

# Economics

**E**conomics is the study of the allocation of resources and the production, distribution, and consumption of goods and services. Economists examine how societies produce and exchange goods and services to satisfy material needs. They also analyze the process of economic growth and change and identify policies that contribute to its success or failure. Most economists are concerned with the applications of economic policy in a particular area such as finance, labor, agriculture, transportation, energy, or health. Others develop theories to explain phenomena such as unemployment or inflation.

Economists conduct research, collect and analyze data, monitor economic trends, and develop forecasts such as energy costs, interest rates, and the amount of imports. They use their understanding of economic relationships to advise businesses and other organizations, including insurance companies, banks, securities firms, industry and trade associations, labor unions, and government agencies such as Agriculture or Labor. Economists use mathematical models to develop programs predicting answers to questions such as the nature and length of business cycles, the effects of a specific rate of inflation on the economy, or the effects of tax legislation on unemployment levels.

Economists devise methods and procedures for obtaining the data they need. For example, sampling techniques may be used to conduct a survey, and various mathematical modeling techniques may be used to develop forecasts. Preparing reports on the results of their research is an important part of the economist's job. Relevant data must be reviewed and analyzed, applicable tables and charts prepared, and the results presented in clear, concise language that can be understood by non-economists. Presenting economic and statistical concepts in a meaningful way is particularly important for economists whose research is directed toward making policies for an organization. For example, an economist working in state or local government might analyze data on the growth of school-aged populations, prison growth, and employment and unemployment rates to project spending needs for future years.

Education course work may include macroeconomics, microeconomics, medical economics, economics of crime, labor economics, women in the labor market, income inequalities and discrimination, environmental economics, comparative economics, financing government: taxation and debt, and managerial economics. Quantitative skills are very important, so mathematics, statistics, econometrics, sampling theory, and survey design courses are often taken.

Undergraduate economics students report that they have interpersonal, leadership, mathematical, and computational abilities. Job analyses also mention understanding and use of appropriate theories and methods, as well as accuracy in processing data. Persistence is required because much time is spent independently, and analysis does involve problem solving. Verbal and oral communication skills are necessary so that economists can present findings in a clear and meaningful way.

The quantitative emphasis predominates economists' interests. Whether it be mathematical modeling or the presentation of research findings numerically, mathematical interests are high. Economists also are noted by their breadth of interests and should not be pigeon-holed as entirely business oriented. Economics as a discipline fits well within the breadth and diversity of a liberal arts tradition. Economics is a social science that searches for answers to societal issues.

Economists value earning a good salary and gaining a sense of high achievement when they do difficult tasks very well. Job security is a priority; economists want to work where they will not lose their positions. Also, they differentiate themselves from mathematicians by their desire to work on social problems. They value working independently but accept the routine of research and working with numbers.

Objectivity, open-mindedness, and systematic work habits characterize those in the social sciences. However, economists accept the necessity of performing detailed work about which other social scientists may show a disdain. The quantitative orientation of economists, including heavy use of the computer, modeling applications, and use of large databases, may create for some an independence, an orientation toward prediction, and a determination "to prove" their viewpoint.

## Where Do Economics Majors Work?

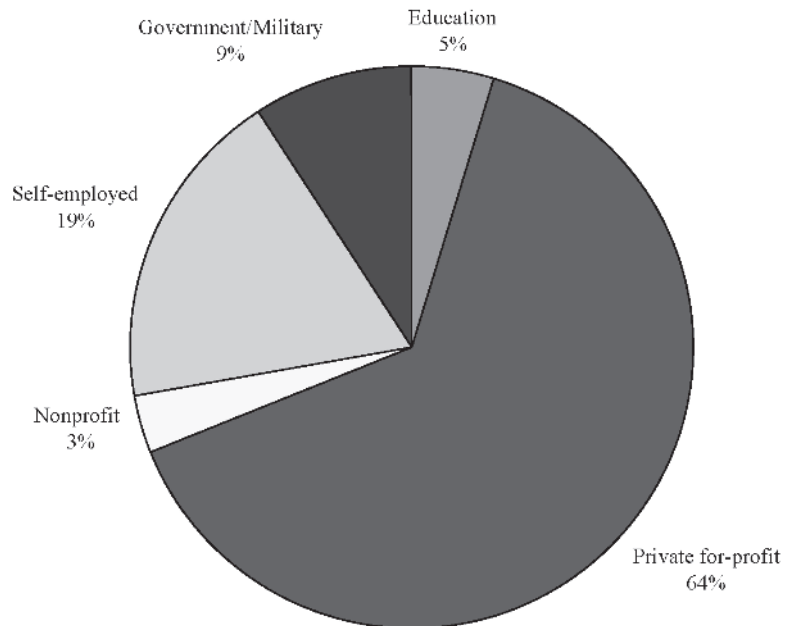
A large majority of economics graduates work in the private, for-profit sector of the economy for businesses and corporations or in their own business or consulting practice as self-employed workers. Sixty-four percent are employed by businesses and corporations in the private, for-profit sector, and nearly one-fifth are self-employed. Economics graduates also work in the government sector for various governmental agencies such as the Labor Department, the Commerce Department, the Treasury, federal reserve banks, and the like. Nearly 1 in 10 economics graduates with a bachelor's degree work in the government sector. The education sector employs only 5 percent of these graduates, and 3 percent work in the private, nonprofit sector for tax-exempt or charitable organizations.

Nearly 7 out of 10 economics graduates are employed in jobs that are related to their undergraduate major field of study. Twenty-one percent consider their jobs to be closely related to economics, and nearly one-half are employed in jobs that they consider to be somewhat related to their undergraduate major field of study. The latter group of graduates generally work in the business or finance fields performing duties that, although not directly related to their classroom training, do bear some relationship to what they learned in their undergraduate economics curriculum. The remaining 30 percent work in jobs that are not related to economics.

Why do economics graduates work in jobs that are not related to their undergraduate major field of study? The 3 out of 10 graduates who fall in this category offer a variety of reasons for their employment choice. When asked to select the one most important factor influencing their choice to work in an unrelated job, one-third of the graduates employed in unrelated jobs cite

**FIGURE 1**

Percentage Distribution of Employed Persons with Only a Bachelor's Degree in Economics, by Major Sector of Economic Activity



pay and promotion opportunities, and 17 percent report a change in their career and professional interests. More than 15 percent are forced to work outside their field because of a lack of related jobs, 10 percent cite family-related reasons, and 9 percent report that the most important factor that influenced their employment in an unrelated job is the overall work environment.

## Occupations

A large number of economics graduates are employed in managerial, finance, insurance, real estate, marketing, and sales sectors of the economy. Six out of the top 10 occupations that predominantly employ economics graduates belong to these sectors of the economy. A little more than 63 percent of employed economics graduates work in these 6 occupations. Employment of economics graduates is fairly concentrated. Nearly 73 percent of all employed

economics graduates work in the top 10 occupations.

Graduates are most concentrated in top- to mid-level executive, administrative, and managerial occupations. Nearly 21 percent work in these occupations. Insurance, finance, real estate, and business services occupations employ 11 percent of economics graduates, and another 11 percent are employed as accountants, auditors, and financial specialists. One out of 10 works in a sales occupation, and 5 percent work in miscellaneous marketing and sales occupations. Nearly 7 percent work in management-related occupations as management analysts, purchasing agents, or regulatory officers. Among the top 10 occupations that employ economics graduates are non-health service, clerical, agricultural, and forestry occupations. However, these occupations together employ fewer than 10 percent of the graduates.

**Table 1**  
Top 10 Occupations That Employ Persons with Only a Bachelor's Degree in Economics

Top 10 Occupations	PERCENT OF EMPLOYED		
	All	Men	Women
Top- and mid-level managers, executives, administrators	20.8	23.6	10.2
Insurance, securities, real estate, business services	11.0	12.3	6.2
Accountants, auditors, other financial specialists	10.5	10.0	12.2
Sales occupations, including retail	10.0	11.3	5.3
Other management-related occupations	6.5	6.2	7.4
Other marketing and sales occupations	4.5	4.3	5.3
Other service occupations, except health	2.8	2.2	5.3
Agriculture, forestry, fishing, and related occupations	2.6	3.3	0.0
Other administrative (e.g., records clerks, telephone operators)	2.4	1.4	6.3
Construction trades, miners, well drillers	1.6	2.1	0.0

Nearly 8 out of 10 economics graduates are men. The occupational employment patterns of male and female graduates are very different. The employment of female graduates is dispersed across different occupations, while male graduates tend to be more concentrated in a few occupations. The top 10 occupations employ 77 percent of male graduates compared to only 58 percent of female economics graduates.

- ▶ Male economics graduates are more than two times as likely as females to work in upper level executive, administrative, and managerial occupations. 24 percent of male graduates work in these occupations, compared to only 10 percent of their female counterparts.
- ▶ Men also are 2 times (12 percent versus 6 percent) more likely than women to work in insurance, securities, real estate, and business services occupations.

- ▶ Sales occupations also are more likely to employ male economics graduates. More than 11 percent of male graduates are employed in sales occupations that employ only 5 percent of female economics graduates.
- ▶ Women are slightly more likely than men to work in accounting, auditing, and financial specialties occupations (12 percent versus 11 percent).
- ▶ Clerical and non-health service occupations together employ 12 percent of female economics graduates and only 4 percent of their male counterparts.

## Activities on the Job

The activities of economics graduates on their jobs reflect their occupational employment. Nearly 6 out of 10 employed graduates spend most of their time during a typical workweek

performing sales, marketing, purchasing, managerial, accounting, and finance duties.

- ▶ More than one-half of employed economics graduates regularly engage in sales, purchasing, and marketing activities, and 22 percent spend most of their time during a typical week in performing these duties.
- ▶ Two-thirds of the graduates spend at least 10 hours per week at their jobs in performing management and administrative tasks, and 22 percent consider management and administration to be a major part of their job.
- ▶ Eighty-four percent of all employed economics graduates regularly spend at least 10 hours per week in accounting, finance, and contractual duties, and 14 percent of the graduates report that these duties consume most of their time at work.
- ▶ Nearly 3 out of 10 graduates regularly provide professional services like financial consulting to their clients, and 7 percent spend most of their typical workweek in providing these services.
- ▶ Economics graduates are very quantitatively inclined. They use large databases to estimate and test economic theory for its validity in the “real world.” Given this quantitative orientation and the use of large databases, computers are widely used by graduates. About 40 percent regularly perform computer application, programming, and systems-development duties, and 7 percent spend most of their time at work in these activities.
- ▶ Another 40 percent regularly spend time at work in employee-relations activities, including recruiting, personnel development, and training; however, only 4 percent consider these duties to be a major portion of their job.

- ▶ Only 4 percent of economics graduates spend most of their time in teaching activities, and 3 percent devote a majority of their typical workweek to applied research activities.

## Salaries

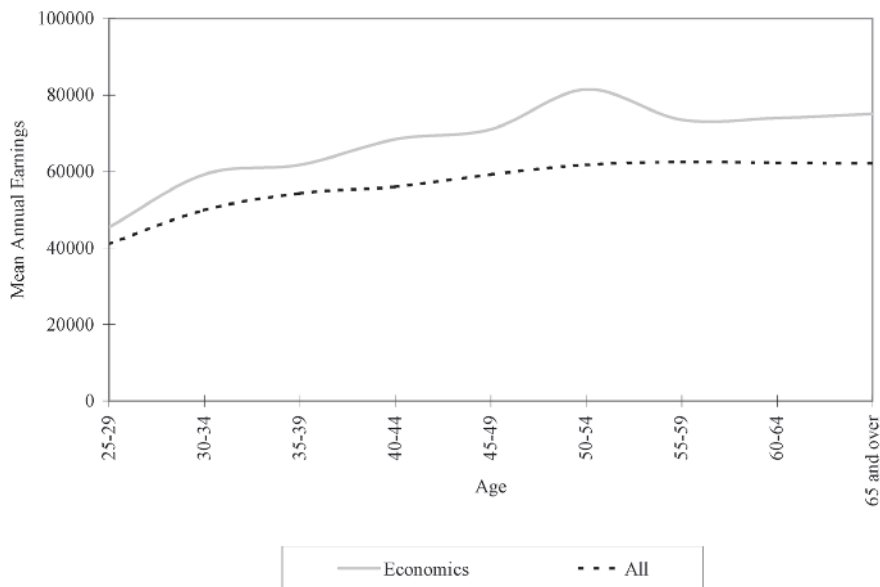
The average annual salary of economics graduates with only a bachelor’s degree who are employed full-time is \$64,000, a level that is 18 percent higher than the average annual salary of all full-time employed college graduates. As with most college graduates, the salary of economics graduates increases with age, indicating that they get more productive and therefore can earn higher salaries as they spend more time on the job. The average annual salary of economics majors increases at a faster pace as they age, and their average salary exceeds the average salary of all college graduates in every age range.

- ▶ The average annual salary of 25- to 29-year-old economics graduates is \$45,400. Between the ages of 30 and 34, the average annual salary rises to \$59,200, followed by another increase to \$61,800 in the next age range of 35- to 39-year-old graduates.
- ▶ Between the ages of 40 and 44, graduates’ average annual salary is \$68,400, rising to \$71,100 in the 45-to-49 age group. The average salary of economics graduates peaks at \$81,400 between the ages of 50 and 54.

Securing employment in a job that is closely related or somewhat related to their undergraduate major is associated with sizable salary advantages among economics graduates. The average annual salary of graduates who work in closely related jobs is \$68,300. Graduates with employment in jobs that are somewhat related to their major earn \$65,600 per year. In contrast, the average salary of graduates employed

**FIGURE 2**

Age/Earnings Profile of Persons with Only a Bachelor's Degree in Economics  
(Full-Time Workers, in 2002 Dollars)



full-time in a job that is not related to their field of study is \$53,200.

Economics graduates who work for businesses and corporations in the private, for-profit sector earn a higher average salary, \$64,800, than graduates working in other sectors of the economy. The average annual salary of self-employed economics graduates who work full-time in their businesses or practices is \$63,800. The government sector pays an average annual salary of \$51,200 to economics graduates who work on a full-time basis. Like most other college graduates from different majors, the educational sector, which pays full-time employed economics graduates \$39,800 per year, is the lowest-paying sector in the economy.

The average salaries of economics graduates in 7 out of the top 10 occupations that predominantly employ economics graduates are considerably higher than the average salary of all

college graduates. The average salaries of economics graduates and all college graduates in each of these 10 occupations are presented below.

- ▶ The highest earnings of economics graduates are in the top- to mid-level managerial and administrative occupations. The average salary of economics graduates in these occupations, \$85,800, is 16 percent higher than the average salary of all college graduates employed in these occupations. These occupations are more likely to employ male economics graduates than female graduates.
- ▶ The annual salary of economics graduates employed in insurance, finance, and real estate occupations, another area that predominantly employs male economics graduates, is \$75,600.

**Table 2**  
Annual Salary of Full-Time Workers with Only a Bachelor's Degree  
in Economics, Top 10 Occupations (in 2002 Dollars)

Earnings in Top 10 Occupations	All	Economics
Total	\$54,171	\$64,015
Top- and mid-level managers, executives, administrators	\$74,051	\$85,854
Insurance, securities, real estate, business services	\$68,273	\$75,644
Accountants, auditors, other financial specialists	\$57,382	\$61,433
Sales occupations, including retail	\$52,378	\$56,087
Other management-related occupations	\$51,921	\$56,477
Other marketing and sales occupations	\$58,208	\$64,555
Other service occupations, except health	\$39,984	\$48,228
Agriculture, forestry, fishing, and related occupations	\$45,437	\$45,055
Other administrative (e.g., records clerks, telephone operators)	\$34,547	\$31,950
Construction trades, miners, well drillers	\$50,531	\$48,307

- ▶ The average salary in miscellaneous marketing and sales occupations is \$64,600 per year, and the pay of economics graduates employed in sales occupations and management-related occupations—for example, management analysts, purchasing agents, or regulatory officers—is \$56,000 per year.
- ▶ Non-health service occupations, which are more likely to employ female than male economics graduates, pay an average salary of \$48,200 per year.
- ▶ The lowest average salary of economics graduates out of the top 10 occupations is in clerical jobs. The annual salary of graduates in this occupation is only \$31,900 per year. This occupation is more likely to employ female graduates than male economics graduates.

## On-the-Job Training

The career potential of a job is closely associated with the amount of work-related training on the job. Work-related training is regarded as an investment by firms because it makes workers more productive. Firms that invest in their workforce are more likely to offer pay increases and promotions to match the increasing productivity of their workers. Firms that do not invest in their workers are relatively less likely to offer pay increases and promotions. The rate of participation in work-related training during a year among employed economics graduates is the same as the training participation rate of all college graduates: 68 percent.

- ▶ Of those economics graduates who receive some training during a year, 74 percent receive technical training in the occupation in which they are employed.

- ▶ Forty-two percent of the training recipients receive management or supervisor training.
- ▶ Thirty-one percent receive training to improve their general professional skills, such as public speaking and business writing.

Although economics majors decide to participate in work-related training activities, workshops, or seminars for numerous reasons, five factors stand out as the most commonly cited. Included among them are a need to improve skills and knowledge in the occupational area of their employment, mandatory training requirements of the employer, increased opportunities for advancement in the form of a promotion and a higher salary, a need to obtain a professional license or certificate, and a need to acquire skills for a new position.

When asked to select the one most important reason to acquire training, 60 percent of economics majors who undergo training identify the need to improve their occupational skills and knowledge. Another 14 percent report a mandatory training requirement by employers as the most important factor for their involvement in work-related training. Nearly 10 percent rank an improvement in their opportunities for a salary increase or a promotion as the number one factor in influencing their decision to participate in work-related training. According to 8 percent, the most important factor for their involvement in training is the need to obtain a professional license or certificate, and 5 percent consider the need to learn skills for a recently acquired job to be the number one reason for their participation in work-related training.

## Post-Graduation Activities

More than 35 percent of economics graduates with a bachelor's degree proceed to earn a

postgraduate degree: 24 percent earn a master's degree, 4 percent graduate with a doctorate, and another 9 percent earn a professional degree.

- ▶ More than 53 percent earn their master's degree in business management and administrative services. Only one-fifth choose economics as their major field of study for their master's degree. Another 8 percent secure their master's degree in education. The rest are dispersed across different major fields.
- ▶ Nearly 60 percent of all doctorate degrees of undergraduate economics majors are earned in economics. A little more than 9 percent are earned in business administration and management, and another 9 percent are earned in education.
- ▶ Nearly 9 out of 10 (87 percent) professional degrees among undergraduate economics majors are earned in law, and 9 percent are earned in the health professions.

Out of all economics graduates under the age of 65, 88 percent are employed. Only 3 percent are officially unemployed; that is, they are not employed and are actively seeking employment. The remaining 9 percent are out of the labor force; that is, they are not employed and are not seeking employment. Many of the labor force withdrawals among economics graduates are attributable to family responsibilities, retirement, and a lack of the need or desire to work. Nearly 38 percent cite family responsibilities as one of the reasons for their labor force withdrawal. Another 38 percent cite retirement as the reason for their labor force withdrawal, and 27 percent withdraw from the labor force because they do not have the need or desire to work. One out of 10 labor force withdrawals is attributable to chronic illness or a disabling condition, and 5 percent of these withdrawals are because of postgraduate school enrollment.

## Employment Outlook

According to the projections by the U.S. Bureau of Labor Statistics, employment in occupations that require at least a bachelor's degree is expected to grow faster than employment in other sectors of the American labor market. Between 2000 and 2010, the U.S. economy is projected to add 22.2 million jobs, yielding an employment growth rate of 15.2 percent. The employment growth projections in the top 10 occupations that are most likely to employ economics graduates are presented in this section.

- ▶ The fastest growth in demand is projected in miscellaneous marketing and sales occupations. Adding 137,000 jobs between 2000 and 2010, the employment in these occupations is projected to grow by 22 percent. Only 5 percent of economics graduates are employed in these occupations.
- ▶ The area of largest employment for economics graduates—upper-level executive, administrative, and managerial occupations—is projected to add 1.27 million jobs between 2000 and 2010, yielding an employment growth rate of 12 percent. More than twice as many male economics graduates as females are employed in this occupation. This occupation also is associated with the highest salary among economics graduates.
- ▶ The demand for personnel in insurance, finance, and real estate occupations is projected to increase at a rate of 12 percent between 2000 and 2010. This occupation also is more likely to employ male than female economics graduates.
- ▶ The employment projections for accountants, auditors, and financial specialists, and for other management-related occupations such as management analysts, purchasing agents, and regulatory officers, are slightly higher than the projected growth of overall employment. Total jobs in both occupations are projected to increase by about 17 percent.

**Table 3**  
Projected Change in Employment in the Top 10 Occupations That Employ Persons with Only a Bachelor's Degree in Economics

Top 10 Occupations	Actual Employment in 2000 (000s)	Projected Employment in 2010 (000s)	Absolute Change (000s)	Percentage Change
Top- and mid-level managers, executives, administrators	10,564	11,834	1,270	12.0%
Insurance, securities, real estate, business services	1,548	1,726	178	11.5%
Accountants, auditors, other financial specialists	2,115	2,481	366	17.3%
Sales occupations, including retail	15,513	17,365	1,852	11.9%
Other management-related occupations	4,956	5,801	845	17.1%

(continued)

**Table 3 (continued)**  
 Projected Change in Employment in the Top 10 Occupations That  
 Employ Persons with Only a Bachelor's Degree in Economics

Top 10 Occupations	Actual Employment in 2000 (000s)	Projected Employment in 2010 (000s)	Absolute Change (000s)	Percentage Change
Other marketing and sales occupations	621	758	137	22.1%
Other service occupations, except health	9,652	11,287	1,635	16.9%
Agriculture, forestry, fishing, and related occupations	1,429	1,480	51	3.6%
Other administrative (e.g., records clerks, telephone operators)	16,911	18,522	1,611	9.5%
Construction trades, miners, well drillers	7,451	8,439	988	13.3%

**Table 15**  
Annual Earnings of Full-Time Employed College Graduates  
with Only a Bachelor's Degree, by Major Field of Study

	Mean Annual Earnings	Absolute Difference Relative to All	Percentage Difference Relative to All
All	\$54,171	—	—
Chemical engineering	\$75,579	\$21,408	40%
Aerospace, aeronautical, and astronautical engineering	\$73,605	\$19,434	36%
Computer systems engineering	\$70,084	\$15,913	29%
Physics and astronomy	\$69,612	\$15,441	29%
Electrical and electronics engineering	\$68,977	\$14,806	27%
Mechanical engineering	\$68,806	\$14,635	27%
Industrial engineering	\$68,411	\$14,240	26%
Civil engineering	\$66,126	\$11,955	22%
Economics	\$64,015	\$9,844	18%
Pharmacy	\$63,967	\$9,796	18%
Accounting	\$63,486	\$9,315	17%
General mathematics	\$63,376	\$9,205	17%
Medical preparatory programs	\$62,983	\$8,812	16%
Mechanical engineering technology	\$62,242	\$8,071	15%
Financial management	\$61,772	\$7,601	14%
Chemistry	\$61,619	\$7,448	14%
Applied mathematics	\$60,459	\$6,288	12%
Computer science	\$58,848	\$4,677	9%
General business	\$58,648	\$4,477	8%
Geology and geophysics	\$58,393	\$4,222	8%
Electrical and electronics engineering technology	\$57,927	\$3,756	7%
Industrial production technology	\$57,672	\$3,501	6%
Marketing	\$57,290	\$3,119	6%
Political science	\$56,971	\$2,800	5%

(continued)

**Table 15 (continued)**  
Annual Earnings of Full-Time Employed College Graduates  
with Only a Bachelor's Degree, by Major Field of Study

	<b>Mean Annual Earnings</b>	<b>Absolute Difference Relative to All</b>	<b>Percentage Difference Relative to All</b>
Physical therapy	\$56,373	\$2,202	4%
Architecture and environmental design	\$56,096	\$1,925	4%
Legal studies and pre-law	\$54,234	\$63	0%
Public administration	\$54,055	-\$116	0%
Journalism	\$52,500	-\$1,671	-3%
Liberal arts/general studies	\$52,203	-\$1,968	-4%
Data and information processing	\$52,146	-\$2,025	-4%
History	\$51,483	-\$2,688	-5%
Biology and life sciences	\$51,041	-\$3,130	-6%
Nursing	\$50,936	-\$3,235	-6%
Plant food sciences	\$50,840	-\$3,331	-6%
Geography	\$50,428	-\$3,743	-7%
Psychology	\$49,964	-\$4,207	-8%
Microbiology and biochemistry	\$49,524	-\$4,647	-9%
Communications	\$48,907	-\$5,264	-10%
English	\$48,890	-\$5,281	-10%
Forestry and environmental sciences	\$48,456	-\$5,715	-11%
Sociology	\$47,810	-\$6,361	-12%
Health and medical technology	\$47,667	-\$6,504	-12%
Foreign languages and literature	\$46,502	-\$7,669	-14%
Animal food sciences	\$46,402	-\$7,769	-14%
Criminal justice and criminology	\$46,104	-\$8,067	-15%
Anthropology and archaeology	\$45,775	-\$8,396	-15%
Physical education and coaching	\$45,073	-\$9,098	-17%
Secondary teacher education	\$44,813	-\$9,358	-17%
Mathematics and science teacher education	\$44,712	-\$9,459	-17%
Audiology and speech pathology	\$43,793	-\$10,378	-19%

	Mean Annual Earnings	Absolute Difference Relative to All	Percentage Difference Relative to All
Visual arts	\$43,559	-\$10,612	-20%
Philosophy	\$42,865	-\$11,306	-21%
Parks, recreation, leisure, and fitness studies	\$42,432	-\$11,739	-22%
Dramatic arts	\$41,580	-\$12,591	-23%
Music and dance	\$41,265	-\$12,906	-24%
Home economics: dietetics, food, and nutrition	\$38,835	-\$15,336	-28%
Elementary teacher education	\$38,746	-\$15,425	-28%
Special education	\$38,333	-\$15,838	-29%
Social work	\$37,836	-\$16,335	-30%

Source: National Science Foundation, *National Survey of College Graduates, Public Use Micro-Data File, 1993*.  
 Tabulations produced by the authors.

Clearly, the choice of undergraduate major has a powerful impact on the earnings and, ultimately, the living standards of college graduates. Analysis in this chapter has also revealed a strong relationship between the college major field of study and several labor market outcomes, including labor force participation, access to employment in certain high-level occupations, access to full-time jobs, and access to jobs that are related to undergraduate classroom training. The undergraduate major field of study also is closely associated with postgraduate education. Graduates from certain majors, such as computer science and business, are less likely to pursue postgraduate studies and more likely to enter the labor market after earning a baccalaureate degree. In contrast, graduates who major in physical sciences or mathematics are more likely to pursue postgraduate studies.

These close associations of the undergraduate major field of study with several important labor market and educational outcomes make a

compelling case for a careful selection of college major by prospective college students. The idea that the choice of major field of study has little influence on the postgraduate outcomes of college graduates is *wrong*. The choice of major strongly influences the course that graduates will follow in their transition to the adult career labor market. The skills and abilities they acquire in college have lasting and even lifetime influences on their labor market outcomes, their status in the community, their happiness on the job, and their standard of living.

We do not believe that the choice of undergraduate major should be based solely or even primarily on the basis of the earnings prospect in a given field. However, because enrolling in a college or university is a costly investment decision, investors need to be well informed about important aspects of the investment alternatives available to them. The remainder of this book contains accurate, up-to-date, and detailed information on numerous aspects of 60 specific