietta College and Ohio Valley University). Ohio Valley University experienced a significant jump in enrollment in 2002 and has since remained stable at around 520 undergraduates. University of Rio Grande also showed a significant gain in one year (2004) but subsequent decreases resulted in no significant growth over the entire period.

Notable differences in the enrollment distribution for institutions in the Appalachian Ohio profile compared to institutions nationwide are seen. A larger percentage of the total undergraduate enrollment was in public four-year institutions in the profile than the national percentage, while the percent of institutions that are public four-year was nearly three times more nationally than in the region. Additionally, there was a larger percent of the total undergraduate enrollment in public two-year institutions, with again a larger percentage of institutions nationally than for the profile by nearly three times.

Nationally, undergraduate enrollment rose 21 percent between 1996 and 2005.²⁷ Undergraduate enrollment for the profile institutions in these benchmark years is in the table below. The combined undergraduate enrollment for all institutions in the profile over the same years rose 1.3%, significantly less than the national benchmark.

26 Knapp, L.G., Kelly-Reid, J.E., Whitmore, R.W., and Miller, E. (2007). *Enrollment in Postsecondary Institutions, Fall 2005; Graduation Rates, 1999 and 2002 Cohorts; and Financial Statistics, Fiscal Year 2005* (NCES 2007-154). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007154>.

27 Snyder, T.D., Dillow, S.A., and Hoffman, C.M. (2007). *Digest of Education Statistics 2006* (NCES 2007-017). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. Washington, DC: U.S. Government Printing Office. (p. 261)

Fall Enrollment Trends, 2001-2005, Undergraduate total

Type	Institution name	Fall 2001	Fall 2002	Fall 2003	Fall 2004	Fall 2005	Fall 2006	Annual Change
Private not-for-profit, 2- year	Chatfield College	304	273	245	248	228	212	-5.8%
Private not-for-profit, 4- year or above	Allegheny Wesleyan College	80	70	45	57	65	49	-7.8%
	Bethany College	774	887	900	858	902	833	1.2%
	Franciscan University of Steubenville	1,733	1,799	1,844	1,913	1,981	1,982	2.3%
	Marietta College	1,201	1,128	1,241	1,351	1,350	1,411	2.7%
	Muskingum College	1,660	1,686	1,622	1,644	1,634	1,676	0.2%
	Ohio Valley University	453	522	512	520	539	527	2.6%
	Tri-State Bible College	*	51	51	13	44	39	-4.4%
	University of Rio Grande	1,932	1,905	1,840	2,267	2,138	2,110	1.5%
	Wheeling Jesuit University	1,249	1,318	1,231	1,232	1,218	1,203	-0.6%
Public, 2-year	Ashland Community and Technical College	2,626	2,499	2,564	2,530	3,920	4,014	7.3%
	Belmont Technical College	1,623	1,674	1,753	1,740	1,639	1,711	0.9%
	Cabell County Career Technology Center	582	405	354	455	330	327	-9.2%
	Hocking College	5,345	5,291	4,754	4,458	4,503	4,600	-2.5%
	Jefferson Community College	1,614	1,572	1,604	1,658	1,697	1,601	-0.1%
	Kent State University-East Liverpool Campus	520	647	725	767	818	810	7.7%
	Kent State University-Tuscarawas Campus	1,770	1,916	2,008	1,923	1,905	1,977	1.9%
	Marshall Community and Technical College	*	*	*	2,400	2,589	2,579	1.2%
	Maysville Community and Technical College	1,393	1,654	1,917	2,004	3,267	3,351	15.8%
	Southern State Community College	2,038	2,256	2,346	2,346	2,309	2,366	2.5%
	University of Cincinnati-Clermont College	2,421	2,408	2,659	2,765	2,815	2,789	2.4%
	Washington State Community College	2,033	2,086	2,221	2,183	2,292	2,177	1.1%
	West Virginia Northern Community College	3,139	2,852	2,877	2,837	2,841	2,844	-1.6%
	Zane State College	1,869	1,915	1,702	1,789	1,806	1,916	0.4%
Public, 4-year or above	Kent State University-Salem Campus	1,034	1,206	1,313	1,352	1,250	1,258	3.3%
	Marshall University	11,862	12,216	12,351	9,859	9,841	9,723	-3.3%
	Morehead State University	7,249	7,700	7,912	7,747	7,492	7,448	0.5%
	Ohio University-Chillicothe Campus	1,510	1,816	1,956	1,959	1,948	1,850	3.4%
	Ohio University-Eastern Campus	901	943	944	816	777	708	-3.9%
	Ohio University-Main Campus	17,178	17,342	17,200	16,950	17,207	17,026	-0.1%
	Ohio University-Southern Campus	1,816	1,689	1,887	1,840	1,784	1,824	0.1%
	Ohio University-Zanesville Campus	1,489	1,695	1,857	1,834	1,870	1,723	2.5%
	Shawnee State University	3,364	3,606	3,693	3,798	3,820	3,880	2.4%
	West Virginia University at Parkersburg	3,340	3,370	3,755	3,722	3,772	3,884	2.5%
	Total	86,102	88,397	89,883	89,835	92,591	92,428	26.9%
* Missing data								

National Benchmarks - The distribution of enrollment among types of institutions can be compared with national figures for fall 2005.

Type	% of Total Undergraduate enrollment		Percent of institutions	
	Profile*	National**	Profile*	National**
Public, 4-year or above	53.7%	36.5%	5.7%	15.0%
Public, 2-year	35.4%	41.3%	8.4%	24.6%
Private for-profit, 4-year or above	0.0%	3.9%	0.5%	45.4%
Private not-for-profit, 4-year or above	10.7%	15.7%		
Private for-profit, 2-year	0.0%	2.1%	0.1%	15.0%
Private not-for-profit, 2-year	0.2%	0.4%		

* Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Enrollment, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

** Source: Knapp, L.G., Kelly-Reid, J.E., Whitmore, R.W., and Miller, E. (2007). Enrollment in Postsecondary Institutions, Fall 2005; Graduation Rates, 1999 and 2002 Cohorts; and Financial Statistics, Fiscal Year 2005 (NCES 2007-154). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007154>.

Total undergraduate enrollment at profile institutions by benchmark year

1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual change
81,107	81,230	81,742	82,487	82,321	86,102	88,397	89,883	89,835	92,591	1.3%

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment 1996 to 2005.

Appendix D

– Gender and full-time/part-time status of profile institutions

Type	Institution Name	Gender		Status	
		Men	Women	Full-time	Part-time
Private not-for-profit, 2-year	Chatfield College	18.0	82.0	66.0	34.0
Private not-for-profit, 4- year or above	Allegheny Wesleyan College	50.8	49.2	69.4	30.6
	Bethany College	45.3	54.7	99.0	1.0
	Franciscan University of Steubenville	39.2	60.8	82.8	17.2
	Marietta College	47.8	52.2	49.4	50.6
	Muskingum College	40.5	59.5	64.1	35.9
	Ohio Valley University	47.1	52.9	93.9	6.1
	Tri-State Bible College	90.9	9.1	20.5	79.5
	University of Rio Grande	37.0	63.0	72.4	27.6
	Wheeling Jesuit University	38.8	61.2	77.1	22.9
Public, 2-year	Ashland Community and Technical College	42.7	57.3	91.6	8.4
	Belmont Technical College	39.1	60.9	75.4	24.6
	Cabell County Career Technology Center	67.3	32.7	75.2	24.8
	Hocking College	53.1	46.9	60.7	39.3
	Jefferson Community College	38.1	61.9	69.5	30.5
	Kent State University-East Liverpool Campus	25.8	74.2	53.7	46.3
	Kent State University-Tuscarawas Campus	37.2	62.8	41.8	58.2
	Marshall Community and Technical College	61.8	38.2	50.4	49.6
	Maysville Community and Technical College	49.4	50.6	47.8	52.2
	Southern State Community College	26.4	73.6	55.9	44.1
	University of Cincinnati-Clermont College	37.4	62.6	53.1	46.9
	Washington State Community College	35.7	64.3	59.5	40.5
	West Virginia Northern Community College	30.7	69.3	50.0	50.0
	Zane State College	37.8	62.2	92.0	8.0
Public, 4-year or above	Kent State University-Salem Campus	27.3	72.7	48.0	52.0
	Marshall University	39.7	60.3	69.6	30.4
	Morehead State University	36.9	63.1	33.9	66.1
	Ohio University-Chillicothe Campus	30.0	70.0	69.8	30.2
	Ohio University-Eastern Campus	34.2	65.8	67.8	32.2
	Ohio University-Main Campus	47.8	52.2	70.2	29.8
	Ohio University-Southern Campus	32.5	67.5	60.7	39.3
	Ohio University-Zanesville Campus	28.8	71.2	59.8	40.2
	Shawnee State University	39.2	60.8	83.7	16.3
	West Virginia University at Parkersburg	36.5	63.5	58.3	41.7

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Enrollments, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

Appendix E

– Faculty by full- or part-time status for profile institutions

Type	Institution Name	2001		2005		
		full time	part time	full time	part time	
Private not-for-profit, 2-year	Chatfield College	14.3	85.7	*	*	
	Allegheny Wesleyan College	37.5	62.5	*	*	
Private not-for-profit, 4-year or above	Bethany College	87.3	12.7	75.0	25.0	
	Franciscan University of Steubenville	59.8	40.2	56.2	43.8	
	Marietta College	64.2	35.8	66.7	33.3	
	Muskingum College	64.6	35.4	70.5	29.5	
	Ohio Valley University	100.0	*	89.3	10.7	
	Tri-State Bible College	*	*	*	*	
	University of Rio Grande	54.2	45.8	54.7	45.3	
	Wheeling Jesuit University	66.9	33.1	50.7	49.3	
	Public, 2-year	Ashland Community and Technical College	43.5	56.5	43.2	56.8
		Belmont Technical College	26.6	73.4	24.8	75.2
Cabell County Career Technology Center		*	*	*	*	
Hocking College		56.0	44.0	55.3	44.7	
Jefferson Community College		27.8	72.2	20.9	79.1	
Kent State University-East Liverpool Campus		27.8	72.2	34.3	65.7	
Kent State University-Tuscarawas Campus		26.4	73.6	38.7	61.3	
Marshall Community and Technical College		*	*	29.0	71.0	
Maysville Community and Technical College		40.2	59.8	58.3	41.7	
Southern State Community College		27.8	72.2	29.4	70.6	
University of Cincinnati-Clermont College		25.0	75.0	30.5	69.5	
Washington State Community College		39.6	60.4	38.6	61.4	
West Virginia Northern Community College		38.9	61.1	31.1	68.9	
Zane State College		100.0	*	36.0	64.0	
Public, 4-year or above		Kent State University-Salem Campus	35.9	64.1	44.3	55.7
		Marshall University	66.9	33.1	69.6	30.4
		Morehead State University	72.6	27.4	70.8	29.2
	Ohio University-Chillicothe Campus	33.0	67.0	21.4	78.6	
	Ohio University-Eastern Campus	39.6	60.4	34.4	65.6	
	Ohio University-Main Campus	71.6	28.4	72.3	27.7	
	Ohio University-Southern Campus	19.5	80.5	23.0	77.0	
	Ohio University-Zanesville Campus	28.1	71.9	24.5	75.5	
	Shawnee State University	51.9	48.1	48.3	51.7	
	West Virginia University at Parkersburg	52.9	47.1	36.8	63.2	

* Missing data

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Human Resources, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

Type	2001		2005	
	full time	part time	full time	part time
Private not-for-profit, 2-year	14.3	85.7	*	*
Private not-for-profit, 4-year or above	64.2	35.8	61.7	38.3
Public, 2-year	39.0	61.0	37.7	62.3
Public, 4-year or above	63.0	37.0	60.4	39.6

* Missing data

Appendix F

-Number of degrees for top five program areas in each institution, 2002-03: Institutions with majority of students from Appalachian Ohio Counties

Institution	Award level	Top five programs 2003	Number	Percent	Total all degrees
University of Rio Grande	Bachelor's	Education	48	30%	162
	Bachelor's	Business, management, marketing, and related support services	29	18%	
	Bachelor's	Health professions and related clinical sciences	22	14%	
	Bachelor's	Engineering technologies/technicians	16	10%	
	Bachelor's	Communication, journalism, and related programs	13	8%	
	Bachelor's				
University of Rio Grande (Community College)	Associate	Health professions and related clinical sciences	75	46%	163
	Associate	Business, management, marketing, and related support services	18	11%	
	Associate	Precision production	16	10%	
	Associate	Biological and biomedical sciences	14	9%	
	Associate	Engineering technologies/technicians	11	7%	
Belmont Technical College	Certificate	Health professions and related clinical sciences	57	19%	300
	Associate	Business, management, marketing, and related support services	62	21%	
	Associate	Engineering technologies/technicians	56	19%	
	Associate	Security and protective services	22	7%	
	Associate	Family and consumer sciences/human sciences	14	5%	
Hocking College	Certificate	Business, management, marketing, and related support services	726	24%	3029
	Certificate	Natural resources and conservation	600	20%	
	Certificate	Health professions and related clinical sciences	319	11%	
	Certificate	Personal and culinary services	163	5%	
	Associate	Security and protective services	98	3%	
Jefferson Community College	Certificate	Health professions and related clinical sciences	57	25%	225
	Associate	Business, management, marketing, and related support services	35	16%	
	Associate	Engineering technologies/technicians	20	9%	
	Associate	Family and consumer sciences/human sciences	23	10%	
	Associate	Liberal arts and sciences, general studies and humanities	20	9%	
Kent State University-East Liverpool Campus	Associate	Health professions and related clinical sciences	23	56%	41
Kent State University-Tuscarawas Campus	Associate	Liberal arts and sciences, general studies and humanities	88	36%	246
	Associate	Health professions and related clinical sciences	43	17%	
	Associate	Engineering technologies/technicians	34	14%	
	Associate	Business, management, marketing, and related support services	23	9%	
	Associate	Computer and information sciences and support services	20	8%	
	Associate	Education	20	8%	
Southern State Community College	Certificate	Health professions and related clinical sciences	55	11%	508
	Associate	Liberal arts and sciences, general studies and humanities	81	16%	
	Associate	Business, management, marketing, and related support services	47	9%	
	Associate	Computer and information sciences and support services	16	3%	
	Associate	Engineering technologies/technicians	15	3%	

Washington State Community College	Associate	Health professions and related clinical sciences	75	24%	311
	Associate	Business, management, marketing, and related support services	48	15%	
	Associate	Liberal arts and sciences, general studies and humanities	49	16%	
	Associate	Engineering technologies/technicians	31	10%	
	Combined	Education	15	5%	
	Certificate	Computer and information sciences and support services	15	5%	
	Associate	Family and consumer sciences/human sciences	15	5%	
Zane State College	Associate	Business, management, marketing, and related support services	115	40%	288
	Associate	Health professions and related clinical sciences	52	18%	
	Associate	Engineering technologies/technicians	27	9%	
	Associate	Computer and information sciences and support services	23	8%	
	Associate	Visual and performing arts	12	4%	
Kent State University-Salem Campus	Associate	Health professions and related clinical sciences	37	39%	94
	Associate	Education	18	19%	
	Associate	Business, management, marketing, and related support services	8	9%	
	Associate	Agriculture, agriculture operations, and related sciences	7	7%	
	Associate	Engineering technologies/technicians	7	7%	
Ohio University-Chillicothe Campus	Associate	Business, management, marketing, and related support services	49	40%	122
	Associate	Health professions and related clinical sciences	47	39%	
	Associate	Security and protective services	9	7%	
	Associate	Multi/interdisciplinary studies	6	5%	
Ohio University-Eastern Campus	Associate	Business, management, marketing, and related support services	9	82%	11
Ohio University-Southern Campus	Associate	Business, management, marketing, and related support services	39	46%	85
	Associate	Health professions and related clinical sciences	16	19%	
	Associate	Agriculture, agriculture operations, and related sciences	7	8%	
	Associate	Communications technologies/technicians and support services	7	8%	
	Associate	Liberal arts and sciences, general studies and humanities	6	7%	
Ohio University-Zanesville Campus	Associate	Health professions and related clinical sciences	82	81%	101
	Associate	Business, management, marketing, and related support services	11	11%	
	Associate	Communications technologies/technicians and support services	7	7%	
Shawnee State University	Associate	Health professions and related clinical sciences	108	21%	508
	Bachelor's	Business, management, marketing, and related support services	65	13%	
	Bachelor's	Social sciences	48	9%	
	Bachelor's	Education	39	8%	
	Associate	Engineering technologies/technicians	34	7%	

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

Appendix G

– Percent of first-time undergraduates who graduated high school in past 12 months by geographic origin, Fall 2006*

Type	Institution name	In-state	Out-of-state	Foreign countries	Unknown
Private not-for-profit, 2- year	Chatfield College	100.0%	0.0%	0.0%	0.0%
Private not-for-profit, 4- year or above	Allegheny Wesleyan College	25.0%	75.0%	0.0%	0.0%
	Bethany College	24.1%	74.4%	1.5%	0.0%
	Franciscan University of Steubenville	20.1%	78.3%	1.6%	0.0%
	Marietta College	69.7%	30.3%	0.0%	0.0%
	Muskingum College	88.0%	10.8%	1.2%	0.0%
	Ohio Valley University	24.2%	65.3%	10.5%	0.0%
	Tri-State Bible College	**	**	**	**
	University of Rio Grande	96.8%	2.9%	0.3%	0.0%
Wheeling Jesuit University	39.6%	57.6%	2.9%	0.0%	
Public, 2-year	Ashland Community and Technical College	86.1%	13.9%	0.0%	0.0%
	Belmont Technical College	88.6%	11.4%	0.0%	0.0%
	Cabell County Career Technology Center	100.0%	0.0%	0.0%	0.0%
	Hocking College	100.0%	0.0%	0.0%	0.0%
	Jefferson Community College	97.3%	2.7%	0.0%	0.0%
	Kent State University-East Liverpool Campus	93.7%	4.8%	0.0%	1.6%
	Kent State University-Tuscarawas Campus	99.6%	0.0%	0.0%	0.4%
	Marshall Community and Technical College	79.8%	20.2%	0.0%	0.0%
	Maysville Community and Technical College	96.2%	3.8%	0.0%	0.0%
	Southern State Community College	99.7%	0.3%	0.0%	0.0%
	University of Cincinnati-Clermont College	98.5%	1.5%	0.0%	0.0%
	Washington State Community College	64.5%	35.5%	0.0%	0.0%
	West Virginia Northern Community College	89.6%	10.4%	0.0%	0.0%
Zane State College	100.0%	0.0%	0.0%	0.0%	
Public, 4-year or above	Kent State University-Salem Campus	99.2%	0.8%	0.0%	0.0%
	Marshall University	79.0%	21.0%	0.0%	0.0%
	Morehead State University	81.1%	18.9%	0.0%	0.0%
	Ohio University-Chillicothe Campus	98.5%	1.5%	0.0%	0.0%
	Ohio University-Eastern Campus	98.4%	1.6%	0.0%	0.0%
	Ohio University-Main Campus	90.7%	9.0%	0.3%	0.0%
	Ohio University-Southern Campus	90.8%	9.2%	0.0%	0.0%
	Ohio University-Zanesville Campus	99.5%	0.5%	0.0%	0.0%
	Shawnee State University	92.3%	7.0%	0.7%	0.0%
West Virginia University at Parkersburg	98.3%	1.7%	0.0%	0.0%	

* The data collection cycle for IPEDS requires institutions to submit residence of first-time undergraduates only in even years. Residence data from 2005 would be misleading, so the next most recent year is used in the profile.

** Missing data

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Enrollments Templates, Collection Years 2001 to 2006; U.S. Department of Education, National Center for Education Statistics. Retrieved October 19, 2007 from <http://nces.ed.gov/ipeds>.

Appendix H

– List of STEM-related fields as defined by the Ohio Science and Engineering Alliance

<http://www.ohiosea.org/alliance.html> Retrieved on September 20, 2007

Agricultural Sciences

Animal Sciences
Food Sciences
Plant Sciences
Soil Sciences
Agricultural Sciences, other
Natural Resources Conservation
Conservation and Regulation
Fishing and Fisheries Sciences and Management
Forestry and Related Sciences
Wildlife and Wildlands Management

Biological Sciences

Anatomy
Medical Anatomy
Biochemistry
Medical Biochemistry
Biology
Biometry and Epidemiology
Biometrics
Biostatistics
Medical Biomathematics and Biometrics
Epidemiology
Biophysics
Medical Biophysics/Physics
Botany
Plant Pathology
Plant Physiology
Cell and Molecular Biology
Cell Biology
Molecular biology
Medical Cell Biology
Medical Molecular Biology
Ecology
Entomology and Parasitology
Genetics
Genetics, Plant and Animal
Evolutionary Biology
Medical Genetics
Microbiology, Immunology, and Virology
Microbiology/Bacteriology
Biological Immunology
Virology
Medical Microbiology
Nutrition
Foods and Nutrition Studies

Nutritional Sciences

Medical Nutrition
Pathology, Human and Animal
Medical Pathology
Pharmacology, Human and Animal
Toxicology
Medical Toxicology
Physiology, Human and Animal
Medical Physiology
Zoology
Biosciences
Biotechnology Research
Miscellaneous Biological Specializations
Biological Sciences/Life Sciences
Biological and Physical Sciences
Biopsychology

Chemistry

Chemistry
Polymer Chemistry

Computer Science

Computer and Information Sciences, general
Information Science and Systems
Management Information Systems
Management Science

Engineering

Aerospace Engineering
Aerospace, Aeronautical, and Astronautical Engineering
Agricultural Engineering
Biomedical Engineering
Chemical Engineering
Wood Science
Polymer/Plastics Engineering
Civil Engineering
Architecture
Architectural Engineering
Structural Engineering
Water Resources Engineering
Environmental/Environmental Health Engineering
Electrical Engineering
Computer Engineering
Electrical, Electronics and Communications Engineering
Engineering Science and Engineering Physics
Industrial/Manufacturing Engineering

Systems Engineering
Engineering/Industrial Management
Systems Science
Mechanical Engineering
Engineering Mechanics
Metallurgical and Materials Engineering
Ceramic Sciences and Engineering
Textile Sciences and Engineering
Materials Science
Metallurgy
Mining Engineering
Geological Engineering
Geophysical Engineering
Nuclear Engineering
Petroleum Engineering
Naval Architecture and Marine Engineering
Ocean Engineering
Engineering Design

Environmental Sciences

Environmental Sciences

Geological Sciences

Geological and Related Sciences
Earth and Planetary Sciences

Mathematics

Mathematics and Applied Mathematics
Operations Research
Mathematics, other
Mathematics and Computer Science
Statistics
Mathematical Statistics
Actuarial Science

Physics and Astronomy

Astrophysics
Physics
Optics
Acoustics

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