

So You Want To Go To Econ Grad School. . .

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I wrote the first version of this in 2006. It is long since overdue for an update. While I noted many specific details I needed to update as I went through this, I was surprised at how few of the key points needed any updating. The main questions one has to deal with when deciding whether or not to go to graduate school and then which degree to seek have remained remarkably stable over time. In this newly updated version I have in particular updated the courses based on the offerings at my current school but other schools will have similar courses to choose from.

I created this guide many years ago based on receiving a high volume of questions from students considering going on to economics graduate school. The questions generally centered on whether they should go and if so where and for what degree. These questions usually were (and should have been) soon followed with additional questions regarding what sort of preparation one should have when seeking these advanced degrees. This essay will provide a short overview of all of these points. The guidelines and suggestions I provide here are my opinions only and should not be considered unequivocal facts. Reasonable people may disagree on some of these points and I encourage all students interested in graduate school to discuss the matter with several different professors (in part because it will help them write better recommendation letters for you later).

One important update to this document is the availability of MS degrees in economics. Due to the technical nature of many Master's degrees in economics, more of them are coming with the Master's of Science designation. To save a lot of extra writing, I will use "MA" to generically refer to both MA and MS degrees.

Master's vs. Ph.D.

The first question a student has to consider in thinking about graduate programs is whether they are interested in a MA or Ph.D. program. There are a couple of different ways of looking at this issue.

The first consideration should be what type of job you want at the other end. If your desire is to be a professor, you have to go for the Ph.D. There are, however, many other job prospects for people with both degrees. The primary employers of people with advanced degrees other than Universities are consulting firms and government organizations though in recent years many other firms are realizing the value of the training economists receive. With the advent of "Big Data" analytics, more and more firms are realizing the value in the types of data analytics economists can provide. There are substantial job opportunities available to people with good training in econometrics that

one receives along the path to getting an MA or MS degree. Consequently, the job options for people with MA or MS degrees in economics is rapidly expanding. The type of jobs available inside an organization often depend on the degree. The standard arrangement in most such organizations is that on any given project, it will be those with a Ph.D. who might design a program of investigation on an issue while those with MA degrees might work on carrying out parts of that research program. On the other hand, in many cases you will find that organizations do not base their hierarchy on degrees. Instead, they will base assignments, success and promotions purely on demonstrated ability. You will also find some employers, who will hire at the MA level and then sponsor the Ph.D.'s of successful employees.

The decision of which degree to go for also depends on your short-term willingness to endure hard work (especially related to doing mathematics) and the type of student you are. If you want a short, to the point program leading to a degree, then a MA is what you want. These programs usually involve 1-2 years of coursework and supervised projects. The Ph.D., however, is much more open ended. Programs typically begin with 2 years of course work followed by the student writing a dissertation. The dissertation phase consists of work that is almost entirely independent work (you will have an advisor who may help some, but hopefully not much more than occasionally steering you away from really bad ideas). It requires a highly self-motivated student to complete a quality dissertation. The dissertation may take 2-5 years depending on a variety of variables. If you are an independent thinker and self-starter who is willing to engage in a great deal of hard work, then you might want to pursue a Ph.D.

You should also be aware that Ph.D. programs require a substantial degree of mathematical sophistication. Modern economics is based heavily on mathematical analysis in various forms. Your ultimate interests may involve areas that require less mathematical sophistication, but you should still be prepared to face a substantial amount of mathematics in your required coursework. This is usually one of the most surprising things to students starting economics graduate school because undergraduate economics is by and large not very mathematical. The material you will see from day 1 of a Ph.D. program will be.

There is a middle ground to consider in making the decision of which degree to pursue. There are two ways of obtaining a MA degree. There are an increasing number of terminal MA programs in the country (SMU has one) that are set up specifically to result in a MA degree that does not allow you to continue on to a Ph.D. directly. These programs are usually highly applied and quantitative in nature meaning that their focus is on the practical issues involved in performing data analysis using statistics and econometrics. You can also achieve a MA degree as a midpoint in a Ph.D. program. If you start a Ph.D. program, you will typically receive a MA after completing your first 2 years of coursework. At that time you can, and many do, leave instead of continuing on to the Ph.D. There is a large difference in the material for this version of the MA degree, though, as the courses will concentrate much more on abstract theory and be more mathematically intensive rather than on practical aspects of analysis and specific applications as you would find in the terminal MA programs. Going this route allows you the option of completing a Ph.D. after the MA.

Many people will often think that seeking one of the terminal MA degrees will be a good stepping stone to entering into a PhD program. By and large, this is not the case. There are a few programs being set up now that are terminal MA programs designed specifically to prepare students for a PhD program. The University of Wisconsin is a good example of this. Such programs can be helpful for students who were not able to take sufficient courses as an undergraduate to prepare themselves for a PhD program. Other terminal MA degrees provide a very different form and level of training than seen in a PhD program and are really not that helpful in forming a foundation for PhD study. It's also worth noting that seeking this route to a PhD will take longer as you would still have to complete the coursework for the Ph.D. program (and receive a second MA degree). The only way in which a normal terminal MA degree might help in pursuit of a PhD is that the experience of going through that curriculum might provide you inspiration for research ideas that others wouldn't know about.

Choosing a School

The choice of which school to attend or which schools to apply to is quite a difficult one that will have a profound impact on your future career. If you are seeking to obtain a terminal MA degree then the best advice is to focus on schools in geographic proximity to where you want to work. Beyond that, favor higher ranked schools. Many schools have official or unofficial connections that graduates can use in finding jobs that will typically be stronger in the region of the country in which the school is located. Schools that have better national reputations will generally have better developed and geographically broader networks. You should therefore choose a school that gives you the best chance for finding a job in the geographic region and field in which you are most interested.

Choosing a Ph.D. program is significantly more difficult. If you are intending to go for an academic job when you graduate, my advice is to attend the school with the highest ranking you can. The ranking of the school your Ph.D. is from will have a significant impact on your job prospects. This is particularly true if your goal is to go to become an academic researcher. If your goal is to find an academic position focused on teaching or a job in the private or government sectors, then the need for pursuing schools at the highest ranks is lessened. There are some caveats to this rule though. Certain schools are stronger in certain areas and trading strength in the area you want to work in against an overall ranking is definitely worth considering. For example, if you wish to be a macroeconomist, do not under any circumstances go to CalTech. It is a great school and highly ranked, but it has no macroeconomics program. If you have some idea regarding what area you wish to work in, you should talk to professors who work in that area to see what schools would be good matches for you. If you are less certain of what you are interested in, you might want to consider programs that have a variety of strengths to give you more options. My experience with PhD students is that they often radically change their research interests after their first two years of classes.

If your goal is the academic job market, you will substantially help yourself by getting into a top 10 or top 20 program. That is not to say that you can not get academic

jobs with a Ph.D. from a lower ranked school. You absolutely can. This is in part because there are probably 50 schools that consider themselves top 20 and depending on what ranking you look at, they may be. The best way to choose schools to apply to is to discuss the issue with a few professors you trust. Explain to them your career goals and your record and they can likely help you find a few schools to target. In general you should apply to 8-12 programs that cover a wide range of rankings to maximize your chances. We will return to this point in the next section.

Part of choosing a school also has to do with financing your studies. Most schools will offer fellowships in the form of teaching or research assistantships that will cover your tuition and a small stipend. Some schools will begin this in your first year, while others will only fund a few students in their first year and bring successful students on to funding in their second year. This explains one of the other reasons to apply to so many schools as this will also maximize your chances of getting first year funding. While the stipends are not much, they are usually enough to get by on which should mean that after your first year, you should not have to take out many loans to pay for your degree. Note that this applies to PhD degrees only. MA degrees rarely provide much financial aid to students.

Getting Into and Preparing for Grad School

There are two primary determinants of entrance into grad school. The first is your quantitative or math GRE score and second is the number (and your grade point in) math courses you have taken. As I mentioned before, Ph.D. level economics courses use a substantial amount of mathematics while most undergraduate economics courses use little more than 8th grade algebra. Maximizing your chances of being accepted into grad school and doing well involves demonstrating to the schools that you are prepared to deal with the transition.

One way to demonstrate your preparation for the mathematical rigor of a PhD program is to get a good score on the math section of the GRE. So practice for it and take it seriously even if you are quite skilled in mathematics. You will still want to review to make sure you do not make stupid mistakes or forget how to do certain types of problems you haven't seen in 4 years. Although there are no real hard cutoffs for scores, if you want to go to a top PhD program, you need to shoot for a score that puts you at least in the 90th percentile on the quantitative reasoning portion. That is currently around a 165. A higher score is, of course, better. If your score is below a 160, your application is unlikely to be considered competitive at good schools. If you end up with a low score on this exam, but have a strong math record, it is possible to make up some ground but it's best not to have to. Your score on the verbal reasoning section is not as important (at least for native English speakers). Don't ignore it, but don't worry about it too much either. A good score on it will not make up for a low score on the quantitative section though a truly awful score could knock you out of the running. Required scores on the GRE are of course lower if applying to terminal MA programs.

While the GRE is important to the application, a good score on it likely means little in determining your ultimate success once you are in the program. Of importance to both admission and success is your math background. For a terminal MA program you will

typically find that one semester each of calculus and statistics will be sufficient to meet the admission requirements. For a PhD program, more will be required. At a minimum you must have taken a few calculus courses (**NOT** business calc) and some combination of linear algebra, probability and statistics.

Many programs require more and I would recommend more. Most schools offer three calculus courses and I would recommend taking all three. The best prepared students will have math courses beyond these as well. You should have courses on both probability and statistics. Some universities will offer combined probability/stats courses or other watered down options. Avoid those. The better courses will often have course titles like “Mathematical Statistics.” The next course after these would be a course on Linear Algebra. A very important element of your mathematics training is in how to do proofs. Different departments use different classes for this purpose. SMU has a class now titled “Introduction to Proof & Analysis.” Other schools will call these classes “Real Analysis”, often with parts I and II. Other departments will introduce proofs in classes on Discrete Mathematics. Talk to your local mathematics department for suggestions on how best to get trained in mathematical proofs given their class structure. Courses in Differential Equations as well as Numerical Analysis can also be helpful. While you may find many of these courses to be very difficult and you may not see the connection to economics while taking them, when you find yourself in the middle of your first year of grad school, you will thank me (and I expect an apology for all the times you cursed my name while taking the courses!).

There are also certain courses in the economics department that are more geared towards those going on to grad school that it will be useful to take. There is typically a course titled something like Introduction to Mathematical Economics in a department that will be designed explicitly to serve as a bridge between undergraduate and graduate economics. If you have the option, look for honors Intermediate Micro and Macro courses as well. These classes will be more rigorous than others and provide you a better idea of what graduate school would be like. The econometrics and game theory courses offered in most departments are also useful as they are taught closer to the graduate style than many other courses. Beyond those courses, you should take any other courses in the department whose topics interest you (and if you are intending to obtain a Ph.D. in the area, I would imagine you should be able to find several).

Many people are tempted to think that engaging in undergraduate research theses and such will improve one's chances of admission. I don't find that to be the case. In my view, if your choice is to spend 1-2 semesters writing a paper or take that time and obtain extra mathematics training, the latter is likely to be more helpful. If you have already finished all of the mathematics training, spending a semester or two on research is not a negative but it doesn't make up for deficiencies in mathematics training. My view here is likely to be controversial but in my time as director of SMU's PhD program, there hasn't been a single undergraduate research thesis I have read which has improved a candidate's chances of admission. The reason is that the level of research is so different between an undergraduate project and what someone would do as a PhD student, that I see little

information conveyed in what a student produces as an undergraduate. Other Graduate Directors may view these things differently though.

As I said above, you should apply to at least 8-12 PhD programs as there is a great deal of randomness in the application process. Schools receive a large number of qualified applicants every year and somehow they have to take a set of perhaps several hundred qualified candidates and find a set of 6-20 that they will admit. Don't take rejections personally as they happened to the best of us.

In putting your applications together, they will usually ask for a statement of interest. Well put together statements can moderately help your chances while less well done statements can seriously damage your chances of admission. I recommend just explaining your interest in economics and perhaps in that school in a straightforward and honest manner. I do not recommend inflating or exaggerating your knowledge or proposing a very specific research proposal for a dissertation. You are very unlikely to propose an idea which would impress the people reading the statement. Also, if you propose an area of research which is too highly refined, they may conclude that they don't have any faculty working in that specialized area and will consequently reject your application. The main thing people want to see in these essays is that you can organize coherent thoughts and have a good idea of what you are doing and why you are doing it. I strongly recommend allowing the professors writing your recommendations to read your statement far in advance of your submitting it. This serves two purposes. First, they may be able to give you feedback on it and second it will help them write better letters.

Finally, you are expected to provide 2-4 letters of recommendation to each school. You should approach professors about this early and give them plenty of time to write the letter. I would recommend starting out with a discussion with them explaining why you are interested in pursuing a degree and what fields interest you. The more they know about you, the better letter they can write. It is also a good idea to check with them to make sure they have written it well before the due date as our memories are not always great and things sometimes slip through the cracks. You should get recommendations primarily from economics faculty but a recommendation from a math professor probably won't hurt if you can get one. They should all be from professors you have either had in a class or worked with you on a project. Also, if your goal is to get into a high ranked school you will be best served by getting recommendations from faculty who are highly productive in their research. A good recent publication record is a sign that that faculty member's opinion may be taken more seriously. Be sure to also check to see whether faculty have connections at particular schools in which you are interested as those connections may be very valuable in helping you get accepted.

Where Can You Go For More Information?

You will find a wealth of information on the web. Since I wrote the first version of this in 2006, many similar advice essays have been written and many new data sources have become available. Google is your friend. Here are a few that I will point out as being particularly useful:

There are many different department rankings available on the web. Many will be old and out of date. There is always a lot of change happening in departments with some gaining high quality faculty while others lose them. One of the most up to date is maintained by RePEc: <https://ideas.repec.org/top/> . For a broader set of alternatives, the American Economic Association maintains links to several others: <https://www.aeaweb.org/resources/students/grad-prep/program-rankings> . As I mentioned above, these rankings are always problematic. They vary a great deal in outcomes based on having different criteria or using different date ranges. These are approximate guides at best.

If you don't trust me or just want some other views on the grad school application process, here are two other write-ups that are quite good:

1. <https://people.stanford.edu/athey/professional-advice>
2. <https://www.theatlantic.com/business/archive/2013/08/the-complete-guide-to-getting-into-an-economics-phd-program/278773/>
3. <https://www.aeaweb.org/resources/students/grad-prep/overview>

There is another website that has advice from a broad range of people and it includes discussion forums for those applying to grad school so you can compare your experience with that of others (be warned though, much of the information posted on such boards is not always reliable). You can often find profiles of people who have applied for graduate school with their accept/reject history at each school. That is very useful information in helping you figure out where to apply as it can give you an idea of the sort of record different schools are looking for (another warning, those posting are likely to be the more prepared students because the less prepared are unlikely to be focused enough to participate in an on-line discussion forum). <http://econphd.econwiki.com/>

Perhaps I should put this part upfront to increase your interest in being an economist. Turns out, economists do pretty well financially. You can find very useful information about this in a series of reports that the University of Arkansas has been compiling yearly about the academic job markets for economists: <http://cber.uark.edu/publications.php> (scrolls down to the Labor Market Surveys for New PhD in Economics section).