

Dear Students,

I've asked Emiliano to send this to you via email, but I am also just going to put it in our shared dropbox folder just in case.

I am sitting in my hotel room where I have just eaten all the delicious pastries you gave me. I am overwhelmed with your kindness towards me this week. Without exception, you were all so intelligent, friendly, curious and engaged. I could not, as a teacher, ask for any more. Thank you so much for tolerating and listening to me this week. It was an honor to be your teacher.

But I am also writing this letter to give you some information. I'm going to divide this letter up into two parts. The first part is a description of the earnings of PhD economists. The second part is advice on getting into graduate school.

### *Labor Market Opportunities for PhD economists*

The first thing I'd like to say is that there's three dimensions to a meaningful career. The first is whether you enjoy and/or are good at it. The second is whether it's valued by others. The third is compensation and employment. Figuring out the first is the work of one's life in a lot of ways. We say that you should sort into your comparative advantage, but how do you know what your comparative advantage even is? That's the second and third questions. You should seek to work in something that is valued by others and at such a rate that their willingness to pay for your services is relatively high compared to your reservation wage.

Jobs in science, technical, engineering and math-based fields has grown tremendously over the last several years, and a PhD in economics is one of those fields that is in high demand. Your chances of getting an academic job are relatively high compared to many fields, the unemployment rate is very low among PhD economists, and it's a general degree that gives you many options if academia is not for you.<sup>1</sup>

The earning potential as an economist in academia is very good, compared to many other academic jobs. Though you don't make as much as finance, accounting and marketing professors make, you still have a relatively high compensation.

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<sup>1</sup> See this article: <https://80000hours.org/career-reviews/economics-phd/>

	<b>All PhD-granting Institutions</b>	<b>Top 30 Institutions</b>	<b>Bachelors and Masters Degree Granting Institutions</b>
Mean	\$127,809	\$146,097	\$92,313
Std. Deviation	\$29,954	\$26,219	\$14,881
Minimum	\$93,000	\$112,000	\$55,000
Maximum	\$216,000	\$212,000	\$116,500
N	43	10	15

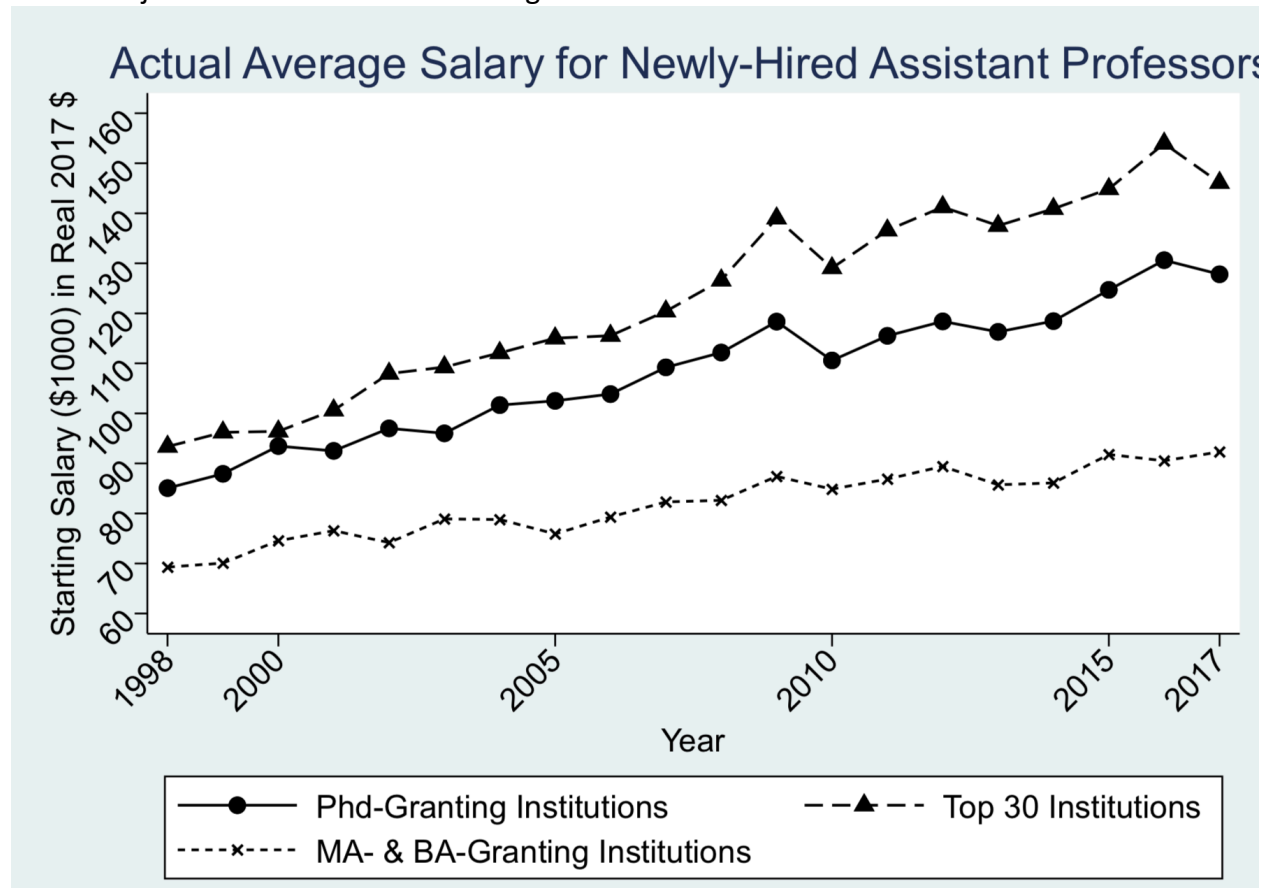
Notes: Source: Jebaraj et al. (2018).

Question asked: "For a new Ph.D. with degree-in-hand, what DID you offer as a 9-month salary for appointment in the 2017-18 academic year? If this varied across people, please give an average." These are means of institutional reports, which in turn are means of the offers they made to new assistant professors in economics.

The first thing to note here is that the mean salary across PhD granting institutions is \$127,000, and if you get a job at a top 30 institution, that jumps to around \$146,000. There's a large variance here, though, with wages going as high as \$210,000.

But notice the large gap between the PhD granting institution and the schools that only grant bachelors or masters degrees. There the average salary is \$92,000 with a smaller variance. We see this also in the time trends for the three groups. There is a gap between the two types of

academic jobs and it has been increasing over time.



As you can see, since the early 2000s, the wages for new assistant professor has grown as much as 30%. But notice the gap that has emerged between employment at a PhD granting institution and those institutions that only have a masters or bachelors.

I say all this to emphasize a few points. First, even at the schools that offer only a masters or bachelors, the compensation is very good. While this is only for academia, opportunities outside of academia often see wages even higher. Second, though, notice the gap between the BA/MS and PhD granting schools. This is a source of inequality in the academic market for economists. Institutions with PhDs that employ economists see higher wages both at the beginning level as an assistant professor, as well as at every subsequent level of promotion (associate and full professor ranking).

So, how do you get a job as at a PhD granting institution, if that is even important to you in the first place? The answer is – you need to graduate from a reasonably ranked school where you wrote an excellent job market paper (dissertation essentially), and received high letters of recommendations from research active faculty with good reputations in the profession.

But that only leads us to the next question: how do you get into the relatively higher ranked programs?

### *Getting into the PhD Program*

The compensation as an economist is currently good, as is the freedom you experience from working on projects that you find personally rewarding. You are essentially being paid to teach courses that you find important and interesting. But sometimes the teaching work load is higher and encompasses classes that you may not find interesting. The classes may vary in intrigue because you may be required to teach a lot of introductory courses, and at a very high rate, perhaps as high as 4 classes a semester. That can be hard and tedious depending on your personality as it leaves very little time for research. Plus the compensation is often lower. Assuming your desire is to be employed at a university with more earning potential and broader intellectual interests, what are the heuristics for getting in?

The traditional route into a PhD program is to graduate from college with a bachelors degree and do one of two things. One, you may go get a masters and use that experience to launch into a program which is ranked higher than you could've gotten had you immediately enrolled in a PhD program directly after graduating.

If you do go this route, the same logic applies – try to find the best masters programs and go there. Good ones traditionally are London School of Economics and Duke. But there are lesser known programs with strong masters programs that have done a good job of placing students at higher ranked PhD programs, such as Montana State who recently placed students at UC-San Diego and Harvard Kennedy School. Baylor, where I work, has since I started there in 2007 placed students at Wisconsin (2), Rice (1), University of Georgia (2), Emory (1), Indiana (1), University of Houston (1), and others.

What you often get out of these masters programs is a couple of things. One, you can often take math courses to offset your lack of mathematics from college. At Baylor, students lacking in mathematic preparation will take courses at a local community college, but at other schools, it's possible to be enrolled in the masters program and still take undergraduate courses in mathematics. You should ask to learn more about that. But if you already have a strong math background, then the masters just gives you a chance to learn more economics before attempting a PhD application.

The downside of the masters is that it is time consuming. It usually takes 18 months to 24 months to complete, which is a sizeable opportunity cost. When you enter a PhD program, you will have to take all of the coursework over again, so you are unable to shave off time this route. It is purely an investment in human capital.

The second route is to apply directly after graduating college. It's very competitive, but if you score very high on the GRE (e.g., 89<sup>th</sup> percentile but preferably higher) and have taken all the appropriate math courses (Calculus 1-3, linear algebra and real analysis), then you will get into a good school. In some ways this is the best overall option, too, because then you don't waste time in other activities – you simply enter, focus, do you best, and try to finish in 5 years.

An alternative route that has over the last 4-5 years become incredibly popular, though, is the *predoctoral research assistantship* route, or “predoc RA”. The predoc RA job requires competency in a programming language, usually R or Stata. If you are very good at either of these languages, then it opens up the doors for you to get a job in someone’s lab as a predoc RA. The explosion of the predoc RA jobs appears to be associated with the broadening release of very large administrative data sources in the United States. Many highly regarded economists at great universities now employ armies of predoc RAs whose job is to do complicated analysis and script programming on their behalf. One survey found that 60% of one Ivy League university’s PhD students had previously been previously employed as a predoc RA.<sup>2</sup> The way in which getting one of these works is you first apply for them. You can look for options at the NBER website here:

<http://conference.nber.org/jobs/nonnberjobs.html>

What typically happens in this process is if selected, a professor will send you a dataset, a set of tasks and a short deadline – perhaps as short as a week to complete the tasks. They are looking for *programming aptitude*. So it helps to have become fluent in either R or Stata before this stage, as they are only interested in those who are excellent in either language.

There are two reasons to favor this route over a traditional masters route. First, the opportunity cost is lower. Compensation as a predoc RA could range by as much as \$40,000 to \$60,000 depending on the city and the school. That’s a lot of money for someone fresh out of college. Just imagine living in Switzerland, New York or Boston for a year or two on \$60,000 doing nothing but research support. There are worse things you could be doing with your time than that.

The second piece of value with the predoc RA is that almost without exception, you can take math courses at this university which will allow you to build up your math human capital as you prepare for the PhD application.

But the third piece of value with the predoc RA position is that it gives you access to scholars who can write you letters of recommendation, and those scholars are often people with better credentials than the ones you may have access to now. These potential letter writers encompass a wide range of economists – from prominent professors in your field of interest to John Bates Clark award winners. Oftentimes the letters you get from these individuals will dominate the ones you have from your home university. This is of course contingent on the match being recognizably productive for you, but it is nonetheless a realistic part of the path to an economics PhD. And one nice thing about the predoc RA – the advisors care primarily about your skills, not pedigree or math background. You should exploit that as you may have more influence at this bottleneck that you realize.

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<sup>2</sup> I’m being intentionally vague because I cannot find the survey on my hard drive. So maybe don’t quote me on this statistic.

### *PhD Requirements*

The main requirements these days to get into a good PhD program is twofold. First, you need to have taken and done well in Calculus 1-3, Linear Algebra, and Real Analysis. Optional classes include other math courses, and any statistics course. The main core are the calculus, algebra and analysis courses.

The second thing you'll need to do is score high on the GRE. One of my former students scored at the 89<sup>th</sup> percentile in the GRE, as well as had very high grades and strong letters from Baylor. The best schools he got into were top 20 programs. There is zero variation in scores at the top 10 schools.

But while having a reasonably high GRE score should be your goal, it is only a necessary condition. One of the most significant (potentially) causal effects over which you have control is your personal letter. It is in your personal letter that you can convey why an economics PhD matters so much to you. You should use the letter to tell the truth in a persuasive way.

### *What's Best for You?*

The best PhD program for you is the one that brings the best out of you, and there are many dimensions to that, and most of them are unknowable beforehand. You want a program that plays to your strengths. For me, that meant a program with a faculty adviser who was supportive, believed in me, and held me to high standards. But others may not need something like that.

Sadly, the match with your faculty advisor is probably the most important relationship you will ever make, and yet, you don't know who that should be until after you've already gotten into the program. It's also impossible to know the counterfactual – perhaps you would do well under anyone, or perhaps you needed someone really special. I have no advice here. I was fortunate – Christopher Cornwell and me hit it off from the beginning and he brought the best out of me. But others did well with other faculty, too, so who knows.

I wanted to suggest a particular program to you, though, if you feel you are unsuccessful at getting into a top program, and that is Texas A&M in College Station, Texas USA. I have many friends there, particularly the applied microeconomics group. My good friends Mark Hoekstra (whose castle doctrine paper we discussed today) and Jonathan Meer are there. They work on a range of topics that include education, crime, philanthropy/charity and other things. Then there is Jennifer Doleac, a widely regarded young economist who specializes in crime. She actually will be visiting Uruguay next spring I think so you will have a chance to meet her. Then there is Jason Lindo and Andrew Barr. Andrew specializes in education, whereas Jason (a coauthor of mine) specializes in education and reproductive health. There is also a very strong laboratory experimental group, as well as fields in industrial organization. But I am mainly familiar with the applied micro group.

I recommend this program to you for a few reasons. First, I have witnessed firsthand that they take mentorship seriously. Their students often graduate well trained with good intuition and research-related maturity. I believe this is partly because of selection and partly because of the faculty culture. Many faculty strongly believe that heavily investing in students through close mentorship is an important role they hold. They hold students to high standard and believe that they can meet those standards. I highly recommend them assuming the above faculty remain there when it's time to apply (especially Hoekstra and Meer).

Second, they have historically placed students well. By well I mean as well as state flagship schools. The ones I know of include University of Mississippi, University of Tennessee at Knoxville, Florida State University, University of Missouri, Louisiana State University, Purdue and recently, Vanderbilt.

There is a US News and World Report ranking that a lot of people use, and it probably isn't too different than the ranking I have in my own head. I suspect that you will need to talk to Carlos and Emiliano though to get a more complete ranking that includes schools in Europe, as I believe the US News and World Report is heavily biased towards American schools.

<https://www.usnews.com/best-graduate-schools/top-humanities-schools/economics-rankings>

### *Conclusion*

In conclusion, I'd like to tell you why I like being an economist. I like being an economist because I am a curious person. Some would also say I am an "intense" person. I just inputted "intense" into google translate and it said the Spanish translation was "intenso". Basically, I am very passionate about what I am passionate about, and bored by things I am not interested in. Being an academic therefore is the perfect fit for me. I get to work on topics I find interesting, I get to write things I like – even give them away, like my Mixtape. I have summers off to fly to places like Uruguay and teach interesting classes to interesting students like yourselves. I can develop classes like "causal inference" and the "economics of crime" classes I teach. I can do all this while making a reasonably comfortable salary. With tenure, they couldn't fire me short of me doing something criminal (which I promise I no longer do!). I feel very fortunate.

The thing I also like about being an economist is that economists are given a seat at the policy table. There is the "chief economic advisor", as well as entire bureaus devoted only to economic analysis and economic data. There are central banks that employ many economists. Economics is unique in that it's highly valued in government, academia, and industry. It makes you very mobile – even internationally mobile – pays you well, and maybe most importantly, provides you one of the best chances you have to work on projects that actually are meaningful for the "good society". It is important that we use our talents and other resources and to the best of our abilities use them to maximize the full flourishing of people in society. We should be seeking to improve the lives of everyone, including the most vulnerable. And while economics is only one small piece of that, it is a meaningful one, maybe one of the more meaningful academic ones anyway.

I love being an economist because I am filled with wonder and economics gives me a lens to indulge that feeling. It's not for everyone. But it *might* be for you. It's not an easy path. You should expect to spend 5-6 years in the PhD program. The first year in particular is very hard, even brutal some might say. You will be discouraged at times because maybe projects don't work out, maybe you grow tired, maybe you don't feel you can see anything good coming. But quite frankly, every career has such obstacles. Economics is not unique. In a world with scarcity, we face many challenges no matter what career choice we make. The ones in economics are just stressful because they tax your mind's ability. But I like to think of it more like making larger muscles. To get larger muscles, you must put the existing muscles into distress through extensive lifting. It is like that in graduate school, too, and it is like the rest of your career. If you are the sort of person who thrives on becoming better, improving, and so forth, then maybe economics is a good fit.

Anyway, I am here for you in whatever way I can be. I am so glad we met. Please stay connected with me so that I can learn what you are all doing. I hope our paths cross again soon.

Sincerely,

Scott