

Thinking about going to Graduate School?

- “I am almost done with my major... what to do next?”
 - Another day we can talk about the job market. Today we will discuss applying to graduate schools.
- *First misconception*: “Going to grad school will only increase my student loans!”
 - No!! Many schools will pay part (or all) of your tuition, plus a stipend if you work about 20 hours per week as a teaching assistant (TA) or research assistant (RA).
 - Specifically, schools only cover part of your tuition if you are in a Master’s program, but they will likely cover all your tuition plus a stipend if you are in a Ph.D. program.
- *Second misconception*: “Grad school is only useful if you want to work as a faculty at a university”
 - No!! Many of my classmates in grad school, and about half of the students graduating from WSU Econ graduate programs every year, work for the government (USDA, Federal Trade Commission, Washington State’s Office of Financial Management, Federal Reserve Banks, US Department of Justice, etc.), at international institutions (United Nations, IMF, or some of the agencies of the World Bank, such as the IADB) or in industry (American Express, Moody’s, JP Morgan Chase, Charles River and Associates, etc.)
 - Nonetheless, if you would enjoy teaching and doing research, here are some of our recent job market placements: University of Arkansas, North Carolina State University, California State University, University of Oklahoma, Eastern Washington University, Penn State University, etc.
- **Masters in Econ, Finance, Econ/Finance, etc.**
 - If you feel a little bit hesitant about starting a 4-year Ph.D. program, a good option is to go for a Masters degree first.
 - *Advantages*:
 - It is one, one and a half, or two years long; depending on the school.
 - The materials you cover are closer to some of the materials you studied as an undergrad, which facilitates your transition, and maximizes the chances you pass all your coursework.
 - An associated advantage is that the Masters program can, hence, serve you as an intermediate step before some more in-depth programs, such as a Ph.D. (Rather than jumping into a Ph.D. program right away.)

government jobs (USDA, Dept. of Justice, Dept. of Transportation, Federal Reserve, etc.), international organizations (IMF, World Bank, etc.)

- Important note for US citizens: Many institutions will only seek candidates with a Ph.D. in Econ who, in addition, are American (almost all positions at the U.S. government impose this constraint). The candidate pool, of course, shrinks to you and the guy sitting next to you in the waiting room... Nice!
- Except for some people doing Finance, your salary prospects with a Ph.D. are significantly better than with a Masters (see attached file).
- It also provides you with more degrees of freedom about what research agendas to pursue, rather than doing research in what your boss proposes.
- *Disadvantages:*
 - 2-3 years longer than a Masters.
 - The coursework is more intense: first-year courses are usually more theoretical than in a Masters program.
 - The style of the first-year coursework and exams differentiates schools, in terms of how many students they “cut.” At MIT, for instance, they are proud of selecting the “right student pool” and few of them ever leave the program. At Chicago or Boston College, on the contrary, they accept huge in-coming classes (45 students!) and keep about half or less. Fortunately, schools are trying to avoid such a wasteful use of resources, reducing the size of in-coming classes to only those students who will likely pass.¹
- **Application process (applicable to both Masters and Ph.D.s):**
 - **Grades:** there is no cutoff. A GPA above 3.8 can get you in many of the top schools in the country. A GPA below 3.6 essentially makes the top 20 schools really unlikely (but after a Masters degree they will be reachable). A GPA below 3.4 implies a further drop in the tier of schools you can target (Being accepted into a Ph.D. program with GPA of 3.1 or below is really difficult. In this case, a Masters is definitely a better first step.)
 - **GRE/GMAT:** The GRE is usually required by most schools in Econ programs. While the GMAT is normally for Finance programs alone, the GRE is widely accepted for both types of programs. Both exams don’t have anything to do with Economics, in particular:
 - The GRE exam consists of three sections: quantitative section (high school algebra and some geometry, nothing about calculus!), analytical section (write a short essay, such as half a page or so, describing the flaw in an argument), and verbal (fill out the missing words, find a close synonym for..., etc.).

¹ For a ranking of Ph.D. programs in different disciplines in Economics see, for instance, <http://econphd.econwiki.com/rankings.htm>

- Econ departments will ask you to basically nail the quantitative section (around 760 out of 800, or a higher grade), but won't care much about your verbal section being lower than that of a Swedish candidate (no kidding, we have seen so many cases!).
- You can take it several times, once per month, until you nail it. The cost, however, induces you to come to the exam as prepared as possible: \$185, so you only need to take it once (or twice). The university you are applying to is only informed about the GRE score you send to them. Because of the particularities of the exam, most students need to take it more than once.
- For more information visit: www.ets.org/gre, where you can find sample exams to practice, etc.
 - News related to these costs: The SES would like to offer an "EconClub Grant for Applications to Graduate Studies." Interested students should apply to this grant in October of every academic year (submitting their resume, transcript, a one-page proposal and, if possible, one letter of recommendation). Applicants should be graduating in the academic year in which they are applying (or by the following December), have a 3.5 GPA or higher, and be active members of the EconClub. In December, the undergraduate awards committee (whose current members are Karla Makus, Patricia Kuzyk, Ana Espinola and Felix Munoz) would assess applications, and decide whether some of them merit receiving the grant. The student receiving the grant will be notified in the following weeks, being informed that he/she will be compensated for his/her GRE exam fees and for his/her application fees, up to \$500 in total, as long as he/she provides the School of Economic Sciences receipts of all of the expenses he/she claims. We will provide more information in the next month.
- **Undergraduate courses that could help you in graduate school:**
 - The more math courses you have taken the better: not only a couple of courses on Calculus and Algebra. If you take a slightly more advanced course admissions offices will put you on the top of the list. Here are some suggestions: courses on Real Analysis (such as Math 401), Introduction to Mathematical Reasoning (Math 301), or Differential Equations (Math 315), Probability and Statistics (Math 360), etc.
 - Regarding Econ courses, your admission package looks way better if you have taken the "hard" classes: some additional econometrics/statistics, game theory, industrial organization, labor economics, etc.
 - What if you have already taken most of these classes? Then enroll in the Math or Micro class for Masters students.

- *If you are afraid to enroll:* Contact the instructor teaching the class ahead of time telling him/her about your plans to apply to grad school, and your intention to sit in the class (without taking it for credit). They will surely allow you to sit in the class and, if you are interested, to submit assignments and exams as a regulator student.
 - *Example:* an instructor who taught you an undergraduate class also teaches a graduate level class (in the same or a different semester). You contact him/her in order to sit in the class, and submit several assignments, which are at a similar level as the assignments submitted by Masters level students. Then, you ask the instructor to write you a letter of recommendation when applying to grad school. Fantastic! He/she will write that he knows you from an undergrad class you took with him, but that you approached him to take the graduate level class, and that you showed to be ready for a Masters program. The faculty reading his letter of recommendation will know two things about you: you actively searched for ways to expand your learning process at WSU, and that you have been exposed to a relatively advanced material, similar to that at their graduate program. In short: you are a great candidate for their program.
- **Letters of recommendation:**
 - You will need 2-3 letters of recommendation from faculty that knows you relatively well: either you had him/her in more than one class (your grade in that class was good, and you visited the faculty in his/her office hours), or you worked as a TA for him/her.
 - The “ideal” recommendation letter must, therefore, come from some faculty who knows you well, and who had to go through a hard graduate program himself/herself. Recall that graduate programs want to know whether you can handle the coursework at top programs (faculty who got their Ph.D.s at top schools know how much you will have to work if you are admitted), and your ability to teach review sessions as a TA (something you will probably be asked to do, especially after your first year of coursework), or work as an RA while in the program.
 - **Miscellaneous things that look good on your CV/application:**
 - Being an EconClub member (of course!),
 - doing some research in the EconS 490 class,
 - being the TA for some class is also appreciated (especially upper level micro, macro or econometrics),
 - being the RA for some faculty at WSU or Univ Idaho, and
 - participating in other student/religious organizations is also good.

- How many programs should I apply to?
 - Application fees differ among programs (approximately \$50-75 per application, greatly variation), but most students usually apply to about 12 programs.
 - Importantly, you should look at your pool of schools as a “portfolio problem,” where you don’t want to risk too much, yet not be too risk averse!
 - Maybe sending applications to 1-2 schools from the top 15-20, then about 5 ranked from #20 to #40, another 3 applications in the bracket of #40-#60, and the remaining applications to schools in the #60-#80 (including WSU, of course).
 - Of course, your distribution of applications depends on the strength of your profile: send a few more to the bracket #20-#40 if your GPA is really strong, or rather more to the #60-#80 bracket otherwise.

- What about MBA programs?
 - They are only useful after about 3-5 years of job experience.
 - In fact, most schools won’t even consider your application if it is not accompanied by such job market experience.
 - They are really applied.
 - Are they worth it?
 - Mixed evidence: some studies suggest that the increase in average salaries due to the MBA is mostly explained by the contacts created during your 2 years of coursework, e.g., your classmate is now working for one of your input suppliers.

- What about applying to Masters/PhD programs overseas?
 - Several schools in Canada are extremely good (UBC, UToronto, McGill), and so are many schools in the UK (LSE, UCL, Essex, Warwick), and in continental Europe: Universitat Pompeu Fabra and Universidad Carlos III in Spain, Toulouse in France, Bonn in Germany, Stockholm in Sweden, etc.
 - While their coursework is taught entirely in English, their pool of students is mostly international, and their preparation is comparable to top #20-#40 schools in the US, their job market placements are usually harder than that of students graduating from similar schools in the US. Generally, students in European schools get several offers from the country in which the school is located (or nearby countries) but few offers from American universities or agencies. Of course, this is only on average: many good students who recently graduated from the above universities are working at top US universities and firms.

- Other Masters/Ph.D.s in more specialized fields:
 - *Examples:* Law and Economics, Sports Economics, International Economics, etc.
 - If you go to some of the top schools it might be worth it. Otherwise it reduces the pool of job offers you can apply to once you are done.



Careers



What careers follow the economics baccalaureate?

Economics majors are successful in a wide variety of careers. Although various roles in businesses are most common, economics majors are successful in law, medicine, government, non-profits, and international relations, as well as in academic roles.

Career Earnings

One way to think about career opportunities is to consider the level of earnings typically found with different levels and kinds of education in different careers.

The Corporate World & the MBA

Most economics majors pursue employment in the private sector. Graduates in economics succeed in many occupations. Some students plan to earn the Masters of Business Administration (MBA) degree in time. Others find employment with the BA is sufficient to fulfill their aspirations.

Economic Consulting

Some economists with BA degrees find employment as research associates with economic consulting firms. Consultants advise firms on business strategies, prepare economic evidence for court cases, and develop analyses to influence public policy.

Law and Other Professions

Law school is also a common destination for recent graduates in economics. The careful reasoning in economics is a good fit for law and many careers in the law influence significant economic decisions for firms.

Government and Not-for-profits

Some students enter government service or choose jobs with non-profit entities. Governments at every level hire economists for their facility with statistics and analysis.

Professors, Teachers and Researchers of Economics

Some graduates in economics are interested in academic careers. They are drawn by the love of the study of economics and the prospect of teaching and writing about economics as a career.

The Department of Economics at the University of Wisconsin provides a [list of websites](#) for searching for jobs and internships.

Career Earnings

The US Bureau of Labor Statistics, Occupational Outlook Handbook (online in 2013) reports annual wages for economists in 2010. For economists of all educational levels, the median earnings in 2010 were \$89,450 with \$48,250 at the tenth percentile and \$155,490 at the 90th percentile. Source: Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2012-13 Edition*, Economists, on the Internet at <http://www.bls.gov/ooh/life-physical-and-social-science/economists.htm> (visited March 24, 2013).

Payscale.com reports its survey of people with Baccalaureate degrees (and no more) who are employed full time, showing starting salaries (typically with two-years of experience) and mid-career annual earnings. Here are selected occupations for the 2012-13 report.

College Major	Starting Salary	Mid-career Salary
Chemical Engineering	\$67,500	\$111,000
Applied Mathematics	\$50,800	\$102,000
Statistics	\$49,300	\$99,500

For Undergraduate Students

Economics for College Students

What is Economics?

Fields of Economics

Current Issues

Finding Facts

Developing Skills

Popular Books

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Foreign Students in U.S. Economics Graduate Programs

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Economics	\$48,500	\$94,900
Mathematics	\$48,500	\$85,800
Finance	\$47,700	\$85,400
Business	\$41,400	\$70,000
Political Science	\$40,300	\$74,700
Advertising	\$37,800	\$77,100
Sociology	\$36,000	\$56,700
Psychology	\$35,200	\$60,200

Source: <http://www.payscale.com/college-salary-report-2013/majors-that-pay-you-back>

Median earnings of economists by highest level of degree for persons of all ages observed in 2010 are given in the table below by gender.

Highest Degree	Women	Men
BA	\$38,000	\$42,000
MA	\$45,000	\$38,000
PhD	\$90,000	\$100,500

Source: National Survey of Recent College Graduates, <https://sestat.nsf.gov/sestat/sestat.html> [Viewed 2013].

Mid-Career Earnings

The Center on Education and the Workforce at Georgetown University report the median earnings of adults working full-time for a full-year whose education stopped with the bachelor's degree. The data below report earnings by college major using data from the American Community Survey 2009 from the Bureau of the Census for selected majors by gender and also reports the percentage with graduate degrees.

Anthony P. Carnevale - Jeff Strohl - Michelle Melton
The Economic Value of College Majors
 Georgetown University, Center on Education and the Workforce
<http://cew.georgetown.edu/whatsitworth/>

Median Earnings with BA or BS Percent with

	Female	Male	Graduate Degree
Social Science			
Economics	\$57,000	\$74,000	40
Political Science & Government	\$49,000	\$63,000	47
Psychology	\$41,000	\$53,000	43
Sociology	\$42,000	\$54,000	34
Business			

Accounting	\$55,000	\$75,000	24
Finance	\$52,000	\$70,000	26
Management	\$50,000	\$64,000	20
Marketing	\$48,000	\$65,000	14
Engineering			
Architecture	\$55,000	\$65,000	32
Chemical Engineering	\$72,000	\$92,000	45
Civil Engineering	\$62,000	\$80,000	35
Electrical Engineering	\$70,000	\$86,000	42
Mathematics & Computers			
Computer Science	\$70,000	\$79,000	28
Mathematics	\$54,000	\$75,000	47

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Corporate World & The MBA

Although the economics major does not provide training for specific occupations, it provides the logical structure that pays off in understanding the big picture, the context for entering several fields in the corporate world. Its emphasis on logical thought and problem solving skills has universal value. Many employers seek to hire graduates with these skills.

Some students aspire to earn Master of Business Administration (MBA) degrees, typically expecting to complete a two-year program in a graduate business school. Leading MBA programs expect applicants to have had several years of significant business experience before enrolling. The average age of students entering top MBA programs is 27 years. *Business Week* provides an online guide to MBA programs as does *Peterson's*, *BusinessDegreeOnline*, and a number of others.

The better MBA programs give some preference in admission to applicants with technical backgrounds including engineering, physics & math, and economics. Some areas of study in business like finance use a significant amount of mathematics. Undergraduate study in business then is not a primary or even necessarily a desirable path to an MBA. Of course, people who have developed their own successful businesses or enjoyed considerable success in other ways also tend to be attractive to MBA recruiters. The schools value success in many forms.

Students intent on careers as managers often seek a strong, general education. They want to learn effective communication skills, to develop habits of logical thought, and to practice their problem solving skills. Many undergraduate programs do this well; economics is often particularly effective.

In addition to careers as general managers and entrepreneurs, economics majors also often pursue careers in specific occupations common to the corporate world. Economics majors with the BA degree find jobs in the financial world, in marketing, and consulting. Some pursue one-year post baccalaureate programs for entry into a target career. The Master of Accountancy (MAc), for example, will launch an accounting career and go a long way toward completion of requirements for the Certified Public Accountant title.

Students who have a specific occupational goal will often do well in enrolling in a program of training specific for that occupation. For example, accounting majors readily get jobs as accountants on completing a BA. Finance majors have a good chance of being employed as financial analysts or budget officers. The broader horizons of the economics major are certainly not for everyone.

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Economic Consulting

Economics graduates with good analytic and communication skills find employment with consulting firms. McKinsey & Company, Boston Consulting Group, Bain & Company, Accenture, Charles Rivers Associates, Mathematica Policy Research, and NERA Economic Consulting are examples. Analysts with consulting firms often work with data, develop models of specific markets, and provide testimony in public hearings and in lawsuits. Many graduates find that a few years experience with a consulting firm is a good lead into an MBA, law program, or graduate study in economics. Many consulting firms invite application for employment through their websites.

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Law and Other Professions

The economics major is one of many common paths to law school. The [Law School Admission Council](#) provides the official guide to law schools for the American Bar Association. The Guide emphasizes extensive reading and library research, skill in synthesizing large amounts of information, and logical thinking. In addition to general skills, the Guide points to breadth of knowledge of history, politics, finance, human behavior, and diverse cultures.

Many careers in law involve shaping economic decisions. Writing and interpreting contracts, supporting mergers and acquisitions, dealing with the tax system, addressing disputes of workers, landlords, and vendors; all involve decisions with significant economic content and implications.

A recent analysis of scores on the LSAT test for law school admission reported for students who apply to at least one ABA accredited law school shows economic majors earned relatively high mean LSAT scores as shown in table 2. The LSAT score ranges from 120 to 180 with mean and median near 152. The first quartile is near 144 and the third quartile is near 157. The LSAT score along with undergraduate grade point average and the quality of the undergraduate college are important influences in the admissions decisions of competitive law schools. [Michael Nieswiadomy, "LSAT Scores of Economics Majors: The 2003-04 Class Update," *Journal of Economic Education* 37 #2, Spring 2006. Pp. 244-7. Available in JSTOR]

Table 2: Average LSAT Scores by Major, 2008-09.

Rank	Major Field	Average Score	No. of Students
1	Economics	157.4	3,047
1	Philosophy	157.4	2,184
3	Engineering	156.2	2,197
4	History	155.9	4,166
5	English	154.7	5,120
6	Finance	153.4	2,267
7	Political Science	153	14,964
8	Psychology	152.5	4,355
9	Sociology	150.7	1,902
10	Communications	150.5	2,230
11	Business Administration	149.1	1,971

Rank	Major Field	Average Score	No. of Students
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12	Criminal Justice	145.5	3,306
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Source: Michael Nieswiadomy, "LSAT Scores of Economics Majors: The 2008-09 Class Update," http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1430654

Among the eight disciplines with more than 3,000 students taking the LSAT, the 4,163 economics majors received the highest average score at 156.6 as shown in the table. Looking more broadly at majors or groups of similar majors with at least 700 takers, economics ranked third behind physics/math (723 takers with mean 158.9) and philosophy/religion (2,410 takers with mean 157.4).

Some economics majors enroll in medical and dental programs by adding enough science courses to their undergraduate career to qualify for admission. Many undergraduate economics programs include courses on health economics and students often report that the physicians like talking about economic policy issues when they interview applicants to their medical schools.

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Government and Not-for-profits

Governments at every level hire economists to manage and evaluate their operations. The [Office of Personnel Management](#) (OPM) of the Federal government provides information about Federal employment opportunities. Their [USAJobs site](#) lists thousands of openings of all kinds in many locations across the country. Search on "economist" to find information about specific current opportunities. There are often openings for economists with BA, MA, and PhD degrees.

The OPM website also gives general information about [Federal pay scales](#). BA economists with little experience are (to simplify a bit) at grade GS-7, with MAs at GS-9, and new PhDs start at GS-12. Although pay does differ with the cost of living in different locations, BA economists started at \$31,209 or above in 2006.

The [Federal Reserve Board](#) and its affiliated regional Federal Reserve Banks also hire economists and research assistants at various levels of education. Skill with statistics and in managing data will be helpful for many entry jobs.

Economists are valued in the Foreign Service and civil service in the [State Department](#), and as analysts with the [Central Intelligence Agency](#).

State governments have similar websites that list public service jobs with pay scales and application procedures. Searching the Internet for "state employment" will usually yield an appropriate link.

International agencies of many kinds hire economists for a variety of roles. Additional languages, strong communication skills, experience with diverse cultures, and statistical skills are often important. The [World Bank](#), for example, offers jobs for economists. The Bank has an internship program as well.

One way to learn about employment with non-profits is to go to the [Idealist website](#) and look for roles in economic development or other areas of interest.

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Professors, Teachers and Researchers of Economics

The Doctor of Philosophy degree (PhD) in economics is necessary for a faculty position in economics at most four-year colleges in the US. A masters degree is the typical credential for faculty at two-year colleges. Although some students complete masters programs before entering PhD programs, many go directly from BA programs into PhD programs. Completion of a PhD requires about six years of full-time study. See the AEA website for information about [graduate study](#). Holders of the Ph.D. often also choose research careers outside of academics, including roles at the Federal Reserve, international agencies, and government policy and evaluation departments as well as in private banks, investment houses, and other for-profit ventures

There are about 100 universities in the US who together produce about 1,000 new PhDs each year. About half of the graduates are US citizens and the other half come from abroad. [John J. Siegfried and Wendy A. Stock, "The Undergraduate Origins of Ph. D. Economists," *Working Paper*, May 2006] Although the number of economics majors has grown significantly over the decades, the number of new PhDs who intend to pursue careers in the US has declined. As a consequence, employment opportunities for PhD economists in academia should be excellent in the decades ahead.

The Commission on Professionals in Science Technology (mentioned above, page 8) reports starting salaries for assistant professors by field. At \$78,567, economics is well above the average of \$65,205 of all fields in 2006-07. The table below reports average salary offers to newly hired economists at each academic rank by type of institution.

Average Academic Salary Offers for Senior Level Economists by Rank and Type of Institution, 2006-07

Rank of Academic Economist	All PhD Granting Institutions	BA & MA Institutions
Senior Assistant Professor	\$95,995	\$80,167
Associate Professor with Tenure	\$128,600	\$82,333
Full Professor	\$204,800	\$97,500

Source: Nathan E. Bell, Nicole M. Di Fabio, and Lisa M. Frehill, "Salaries of Scientists, Engineers and Technicians: A Summary of Salary Surveys." The Commission on Professionals in Science and Technology (CPST: Washington, DC 2007) selected curricula from page 268.

Academic economists at PhD granting institutions play leading roles in the development of new ideas in economics and publish their work in the journals and books mentioned on the [publications page](#). As teachers, economists play an important role in supporting the undergraduate major in economics and the various graduate programs.

A number of PhD economists hold faculty positions in MBA programs, law and medical schools, public policy programs, and in a number of other fields. Economists on the faculty of leading professional schools often earn premium salaries.

A number of for-profit and not-for-profit enterprises hire research economists as do many government and international agencies. [The National Association of Business Economics](#) provides information about business careers for economists. The career sites for government and not-for-profits mentioned above also point to opportunities for researchers.

Current job openings for economists in academia and with some other employers appears in [JOE, Job Openings in Economics](#). Most of the jobs listed in JOE require [graduate study](#) in economics.

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