Utah FOUNDATION RESEARCH BRIEF

Lifetime Value of a College Degree

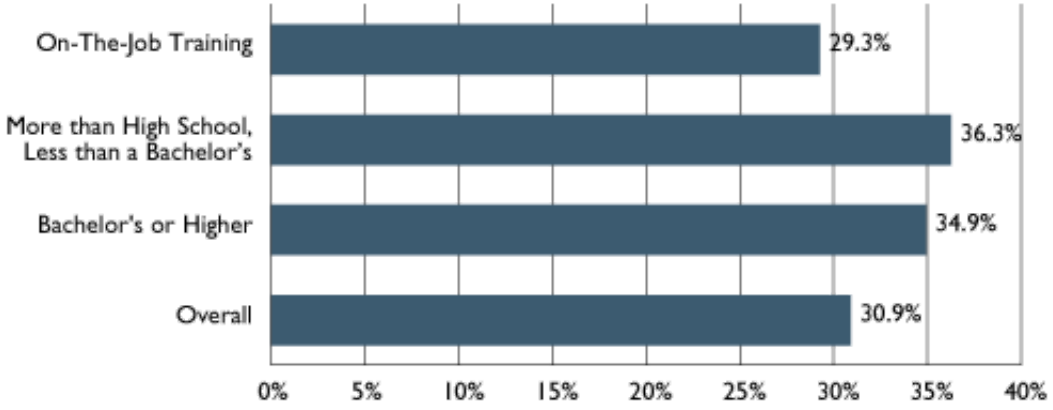
February 23, 2006

Utah Foundation's December 2005 report entitled "What is a college degree worth?" found that many Utah college graduates are earning less than $30,000 in their first year after graduation. Some concern was expressed regarding the relatively low starting salaries of Utah graduates. However, it should be noted that the value of a four year college degree cannot be adequately assessed by examining only the starting salaries of graduates. This brief will more deeply explore what a college degree is worth to graduates over their lifetimes.

Job Opportunities

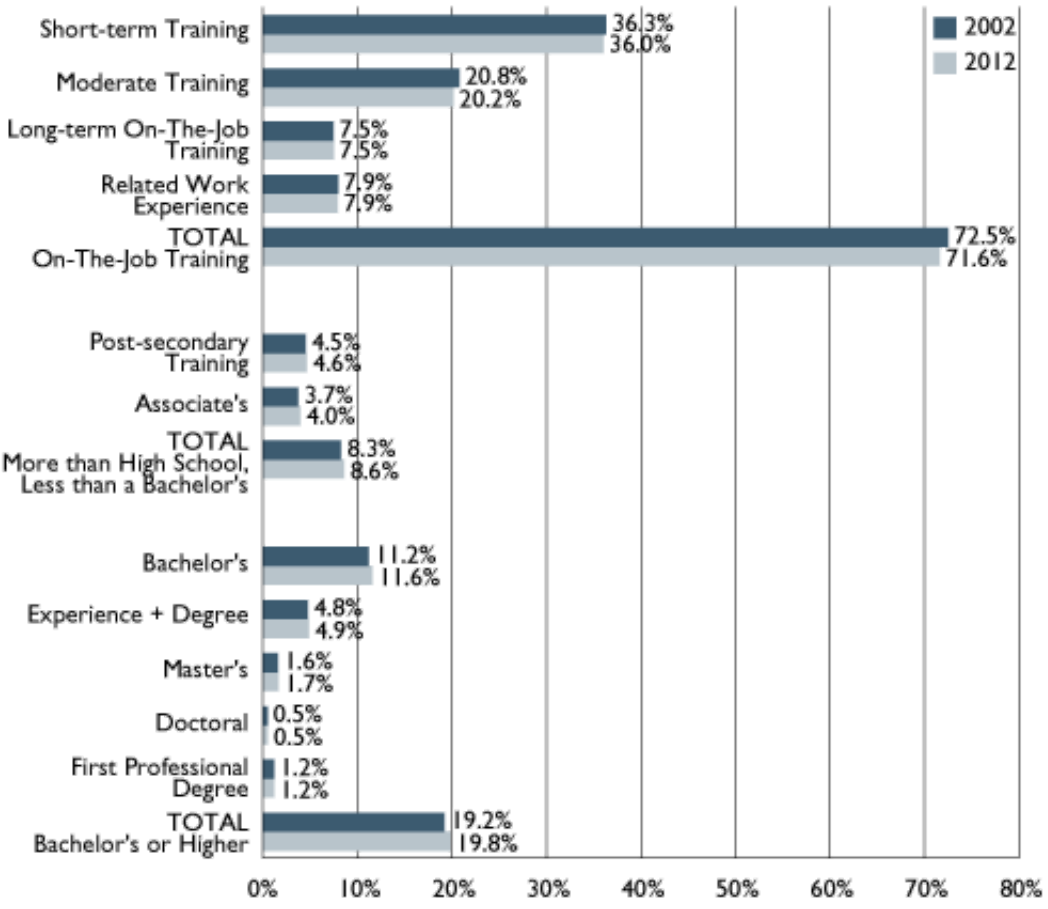
According to Utah occupational projections by the Utah Department of Workforce Services (DWS), from 2002 to 2012 Utah will add 365,680 jobs or an increase in total employment of nearly 31% over 2002. From 2002 to 2012, occupations that typically require higher education will grow at a faster rate than occupations that only require on-the-job training (Figure 1). It should be noted that occupations requiring on-the-job training will still account for a larger number of new jobs. By 2012, at least a bachelor's degree will be required for nearly 19.8% percent of workers compared to 19.2% percent in 2002 (Figure 2). Although the 0.6% increase may not seem like much, it represents an increase of nearly 80,000 new jobs. In contrast, the share of jobs requiring some post-secondary training or an associate's degree will increase by 0.3% and those requiring only on-the-job training will decrease by 0.9%.[1]

Figure 1: Percent Job Growth by Required Training Level, 2002 to 2012



Source: Utah Department of Workforce Services; Calculations by Utah Foundation

Figure 2: Percent of Total Jobs by Required Training Level, 2002 & 2012



Source: Utah Department of Workforce Services; Calculations by Utah Foundation

In addition to an increasing share of job opportunities, those with at least a bachelor's degree enjoy better quality job opportunities. These graduates will earn better salaries as well as enjoying increased professional mobility. While there are certainly gains in earning an associate's or receiving some post-secondary education, the gains are limited when compared with the opportunities gained from earning a bachelor's degree. DWS, in its publication Utah Job Trends, ranks jobs based on employment outlook and wages and lists what it considers to be "five star" jobs. Among the "five star" jobs, thirteen require a bachelor's degree, while only seven require an associate's degree or postsecondary vocational training(Figure 3).[2]

Figure 3: Five Star Jobs

Title	Entry Wage	Average Wage	Training Level
Registered Nurses	$18.30	$23.10	Associate's degree
Respiratory Therapists	$16.70	$19.80	Associate's degree
Paralegals and Legal Assistants	$13.50	$18.00	Associate's degree
Dental Hygienists	$25.60	$34.40**	Associate's degree
Cardiovascular Technologist & Technician	$12.60	$19.70**	Associate's degree
Electrician and Electronic Engineering Technicians	$8.90	$19.60	Associate's degree
Computer Software Engineers, Applications	$21.50	$33.30	Bachelor's degree
Computer Software Engineers, Systems Software	$21.50	$32.80	Bachelor's degree
Civil Engineers	$20.40	$29.50	Bachelor's degree
Computer Systems Analysts	$20.90	$28.30	Bachelor's degree
Construction Managers	$20.10	$32.00	Bachelor's degree
Database Administrators	$19.20	$29.00	Bachelor's degree
Environmental Engineers	$21.40	$30.00	Bachelor's degree
Health and Safety Engineers, Except Mining Safety Engineers	$21.10	$29.80	Bachelor's degree
Industrial Engineers	$20.20	$28.60	Bachelor's degree
Industrial Production Managers	$21.00	$34.50	Bachelor's degree
Mechanical Engineers	$22.30	$29.90	Bachelor's degree
Physician Assistants	$22.00	$32.70	Bachelor's degree
Sales Engineers	$20.10	$34.40	Bachelor's degree
Financial Managers	$16.70	$33.20	Degree plus experience
General and Operations Managers	$17.10	$35.80	Degree plus experience
Chief Executives	$26.95	$60.30	Degree plus experience
Computer and Information Systems Managers	$22.62	$38.27	Degree plus experience
Education Administrators, Elementary and Secondary School	$60,100	$68,800*	Degree plus experience
Marketing Managers	$21.00	$39.40	Degree plus experience
Sales Managers	$18.50	$37.00	Degree plus experience
Education Administrators, Postsecondary	$19.30	$34.00	Degree plus experience
Engineering Managers	$29.60	$42.00	Degree plus experience
Human Resources Managers	$18.10	$30.30	Degree plus experience
Management Analysts	$19.00	$34.60	Degree plus experience
Medical and Health Services Managers	$20.40	$32.70	Degree plus experience
Lawyers	$31.00	$59.40	First professional degree
Pharmacists	$29.80	$37.00	First professional degree
Dentists	$26.70	$56.20**	First professional degree
Health Specialties Teachers, Postsecondary	$37,200	$60,956*	Master's degree
Operations Research Analysts	$16.00	$28.00**	Master's degree
Physical Therapists	$20.00	$28.00	Master's degree
Real Estate Sales Agents	$8.90	$22.30	Postsecondary vocational

* Annual Wages
** Estimated Wage

Source: Utah Department of Workforce Services

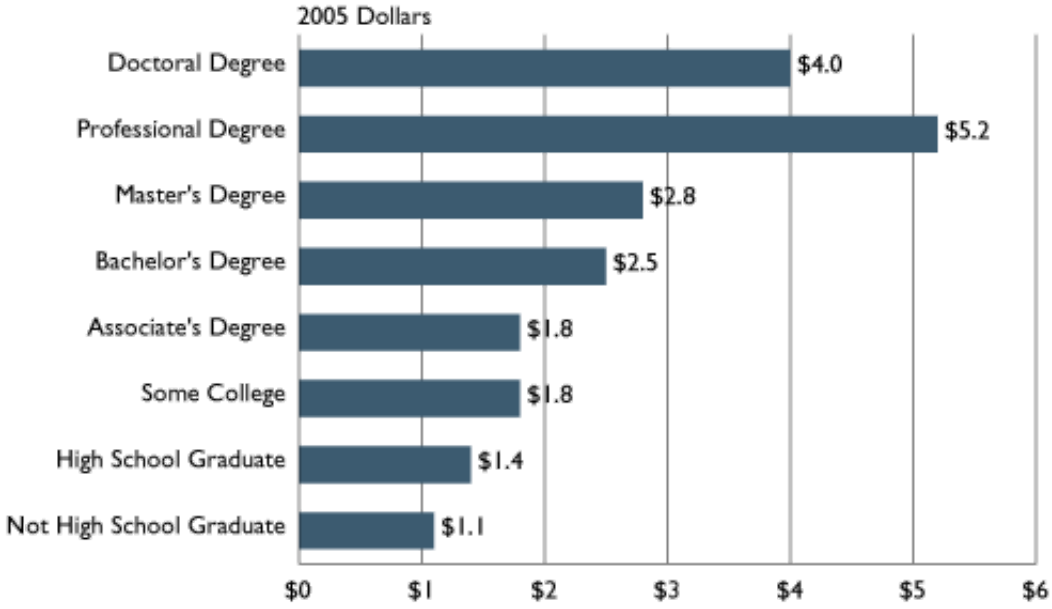
Also, an examination of unemployment rates by educational attainment reveals that the greatest employment levels are enjoyed by those with a bachelor's degree or higher. Based on data from the 2003 Current Population Survey, the statewide unemployment rate for persons 25 years and older with high school diplomas was 4.2%. Interestingly, unemployment rose to 4.4% for those who have some college experience or an associate's degree. In contrast, the unemployment rate dipped to 2.1% for those with at least a bachelor's degree.[3]

Lifetime Earnings

While Utah Foundation's December 2005 report found that many first year college graduates were earning less than $30,000, graduates with a four-year degree will earn significantly higher earnings over the course of their lifetime. According to the Census Bureau, on average a bachelor's degree holder will earn about $2.5 million over 40 years, while associate's degree holders earn about $1.8 million, and high school graduates earn $1.4

million (Figure 4).[4] A bachelor's degree in lifetime earnings is worth over $1 million more than receiving only a high school diploma. Also, obtaining an advanced degree can mean even greater lifetime earnings.

Figure 4: Expected Lifetime Earnings by Educational Attainment (in millions)

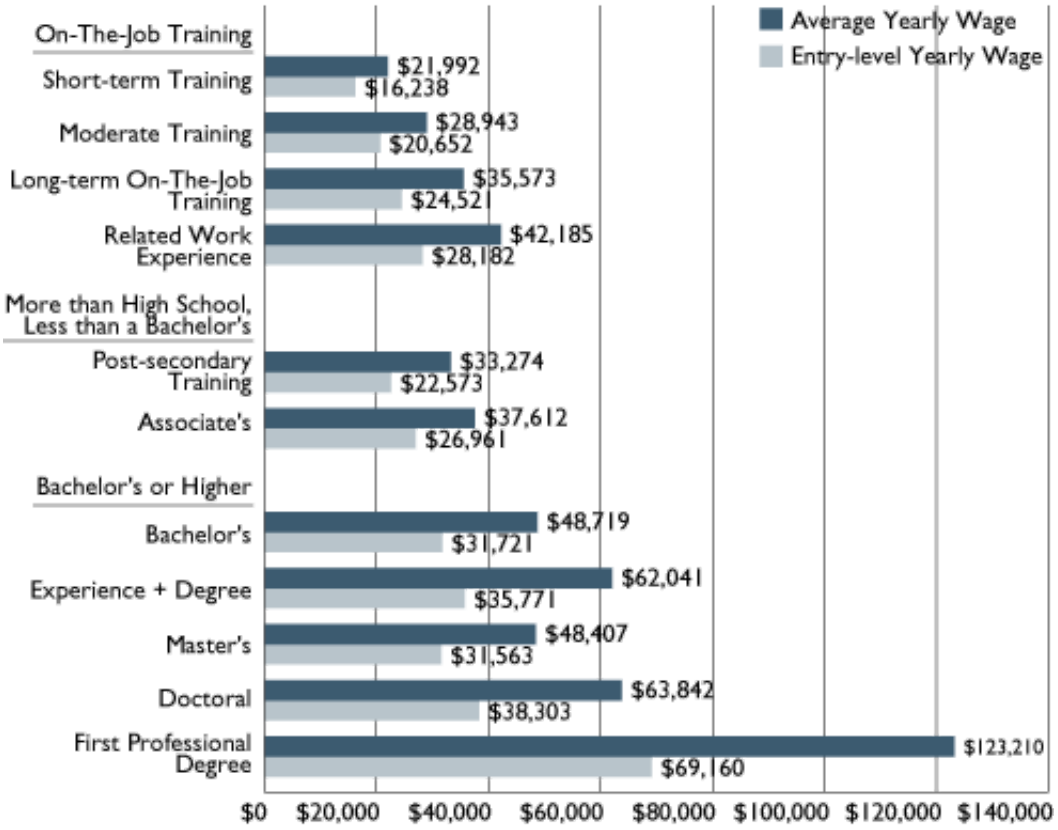


Source: Census Bureau

Work Experience

Starting salaries for many graduates are often low because of a lack of work experience. Most students of four-year colleges attend school full-time immediately after graduating from high school, leaving students with little opportunity to gain relevant work experience. Therefore, starting salaries are significantly lower than the average earnings of those with more experience. Figure 5 details the differences among starting wages or salaries for positions requiring at least a bachelor's degree, some higher education, or only on-the-job training. [5] The chart shows that while starting salaries can be low, future earnings within the same position can dramatically increase with experience.

Figure 5: Comparison of Average & Entry-level Wages



Note: Yearly wage assumes 40 hour work week
Source: Utah Department of Workforce Services, Calculations by Utah Foundation

Also, according to the Utah Department of Workforce Services, many higher paying jobs require at least three to five years of relevant work experience in addition to a college degree.[6] Therefore, many lower earning first-year graduates will be in position to move to a higher paying job in a few years. Census estimates show that there are significant increases in earnings for bachelor's degree holders until they reach their mid-50s (Figure 6). The largest increase in earnings ($9,238 on average) occurs between the 25 to 29 year old cohort and the 30 to 34 year old cohort.[7]

Figure 6: Average Yearly Earnings by Age and Educational Attainment

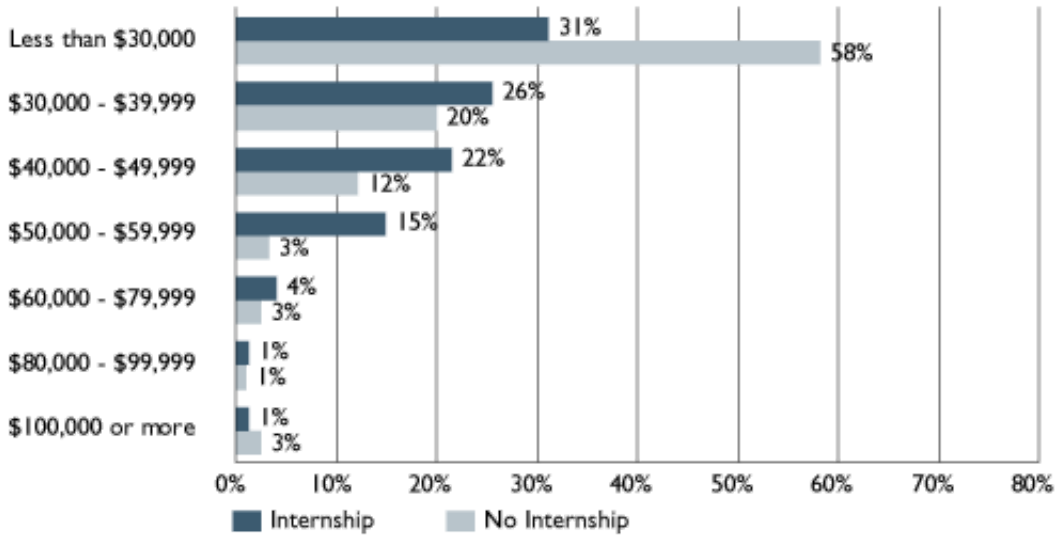
	Not High School Graduate	High School Graduate	Some College	Associate's Degree	Bachelor's Degree	Master's Degree	Professional Degree	Doctoral Degree
25+ years	$23,420	$30,436	$36,758	$38,216	$52,231	$62,295	$109,551	$89,433
25 to 29 years	19,280	24,977	28,186	29,349	38,118	43,614	49,162	60,023
30 to 34 years	21,599	28,754	33,068	33,977	47,356	53,240	73,775	65,339
35 to 39 years	22,480	29,998	36,616	37,631	53,519	66,606	114,998	82,763
40 to 44 years	23,800	31,968	38,970	42,147	56,226	62,361	110,316	89,948
45 to 49 years	23,259	32,043	39,134	40,032	57,281	66,971	116,835	93,800
50 to 54 years	25,780	32,223	41,564	42,913	61,324	64,605	107,726	99,821
55 to 59 years	26,918	32,781	42,380	44,083	60,437	67,622	137,035	96,873
60 to 64 years	26,904	32,570	39,080	42,609	53,911	67,592	172,461	99,434

Note: Estimates based on full-time year-round employment
Source: Census

Internships

Utah Foundation, in its December 2005 publication, reported that on average, bachelor's graduates from all Utah schools who completed an internship received significantly higher starting salaries than those students who had no internship experience.[8] For example, 69% of University of Utah graduates who completed on internship receive salaries above $30,000, whereas that percentage fell to 42% for those who did not intern (Figure 7).

Figure 7: Salaries of University of Utah Bachelor's Graduates by Internship Status



The National Association of Colleges and Employers (NACE) found in its 2005 Experiential Education Survey that "44.9 percent of employers said they offer higher salaries to new hires with co-op/internship experience than they offer to those without such experience." NACE also reported that employers offered full-time employment to 52.3 percent of interns.[9]

Major/Concentration

Overall, starting salaries are largely determined by a graduate's chosen field of study. While the purpose of a college education can vary widely from student to student, those who choose to major in fields that develop highly demanded technical skills will obviously command higher starting salaries after graduation. Engineering and science graduates along with business graduates, as a group, receive the highest starting salaries, while those graduates in the liberal arts, humanities, and education receive the lowest starting salaries (Figure 8).[10]

Figure 8: Starting Salaries for 2004-05 Graduates by Major

Major	Average Salary Offer
Engineering Majors	$49,636
Computer Sciences Majors	$49,110
Business Majors	$41,233
Health Sciences Majors	$39,499
Sciences Majors	$38,121
Home Economics Majors	$33,565
Agriculture & Natural Resources Majors	$32,403
Communications Majors	$31,900
Humanities & Social Sciences Majors	$31,212
Education Majors	$30,646

Source: National Association of Colleges and Employers

The demand for computer science and engineering graduates in Utah is especially apparent. According to DWS, ten of the thirteen "five star" jobs that require a bachelor's degree without experience are in computer science and engineering fields. However, in 2004 only 9% of the graduates from Utah schools received degrees in either computer and information sciences or engineering.[11]

Other Benefits to College Education

The calculation of benefits from a college education is often limited to a financial analysis. However, the outcomes of a college education go beyond increased incomes and better job opportunities. According to a 2004 report published by the College Board, the individual benefits that college graduates enjoy include: lower poverty rates, better health, lower incarceration rates, better civic engagement (voting and volunteerism), and improved quality of life for their offspring.[12] Also, an article in the ERIC (Education Resources Information Center) Digest reports that college graduates benefit society by becoming "more open-minded, more cultured, more rational, more consistent and less authoritarian; these benefits are also passed along to succeeding generations." The article also finds that a college degree "has been shown to decrease prejudice, enhance knowledge of world affairs and enhance social status while increasing economic and job security for those who

earn bachelor's degrees."[13]

Conclusion

While the average Utah graduate in Utah Foundation's 2005 survey earned less than $30,000 a year, those salaries will grow significantly in the future, Research shows that over the long-term, most college graduates benefit significantly from their investment in a college education. Graduates will enjoy better job opportunities, increased job security, and better salaries with experience. In addition to employment benefits, college graduates will also enjoy many non-monetary advantages that will not only benefit the individual, but society and future generations.

Endnotes

[1] Calculations based on Utah Occupational Projections 2002 – 2012. Utah Department of Workforce Services, September 2004.

[2] Utah Job Trends: Statewide Occupational Outlook. Utah Department of Workforce ServicesP>

[3] Pak, Richard. Recession and Recovery: Recent Challenges for Utah's Workforce. Utah Foundation, October 2004.

[4] In 2005 Dollars. Day, J.C., & Newburger, E.C. The Big Payoff: Education Attainment and Synthetic Estimates of Work-Life Earnings. (Current Population Reports, Special Studies, P23-210). Census Bureau. July 2002. Available: http://www.census.gov/prod/2002pubs/p23-210.pdf.

[5] Utah Occupational Projections 2002 – 2012. Utah Department of Workforce Services, September 2004.

[6] Ibid.

[7] Day, J.C., & Newburger, E.C. The Big Payoff: Education Attainment and Synthetic Estimates of Work-Life Earnings. (Current Population Reports, Special Studies, P23-210). Census Bureau. July 2002. Available: http://www.census.gov/prod/2002pubs/p23-210.pdf

[8] 2005 Pak, Richard. What is a Utah College Degree Worth? Utah Foundation, December 2005.

[9] National Association of Colleges and Employers. 2005 Experiential Education Survey. Available: http://www.jobweb.com/SalaryInfo/experiencepays.htm

[10] National Association of Colleges and Employers. 2005 Summer Salary Survey. Available: http://www.jobweb.com/SalaryInfo/05_summer.htm

[11] Calculated from data from Utah System of Higher Education 2005-2006 Databook.

[12] Baum, S. & Payea, K. Education Pays 2004. The College Board. 2004.

[13]Porter, Kathleen. The Value of a College Degree. ERIC Digest. 2002.

This research brief was written by Research Analyst Richard Pak. Mr. Pak and Executive Director Steve Kroes may be reached for comment at (801) 355-1400. They may also be contacted by email at: rich@utahfoundation.org or steve@utahfoundation.org. For more information about Utah Foundation, please visit our website: www.utahfoundation.org.
