

What to Do if You Are Thinking About Post-Graduate Studies in the US  
by Stephen Matteo Miller

After finishing your Bachelor's degree in economics or econometrics, you may wonder about your options, and you may wonder what it's like to study abroad. If you are trained in economics you may appreciate the statement: "more choices are preferred to less". There are costs to having too many choices since you have to acquire and then process information about those options, and those costs can be considerable. However, once you narrow it down to a reasonable number you will probably appreciate being able to choose. All this is a pretext to saying that studying abroad is an option, and this memo is intended to reduce the cost of acquiring information about how to prepare for entrance into an M.A. or Ph.D. program in economics in the United States, a place I know well.

Matt Dobra thinks it's good to mention that in the US there are no Departments of Econometrics, as everyone is required to get at least some training in this subject. Even the world-renowned econometricians at the University of San Diego are faculty members of the Department of Economics. This means you should probably get some additional training in mathematics and econometrics, especially if you are trying to get into competitive programs. If you are aiming for a program like Northwestern University, the University of Rochester or the University of Minnesota, and perhaps other top 25 programs, you should probably learn at least real analysis, in addition to multivariate calculus, linear algebra, and differential equations. If you are applying outside of the top 25, the more maths the better, but real analysis may, or may not be crucial. It always depends on the school, and they usually tell you what they require.

I studied at George Mason University as an undergraduate but learned most of my maths as an external student at Temple University in my hometown of Philadelphia. Because I changed my course of study, I finished one semester late, and during the summer before my last semester, I took the first two semesters of calculus. After graduating, I returned home and continued with the third semester of calculus and linear algebra, while applying for post-graduate studies. Learning at a different university was good for me because it removed pressure from having to perform well, simply because if I didn't get a good mark I wouldn't have to report the result. This way I focussed on learning as much as I could. While the maths I learned was more than enough to get me into the Ph.D. program I chose, once I got in that didn't stop me from trying to learn as many techniques as I could. My advisor summarized the research process as the act of combining creativity and [quantitative] techniques. If you don't take the time to learn how to use techniques, you may not be able to demonstrate to the world the full extent of your creativity.

A great place to start thinking about how to lay out your goals is to read an article called the "Principles of Professional Advancement" by Armen Alchian, which appears in July 1996 issue of Economic Inquiry, pp. 520-526. Those principles are:

- 1) Have super students (p. 521)
- 2) To advance your career, you have to be smart enough to have had the right teachers (p. 522)
- 3) Plan to be at the place where your training happens to be useful -- at the right time (p. 522)

- 4) Make frequent use of co-authors (p. 525)
- 5) Have superb and cooperative colleagues (p. 526)

You might think it's a bit too early, but to apply 1) practice teaching others yourself. This will help you spot those super students later. To apply 2) keep asking whether what you're doing now will get you where you hope to be (it's okay to discover it's not the case; discover sooner rather than later). To apply 3) think about where the research you are interested in is hot, hot, hot! Who are the pioneers, and can you tag along? Students, like you, are the ones driving the debates of the future. You can practice 4) by having an "open-door" policy with your classmates so that you can exchange ideas; it is through such discussions that you can develop your ideas, which might lead to future papers. Don't worry about who comes out on top of the class, because classroom performance almost never translates into professional economic success (i.e., the highest grades are not necessarily an indicator of the future best and brightest, you might even worry about being top of the class, lest you remind yourself that you have to keep working to stay on top; so don't burn out in school). Finally, you can practice number 5) by being one yourself.

### *The Pros of Studying in the US*

The US has the largest market, so your chances to find a program you like are greater Since Europe is still a collection of sovereign nations and there are still differences across countries, the US is probably the largest market for post-graduate education. First get used to thinking that **courses in Australia = programs in the US**, and what you called **units in Australia = classes or courses in the US**. Oh yeah, **marks in Australia = grades in the US**. Finally, get used to thinking that **graduate and post-graduate in Australia = graduate the US**. That's because there is no "fourth year" in the US, since all Bachelor's degrees are four-year programs, although I've heard that the first year in a US University may be like the final year in college in Australia.

### Rankings

Last time I looked, there were about 300 economics departments, 130 of which also offered at least a Master's degree in economics. How do they rank? In the appendix I've reproduced a table of rankings that I got from the following web-site <http://www.phds.org/rankings/economics/>. It's a great idea; try it out. You select some of the criteria that are important to you (i.e., number of faculty publications, publications per capita, faculty size, number of students, etc.), and depending on what you are looking for you get a different table of rankings. If I look at the table of rankings in the appendix I'd say you get first rate education from the top 25. There may be a drop off in the 26 to 40 range, but that list includes traditionally strong programs like Brown University, and the University of Illinois, Urbana-Champaign. Even in the 40 to 70 range, there are some good schools, including my own: George Mason University. Finally, some schools ranked below 70 offer good training, too.

Getting into top 10 programs is extremely difficult. Acceptance rates may be below 10% (you should check the respective web-sites), although this may be partly due to the enormous increase in the number of applicants from China. An exception may still be the University of Chicago where they used to let in a large number but weeded them out after they arrived. Still, once you get in, it is not necessarily the brightest who finish, as hard work and persistence are perhaps more important. If you're looking for an academic career in the US you will help yourself by getting into and

finishing a Ph.D. from a top 25 program. I've heard the current rule of thumb when thinking about how to apply for an academic job in the US as you finish your Ph.D. is: find your school ranking and subtract 50 positions, and you'll identify the range where you belong. There are outliers, including one student from the University of Maryland who was recently hired by the University of Chicago; so he moved up.

Forget about rankings and ask yourself what you'd really like to do

**Having just talked a lot about school rankings, forget about them.** A better way to figure out where to study is to ask yourself, are there any economists out there whose work you really like, and can you work with that person? This can be difficult if you've never been to the university, let alone the country. Personally, I remember once telling a classmate as an undergraduate that my dream would have been to write a Ph.D. dissertation with my eventual advisor, at the University of Chicago. He never went back to the University of Chicago where he studied, and I never would have been accepted there, and at the time I never imagined that I'd even get into a Ph.D. program. Yet, I realized my dream, to write a dissertation under his supervision. I don't regret that choice, and for you it should be the same. Another example is a lady from Colombia I once communicated with who had a choice between the University of California at Los Angeles (UCLA for short), a top 15 if not top 10 program, and the University of California at Santa Barbara, a lower ranked university where Nobel Laureate Finn Kydland now teaches. In the end she chose UC Santa Barbara because she wanted to work with Kydland on real business cycle modelling. For you, your best personal choice may likewise be to study in Australia, England, the US or somewhere else. That's for you to discover.

*The Cons of Studying in the US*

What about the cons? Well, first off, it may mean leaving the known for the unknown, but that's part of life. Having done this myself for a career move, I can tell you that you'll have to relearn relative prices. In the process, you'll learn that demand curves do slope downward, even though the relative prices might differ across countries. I would never have guessed that bananas could cost 12 AUD per kilo. I like bananas, but not that much. You'll have your own shocks to consider. Matt Dobra also reminds me that the cost of living can vary immensely. So, if you plan to go to New York University, watch out for New York prices, while if you go to the University of Virginia, the cost of living expenses is much lower, since it's in a small city in a largely rural state. Still, location is important. Living in the suburbs of Washington, D.C. was great for my studies because having grown up in a city, I realized after I started the program I didn't like living in the suburbs. So I studied more hoping it would get me out sooner. You'll have similar issues to consider.

Another issue to consider is that post-graduate education is expensive in the US. I think it could be comparable to (perhaps a bit higher than) the "Full International Fee" that Australian Universities levy on foreign students. If you did very well in your undergraduate studies, you are more than likely to be offered a scholarship of some sort, and financial support later. Still you will have to get used to living a graduate student's lifestyle. Although it may mean giving up the luxuries you may have gotten used to, it can be extremely personally rewarding, especially when you see that almost all of your classmates are going through the same thing you are going through. That doesn't mean all programs are expensive. I've often seen the University of Virginia is listed as one of the best bargains in terms of the benefits to costs of schooling.

## How an American graduate program is generally structured

In Australia, you may expect to finish your Ph.D. studies after three years, but you probably need to do honours, or get a Master's Degree beforehand. In the US, where you only need a Bachelor's degree in Economics to get into an Economics Ph.D. program, I've heard the average is five years, and I took seven. Gone are the days when you had Ph.D. students hanging around for thirteen, fifteen or even twenty years, but it's still a longer process in the States. There were days when I hated what I had to go through, but if I had the chance to do it all over again, the changes would be minor at most. When I was studying, there were still some programs in which M.A. and Ph.D. programs shared units. This practice has been eliminated in the top programs, but perhaps not in the second or third tier.

### *M.A. Program Structure*

To get an M.A. in economics: complete 10 units during a period of three semesters if you do it full-time, or five semesters if you do it part-time. Often, unlike for Ph.D. students, no financial support is available. Alternatively, you might take only 8 units and a thesis. The thesis track in the US is typically not considered to be much different, and because choosing this track means forgoing the chance to acquire additional technical skills that might help you get a job, if you are trying to then get a job in the US, you may be hurting yourself. Still, the thesis option may be valuable outside of the US marketplace, as in Australia, so it is an option to consider.

#### **Full Time (one and a half years of study)**

<i>Semester 1</i>	<i>Semester 2</i>	<i>Summer</i>	<i>Semester 3</i>
Macro	Elective	Elective	Elective
Micro	Elective		Elective
Elective	Elective		Elective

#### **Part Time (two and half years of study)**

<i>Semester 1</i>	<i>Semester 2</i>	<i>Semester 3</i>	<i>Semester 4</i>	<i>Semester 5</i>
Macro	Elective	Elective	Elective	Elective
Micro	Elective	Elective	Elective	Elective

### *Ph.D. Program Structure*

As I noted, Ph.D. programs in the past were more integrated with the M.A. program. Hence, there was always the possibility that you could enter the M.A. program and then transfer your coursework toward completion of the Ph.D. program. Or vice versa, you might have entered the Ph.D. program and then decided that it was not for you, leaving with a terminal M.A. This has changed in the top programs, so you apply either for one or the other, but once you make your choice, it's virtually impossible to switch, without starting everything over, including the application process. I mention this because in the past you could say, compared to an M.A., a Ph.D. is just six more classes (plus a dissertation). This is true, but today, unless you go to a school that cross-lists M.A. and Ph.D. units, a Ph.D. is 16 more advanced units/classes plus a dissertation.

What of these units/classes? Often you are required to take at least 2 semesters of macroeconomics, 2 semesters of microeconomics, 2 semesters of econometrics, 2 semesters of mathematical economics, and then you should take 8 electives. Some

programs have recently increased the requirements to 3 semesters of macroeconomics, microeconomics, and econometrics, and two semesters of mathematical economics leaving you with 5 electives. That said, once you complete the first two semesters of macroeconomics and microeconomics, most Ph.D. programs require you to take what are called comprehensive or preliminary exams to demonstrate that you have mastered the subject. These exams are often used to weed people out, since you get usually no more than two attempts. I've heard that the University of Rochester is one of the few that requires no comprehensive exams because they figure if you can survive the units, you really know what you're doing. Once you choose your areas of specialization through your choice of electives, you typically have to take exams in these subjects too. These are less stressful, since at this point you will have acquired a considerable amount of knowledge of microeconomics and macroeconomics, on which your electives are frequently based.

### **First Year**

<i>Semester 1</i>	<i>Semester 2</i>	<i>Summer Preliminary Exam Period</i>
Macro 1	Macro 2	use the summer to prepare for pre-lim
Micro 1	Micro 2	use the summer to prepare for pre-lim
Econometrics	Econometrics	
Math Econ 1	Math Econ 2	

### **Second Year**

<i>Semester 3</i>	<i>Semester 4</i>	<i>Summer Preliminary Exam Period</i>
elective 1	elective 1	use the summer to prepare for elective pre-lim
elective 2	elective 2	use the summer to prepare for elective pre-lim
elective 3	elective 3	(none require for additional electives)

### **Third Year**

<i>Semester 5</i>	<i>Prepare Dissertation Proposal and Write Dissertation</i>
elective	(perhaps another 2 – 3 years)
elective	

There is also a movement in some schools to have you publish an article by the time you defend your dissertation (or at least you should probably have the articles in the review process). This means that during the second year, you use the elective courses to start writing. So, the more you know now, the better prepared you will be.

That's not all: You must take the GRE, and think about where to send your scores

Issue 1. Prepare to take the Graduate Record Exam (GRE) General Test if you intend to study in a Faculty of Arts and Sciences, which in the United States often includes economics. If you are entering into a business related degree program, such as finance, you might have to take the Graduate Management Admission Test (GMAT). The GRE and GMAT are standardized tests administered by the Educational Testing Service (see <http://www.ets.org> for more information). The GRE and GMAT has changed since I took it. I think the year after I took it they started offering you the choice of whether to take it electronically or with the old-fashioned paper and pencil. I quote from the ETS web-site

# GRE General Test Overview

## What Is It?

The GRE® General Test measures verbal reasoning, quantitative reasoning, critical thinking, and analytical writing skills that have been acquired over a long period of time and that are not related to any specific field of study.

**Verbal Reasoning** — The skills measured include the test taker's ability to

- analyze and evaluate written material and synthesize information obtained from it
- analyze relationships among component parts of sentences
- recognize relationships between words and concepts.

**Quantitative Reasoning** — The skills measured include the test taker's ability to

- understand basic concepts of arithmetic, algebra, geometry, and data analysis
- reason quantitatively
- solve problems in a quantitative setting.

**Analytical Writing** — The skills measured include the test taker's ability to

- articulate complex ideas clearly and effectively
- examine claims and accompanying evidence
- support ideas with relevant reasons and examples
- sustain a well-focused, coherent discussion
- control the elements of standard written English.

## Who Takes It and Why?

Prospective graduate applicants take the General Test. GRE test scores are used by admissions or fellowship panels to supplement undergraduate records and other qualifications for graduate study. The scores provide common measures for comparing the qualifications of applicants and aid in evaluating grades and recommendations.

## Where Do People Take It?

The General Test is offered year-round at computer-based test centers in the U.S., Canada, and many other countries. It is offered at paper-based test centers in areas of the world where computer-based testing is not available. See which format is available [in your area](#).

## Who Accepts It?

Any accredited graduate or professional school, or any department or division within a school, may require or recommend that its applicants take the General Test, a Subject Test, or both. If approved by the GRE Board, a non-accredited institution can also receive test takers' scores.

The GRE probably takes about six hours to complete. The maximum score for the verbal, quantitative and analytical sections is 800, for a total of 2400. The exam is not hard, but it is long and not much fun. It's almost impossible to get into a US post-graduate program without these scores. Don't confuse this with the GRE subject test. They used to have a GRE Economics test, which no program seemed to require, and I think the ETS has done away with it. **For entry into the program in August of the subsequent year you should probably start thinking about preparing for the GRE beginning in April or May of your final year in Australia, if not sooner.**

Issue 2. While you're preparing to take this test, create a short list for yourself of schools you are interested in applying to so that when you actually sign up to take the GRE (or GMAT), you can have the scores sent directly to those schools. You can have scores sent to other schools later, if you change your list.

Issue 3. Keep in mind that, depending on your perspective, the US is either six-months behind or six-months ahead of Australia. So November through February should be the months when you get all of the application materials prepared to meet the submission deadlines, for entry the following August. That's because first semester, or what's called fall semester (some schools have trimesters, or quarters too), begins at the end of August. Competitive schools probably have deadlines now in December for entry the following August, but some schools, especially outside of the top programs, have later deadlines, like February through April.

Issue 4. Make sure the people with whom you discuss your academic record can understand the grade scale. While (HD) may mean something in Australia, this is a foreign concept to most people, except perhaps knowledgeable university admissions officers. Numbers are always easier to remember, and in the US grades are usually given on a 0 to 100 scale: 90-100 is like (HD), 80-89 is like (D), 70-79 is like (C), and 60-69 is like (P). However, when it comes to admissions, grade-point averages are used, which is on a scale of 0.0 to 4.0. One version goes as follows: 3.5-4.0 is (HD), 3.0-3.4 is (D), 2.0-2.9 is (C) and 1.0-1.9 is (P). Top programs typically only accept people with grade point averages close to 4.0, and GRE scores above 1500 out of 1600 on the verbal and quantitative sections (the minimum might be 3.8 or (HD) and a GRE of 1450). But, if you don't have such marks, that's okay, you can still think about getting into other programs, and you can still get excellent training, presuming the place is a good match between your tastes and the program's "technology". My marks were below that threshold as were my GRE scores (actual details available from the author upon request :). It so happened that that was a perfect match, because as I said I got to realize my dream to write a dissertation with my advisor. Hopefully, you too can realize your dream! I'll end with a brief timeline to help you organize.

<b>Year In Which You Leave Monash</b>		<b>Year in Which You Begin US Studies</b>		
<i>February-May</i>	<i>October-December</i>	<i>February-May</i>	<i>July</i>	<i>August</i>
Begin looking into what you have to do to take the GRE;	Narrow down your list of schools to about five so that you can prepare the applications; take the GRE	Wait to hear back from programs	Move	Begin Studies
Narrow down your list of schools to 10				

## Appendix: School Rankings

From web-page <http://www.phds.org/rankings/economics/> I entered in the following criteria, and you should select your own, and the rankings are produced below that. I will explain why I selected these inputs, but you may have different criteria.

### Educational Quality Measures

#### Importance for you

5 - High	Program is effective in educating researchers
0 - None	Program quality has improved recently
0 - None	The time required to earn a degree is low

If you intend to do research, this should be your primary focus, so I selected high. Otherwise, I was looking for a program that has been consistently strong in the past, so I select 0 for recent improvements, as well as for time required to finish being low. I chose that because I assumed you are like me: it doesn't matter how long it takes, so long as you get the job done.

### Faculty Reputation and Activity Measures

#### Importance for you

5 - High	Scholarly quality of program faculty is high
5 - High	A large percentage of the faculty has published recently
3 - Medium	The average number of recent publications per faculty member is high
3 - Medium	The average number of recent citations of faculty's work is high
5 - High	The distribution of publications per faculty member is uniform
3 - Medium	The distribution of citations per faculty member is uniform
0 - None	A high percentage of faculty members are full professors

Here I am looking for a high quality faculty, that has published lots, and uniformly (not just for a few faculty members, unless you know the ones that are publishing lots). I'll worry less about the citations and recent publications, since that could be a signal that they have less time for you, but that's not necessarily a bad thing, if they have you working on something they're working on.



## Program Size Measures

### Importance for you

Faculty size is

The number of students in the program is

The number of Ph.D.s granted recently is

Here, I'll assume you don't care about the size of the program, but that's up to you.

## Funding Measures

### Importance for you

A large percentage of faculty have research support

A  percentage of recent Ph.D.s were supported by research assistantships

A  percentage of recent Ph.D.s were supported by teaching assistantships

As far as funding, I'll presume you are looking for funding.

## Program Composition Measures

### Importance for you

The percentage of female students in the program is high

A large percentage of recent Ph.D.s were granted to women

A large percentage of recent Ph.D.s were granted to underrepresented minorities

A  percentage of recent Ph.D.s were granted to U.S. citizens and permanent residents

Finally, I attached some, but not much importance to demographic characteristics. In my program, about 80% of the students were male, which I'm guessing is about twenty percentage points higher than most, but I've not looked at the numbers. This produced the following table. While Chicago seems a bit low here, the outcome is quite sensitive to the criteria you select.

## Sample Rankings

	School	Comments to explain why you shouldn't pay strict attention to these rankings
1	Northwestern University	
2	Stanford University	
3	University of California - Berkeley	
4	University of California - San Diego	Often listed lower, but not much lower
5	University of Pennsylvania	
6	Harvard University	
7	Massachusetts Institute of Technology	
8	University of Michigan	
9	California Institute Technology	
10	University of Rochester	
11	University of Wisconsin - Madison	
12	Cornell University	
13	Princeton University	Often listed higher
14	University of Minnesota	
15	University of Iowa	Usually listed lower, but strong program
16	Yale University	Often listed higher
17	University of Chicago	Typically a top 6 program
18	University of California – Los Angeles	Often listed higher
19	Boston University	
20	University of Maryland College Park	
21	New York University	
22	Washington University	
23	North Carolina State University	
24	Arizona State University	
25	Duke University	
26	University of California - Davis	
27	University of Illinois at Urbana – Champaign	
28	University of Florida	
29	Texas A&M University	
29	University of Southern California	
31	Ohio State University	
32	University of Pittsburgh	
33	Pennsylvania State University	
34	University of Massachusetts at Amherst	
35	University of Washington	Often listed higher
36	Indiana University	

- 37 University of Virginia
- 38 Louisiana State University
- 39 Brown University Often listed higher
- 40 Michigan State University
- 41 University of Georgia
- 42 University of North Carolina - Chapel Hill
- 43 Iowa State University
- 44 University of Arizona
- 45 Rutgers State University - New Brunswick
- 46 Auburn University
- 47 State University of New York - Stony Brook
- 48 Columbia University Usually listed in top 20
- 49 George Mason University
- 50 University of Wyoming
- 51 Vanderbilt University
- 52 University of Kentucky
- 53 Florida State University
- 54 University of Illinois at Chicago
- 55 Boston College
- 56 Syracuse University
- 57 University of Oregon
- 58 University of South Carolina
- 59 State University of New York - Buffalo
- 60 University of Colorado
- 61 University of Tennessee - Knoxville
- 62 Purdue University
- 63 University of Texas at Austin
- 64 University of California - Santa Barbara
- 65 Georgetown University
- 66 Johns Hopkins University Usually listed in top 20 but it is small
- 67 Southern Illinois University
- 68 University of Connecticut
- 69 Southern Methodist University
- 70 Tulane University
- 71 Clemson University
- 72 University of Houston
- 73 University of Kansas

- 74 University of California - Riverside
  - 75 University of Hawaii at Manoa
  - 76 Lehigh University
  - 77 American University
  - 78 University of Notre Dame
  - CUNY - Graduate School & University
  - 79 Center
  - 80 Rensselaer Polytechnic Institute
  - 81 State University of New York - Albany
  - 82 George Washington University
  - 83 University of Texas at Dallas
  - 84 Washington State University
  - 85 Georgia State University
  - 86 Northern Illinois University
  - 87 Colorado State University
  - 88 Utah State University
  - 89 Rice University
  - 90 University of Alabama
  - 91 University of Wisconsin - Milwaukee
  - 92 Oklahoma State University
  - 93 Northeastern University
  - State University of New York -
  - 94 Binghamton
  - 95 West Virginia University
  - 96 University of Nebraska - Lincoln
  - University of Missouri - Columbia
  - 97 (Program in Agricultural Economics)
  - 98 Fordham University
  - 99 Temple University
  - 100 University of New Hampshire
  - 101 University of Utah
  - 102 Clark University
  - 103 Howard University
  - 104 University of Missouri - Columbia
  - 105 University of Cincinnati
  - 106 Colorado School of Mines
  - 107 Claremont Graduate University
- This is usually ranked much higher