

Economics PhD Programs in Europe: Completion Times and Job Placement[†]

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Abstract

Stock, Finegan, and Siegfried (2009) establish that completion times in US economics PhD programs have been on the rise, with the median steadily approaching 6 years. Do European programs experience the same trend? This paper presents new hand-collected data on job market candidates from the top European PhD programs in economics. In the past 5 years, completion times have been rising steadily, and the median is now approaching 6 years. Empirical evidence suggests that shorter PhD duration is statistically associated with less prestigious placements. This paper further investigates how PhD duration and placement prestige vary with personal researcher characteristics such as gender or field of undergraduate studies.

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1 Introduction

Recent years have seen an increasing convergence of economics PhD programs in Europe towards their US counterparts. Increasingly, a number of European programs offer structured programs that include a significant coursework component, and are able to provide funding for the entire program length. While this convergence has been noted, little structured information is available on these European programs. We take a first step towards filling this gap.¹

Using a unique hand-collected dataset, we add to results by Stock, Finegan, and Siegfried (2009) and Stock and Siegfried (2014) on completion times in US graduate programs in economics. We find that completion times are on the rise in European structured graduate programs, too. In the past 5 years, median completion times have been rising steadily, and the median is now approaching 6 years. We also provide some qualitative description of the differences between European programs and their US counterparts, in particular with regards to program structure and funding.²

Our analysis focuses on ‘job market candidates’. These are the students that compete on the international academic job market for economics graduates.³ We believe this to be the policy-relevant subsample for three reasons. First, delivering internationally competitive candidates is the stated goal of many European economics PhD programs. The job market is the highest international standard for young researchers in economics. Second, focusing on job market candidates ensures that the students we consider are at the same stage of their career as their US counterparts. Third, although we do not measure time-to-degree (TTD) directly, focusing on job market candidates allows us to generate a measure of TTD that is generally similar to that used in the literature (see, e.g., Stock, Siegfried, and Finegan, 2011). Finally, over the last years, the international job market has become an important recruiting device

¹This project started as an internal project at the European University Institute (EUI) during the period when all the three authors were affiliated with the EUI. The objective was to understand the differences between the EUI Economics Doctoral Program and its closest competitors, in particular with regards to completion time. While such information was readily available for US programs, we had to hand-collect information on European programs by going through the CVs of over 700 recent job market candidates. Subsequently, we realized that our findings could benefit the economics community at large, and therefore merit wider dissemination. The data are available from the authors upon request.

²Because our analysis focuses on a subset of all European programs, with emphasis on including programs that resemble top US programs in structure, our results should not be taken as representative of European economics PhD education more broadly.

³For more information on the ‘economics job market’, visit <https://www.econjobmarket.org/index.php>. The organization describes itself as a “non-profit clearinghouse for applications to PhD level jobs in economics.”

for economics PhD graduates outside the narrowly defined academic sector. Increasingly, international organizations, such as central banks, governments and also the private sector are hiring through the economics job market.

The paper also investigates how completion time and prestige of the initial placement vary with personal researcher characteristics. For each candidate in the sample, we collect data on gender, field, field of undergraduate studies and their initial placement. Candidates who go on the market in the sixth year of their PhD have a significantly higher probability of top ranked initial placements. Due to data limitations this cannot be interpreted as longer preparation times causing the increased probability of high prestige placement. Similarly a plausible explanation would be that more able and/or ambitious students (who eventually get better jobs) spend more time to prepare for the job market. Both possibilities, however have the same *equilibrium* implication: students who take the most prestigious jobs spend around six years preparing for the job market. In most European countries, the official governmental funding opportunities for doctoral studies are not in line with this observation. We find that field and gender do not significantly correlate with completion time or with placement prestige. We do find however, that the probability of placing in a top ranked institution is lower for economics PhD candidates trained in other social sciences, compared to candidates trained in for example the natural sciences. One might interpret this finding as evidence for the importance of formal mathematical training for the successful completion of an economics PhD, but selection and preferences may get in the way of such causal interpretations.

2 Economics PhD Programs in Europe

Selection of Programs We established a list of top European programs from a variety of sources. In particular, we emphasized that they should have international recruiting and placement, as well as a structured graduate program (including coursework), which makes them comparable to top US programs in style. Several publicly available rankings aided our search for candidate programs. Our procedure resulted in a list of 21 programs. Of these, 5 are located in the United Kingdom (*University of Cambridge* (hereafter referred to as ‘Cambridge’), *London School of Economics and Political Science* (‘LSE’), *University of Oxford* (‘Oxford’), *University College London* (‘UCL’), *University of Warwick* (‘Warwick’)), 4 in Spain (*Universitat Autònoma de Barcelona* (‘Autonoma Barcelona’), *Universidad Carlos III de Madrid* (‘Carlos III’), *Centro de Estudios Monetarios y Financieros* (‘CEMFI’), *Universitat Pompeu Fabra* (‘UPF’)), 3 in Germany (*Universität Bonn* (‘Bonn’), *Göthe Universität* (‘Frankfurt’), *Universität Mannheim* (‘Mannheim’)), 2 in France (*Paris School of Economics* (‘Paris SE’), *Toulouse School of Economics* (‘Toulouse’)), 2 in Italy (*Bocconi University* (‘Bocconi’), *European University Institute* (‘EUI’)), 2 in the Netherlands (*Tilburg University* (‘Tilburg’), *Tinbergen Institute* (‘Tinbergen’)), 2 in Sweden (*Institute for International*

Economic Studies ('IIES'), *Stockholm School of Economics* ('SSE')), and 1 in Switzerland (*University of Zurich* ('Zurich')). We do not purport to establish that these are the 21 best programs in Europe, nor would we want to rank them. But the list does include all 'usual suspects' for the top spots, so that we would certainly expect that, for example, the top 10 programs (whichever they are) are included in this set.

Program Structure Table 1 provides some information on program structure for each of the European programs. Generally, the setup of these programs is very similar to that of US programs: they consist of a coursework phase, where the first year consists of core courses and the second year consists of electives and moves students towards the research frontier. The balance between courses and initial research in the second year varies from program to program, while the first year programs are largely standard and very similar to those in US programs.

There is one big difference in setup to US programs: in many of the European programs, the coursework phase is treated as a separate degree program, and leads to titles such as MPhil or MRes. Thus, in some of these programs PhD students are just a subset of a master's degree class for the first one or two years (for example CEMFI), while others are entirely integrated as in a US-style system (for example EUI). Further detail is provided in Table 1.

In all programs under consideration, coursework is targeted at future PhD researchers. Why then offer this coursework for a terminal master's degree as well? We suspect that this is largely due to the current setup and the structure of public funding for postgraduate (and in particular doctoral) education in Europe. Following the Bologna process, the typical European student completes a 3-year Bachelor's degree in his or her field of interest, followed by a 1- or 2-year Master's degree. Public funding (most of the programs are housed by public institutions) is often structured the same way, where it is beneficial to have class sizes above the typical number of students in a PhD program. Thus, economics departments fit the 'ideal' US-type program into the European system by making the coursework phase a Master degree. In addition, some programs use this to select the best students from a large pool that undergoes initial coursework (for example UPF). The demands that first-year coursework places on students leads to the admission of mostly (or in some cases exclusively) students who already completed a 'regular' Master's degree elsewhere, sometimes in the same university.

One possibility that the above structure raises is that students might switch programs when they enter the research phase. We find that such switching is exceedingly rare. While it occurs that students take a Master's degree in one of these programs and then enter another, they then typically retake the entire coursework phase of their new program. Summarizing all

of this, we concluded that these two-step programs can safely be considered PhD programs with a coursework component, similar to their US counterparts.

Program Funding There are large differences in funding from program to program as well. Not too dissimilar from the US, all of these programs can in principle fund students through the entire length of a PhD. However, in some cases funding is insecure from year to year, or only provided in return for teaching and research assistantships. Finally, there are large differences in the availability of funding across any one cohort, with some programs providing funding to all admitted (for example SSE) and others separating the admission decision from the funding decision entirely (for example Cambridge and Oxford).

An important difference to fully integrated US PhD programs arises in the European programs that separate their course phase into a stand-alone master degree. Here, the majority of the programs do not provide funding for the master stage. Funding is then restricted to the research phase of the PhD, following the initial one or two years of coursework.

3 Data Collection and Processing

Data collection proceeded in two stages. In the first stage, we looked up current job market candidates for each program (this was in 2015-2016) and placement results of past job markets (2011-2012 through 2014-2015) online, whenever data were available. We searched for each candidate's CV using personal websites, professional websites, and LinkedIn profiles. This led to some, but very limited, missing data for students who are listed as job market candidates but whose entry dates cannot be established.

We focus on candidates that enter the international 'job market' at the end of their PhD. This is a subsample of all students who enter a program, and typically also a subsample of the students who enter *and complete* a program (although in principle, one could enter the job market without ever defending). Notably, the sample may be significantly smaller than the sample of students who obtain a degree. (We confirm this for one school, the EUI, for which we have administrative data on time-to-degree. These results are discussed in the next section.) We focus on this 'job market' sample because delivering competitive candidates to this job market is the stated goal of most programs in our sample. It also increases comparability to the US literature, where students typically enter that same job market (which originated and takes place in the US) at the end of their program.

We determined each candidate's entry year into the program. Our measure for completion time, 'time to job market', is the difference between the job market year and the entry year. We include the relevant coursework stage and the time spent on the job market. The measure

is not dependent on the timing of the defense. This results in an approach that slightly differs from the US literature cited in this paper, which often focuses on time-to-degree (cf Stock, Siegfried, and Finegan, 2011). To reflect this difference, we use the term ‘completion time’ rather than time-to-degree throughout the paper.

Our approach makes our data more reliable and more comparable to US data on completion times than European data from official sources would be. This is because European programs differ strongly in how they account for coursework time and time spent on the job market, as we described above. Therefore, a detail-oriented approach and knowledge of the program structure is necessary to attribute the right de-facto number of years to a PhD program. In addition, students regularly enter the job market only after having completed their defense. This is different from the US, where the defense typically follows the job market. As a result, our measure is likely to be more comparable to US time-to-degree than using time-to-degree for European students.

In the second stage (in the summer of 2017), we collected job market outcomes and additional covariates per candidate. We created a job prestige ranking depending on the job title of the first placement job. Assistant professors are coded as a Top prestige placement, Post-docs are coded as a Bottom prestige placement, and other job titles were assigned to the categories Top, Middle and Bottom according to a best effort by the authors.

In addition to the job quality ranking just discussed, placement institutions were coded for ‘prestige’ as follows. Outcomes were classified in three different classes: academic, institutional or private sector. Within each class of placements, we assigned specific institutions as member of the Top, Middle or Low group of institutions within that class. For academic institutions, we made use of the IDEAS/REPEC ranking of Top Economics Institutions, as of June 2017, to assign universities to groups.⁴ For institutional jobs, we ranked prominent international institutions such as IMF, ECB or Worldbank, and top national institutions of large countries (Fed, Banque de France etc.) as Top, less prominent international institutions as Middle and national institutions of smaller countries as Low. For private sector jobs, our decision rule was based on international reputation of the company, without resorting to a formal criterion. While the IDEAS/REPEC ranking is just one of many possible academic rankings, it is easily accessible, computed based on transparent rules and comprehensive in coverage.

While the categorization represents a best effort on behalf of the authors to capture the prestige of a job and an institution, it is clear that some nuance will get lost along the

⁴The current ranking can be accessed via <https://ideas.repec.org/top/top.inst.all.html>. The ranking is updated continuously, so the current rankings might differ from the ones we used for our analysis.

way. In particular, one might want to keep in mind that placement prestige does not equal placement quality: individual preferences for locations, jobs, and institutions may differ in important ways from what is considered ‘prestigious’. Thus, the resulting categorization should be interpreted with some care.

Additional covariates collected include gender, field (coded as micro, macro, applied, econometrics, or finance), fields of undergraduate studies (economics, business, natural sciences or engineering, social sciences or humanities), age, and nationality (Data on the latter two turned out to be missing in many cases, so that we did not use them for analysis). We also returned to our original sources and compared reported placements for 2016 versus the list of names that was reported to be on the market in 2015-2016. This gives us a clear idea of the extent to which collecting reported past candidates is representative of actual past candidates. We discuss these results in the next section.

4 Sample Selection and Representativeness

The attempt of this paper is, in first instance, to compare European job market candidates to their North American counterparts. The main selection issue that our method of data collection faces is whether reported past job market candidates (‘placements’) correspond to actual past job market placements. Here, two issues might occur. First, candidates might be added to placement lists when they get jobs outside of the academic job market. Second, candidates who do not place well or not at all may not be reported among past placements.

As mentioned above, our two-staged data collection approach allows us to examine this issue for the 2015-2016 job market. We found the former issue to be minor, and therefore do not report it. The latter issue is somewhat more prevalent, although only in some programs. We report the results in Table 2 below. In one case (UPF) a university stopped reporting placements altogether. For a couple of programs, job market candidates were not yet listed during our first stage of data collection.

This issue, while relevant to prospective students, is most relevant to our research setup if it influences our results on completion time significantly. It turns out that the issue is minor: Those who are listed as placements took on average 6.05 years by our measure, while those that were not reported as placements took 5.90 years. The difference is not statistically significant.⁵

Another issue is missing data. For few programs, one or several years of job market data are missing. Typically these are recent (Cambridge, Warwick, and Zurich) or older years (UCL,

⁵The p-value associated with a two-tailed t-test for no difference in sample means, assuming unequal variance, is 0.53.

UPF, Warwick), or years for which a smaller program did not deliver job market candidates (CEMFI). However, we do not believe that this influences our conclusions with regards to completion time.

Importantly, we do not claim that our sample is a representation of entering students: Some may drop out or be asked to leave at various stages. Some students may not enter the job market and therefore go unlisted on websites. For the EUI, we have access to administrative data on all PhDs awarded. On average, about half of the PhD recipients go on the Academic Job Market and are publicly listed as such. For the years 2012 to 2015, the average job market candidate took a quarter of a year longer to obtain their degree than the average degree recipient. While these are interesting statistics, they do not have immediate consequences for our research question as it is concerned with those students who enter the international job market. At the same time, the small difference in average completion time suggests that our results may provide a good indication for completion times for all PhD students in our sampled universities. In addition, the fact that those students who enter the international job market spend (somewhat) more time in the PhD programs is also in line with some of our additional results that show a positive association between prestige of placement and completion time.

5 Results

Completion Times Our results on completion times are displayed in Tables 3, 4, and 5. Average and median completion times have been rising since 2013. Both the average (Table 3) and median (Table 4) are at 6 years for the 2016 job market cohorts. This finding is remarkably consistent across programs, with both averages and medians lying between 5 and 7 years for all programs. We miss information for a few years for some programs (whenever the reported number of observations is zero in Table 5), but our overall number of observations is large. We do not observe qualitative changes to our results when calculating observation-weighted averages.

To provide some further insights, Figure 1 provides a histogram of completion times across all programs for the last two years in our sample. Completion times are rather concentrated around 6 years. While 5 and 7 years of completion time also occur frequently, almost no students finish in 4 years or less.

Covariates of Completion Times We report results from an ordered probit model regressing Time to Job Market (completion time) on Year of Job Market (a trend variable), Field of Economics, Gender, PhD Institution and Field of Undergraduate Studies, estimated with robust standard errors. We consider completion times longer than 8 years to be out-

liers and remove such observations. For each covariate presented (in the Figures we refer to below), we report the probability of observing a certain Time to Job Market for each level of the covariates, holding all other covariates at their respective sample means. Confidence intervals shown are 95 percent confidence intervals. Table 6, column 1 contains the estimates of our ordered probit model.

The predicted probabilities of observing particular completion times for each year of the sample are shown in Figure 2. This confirms the raw completion times results reported in Tables 3 and 4. Completion in 6 years becomes significantly more likely than completion in 5 years over the sample period, which is not yet the case in the early sample years. The same is true when comparing completion in 7 to completion in 4 years. Going on the job market in the 4th year of the PhD, which still occurs with some probability in 2012 and 2013, becomes increasingly unlikely towards the end of the sample.

Figure 3 shows that predicted completion times of female candidates are slightly longer than their male counterparts, however the differences are not statistically significant. Figure 4 shows that the same is true for PhD candidates in different subfields of economics although, interestingly, students working in econometrics seem to take less time to enter the job market, everything else equal.⁶

Covariates of Placement Prestige We estimate a similar model to the one above, this time using our placement prestige index as dependent variable, pooled over all classes of placement. In addition to the covariates reported above, we also include Time to Job Market as an additional explanatory variable. An important qualification to stress is that this does not allow us to infer any causal link from completion time to placement prestige and that the reported association is purely statistical in nature. Results reported are obtained in the same way as in the previous subsection. Table 6, column 2 contains the estimates.

Figure 5 shows probabilities of placing in a top, middle or low ranked job within the sample graduating in 4, 5, 6, 7 or 8 years.⁷ While for a duration of 4 or 5 years, low and high placement prestige are statistically equally likely, going on the job market after 6 years is associated with a significantly higher probability of placing in a top ranked job relative to a middle or low

⁶We also looked at the representation of women across fields. Female candidates are overrepresented in applied economics and underrepresented in econometrics. Consequently, we added interaction terms between gender and field to our ordered probit model for completion times. The resulting coefficients are not significantly different from zero. Finally, we added interaction terms between gender and institution. Except for two institutions, these are not significant either.

⁷Few candidates complete their PhD in 3 years, which makes interpretation of the estimated probabilities for those subsamples difficult.

ranked one. This effect attenuates again for graduates with a duration above 6 years. Figure 6 plots the average completion time and placement prestige for graduates of each PhD-granting institution in the sample. Here we convert the categorical placement prestige variable into a numerical one, by assigning the values 1, 2 and 3 to the Top, Middle, and Low category, respectively. As is apparent from the figure, average completion time and average placement prestige are associated positively in the sample. While, as already mentioned above, this does not suggest that longer completion times are causing more prestigious placement, it is a clear indicator that candidates who take a high prestige placement do take additional time to go on the job market. Since placing their candidates well is the stated goal of the departments in our sample, this has implications for the desired funding structure of their PhD programs.

Figure 7 shows that Gender does not vary significantly with placement prestige. Since comparing placement prestige by subfield of economics is not particularly meaningful, we instead report placement prestige by undergraduate background of PhD candidates in Figure 8. Here, candidates with a social science or humanities background stand out: they place significantly worse than all backgrounds except business. The reverse is true for those with an undergraduate background in the natural sciences. One might interpret this finding as evidence for the importance of formal mathematical training for the successful completion of an economics PhD, but selection and preferences may get in the way of such causal interpretations.

Assistant Professor Subsample Since the primary goal of many PhD programs is preparing candidates for a career in academia, we present some additional results on the subsample of candidates with a first placement job title as ‘Assistant Professor’. They represent 39% of the full sample.

Sample frequencies for the completion times of this subsample are presented in Figure 9. The relative frequency of 6 vs 5 years of completion times is skewed in favor of 6 years, with 47 vs 28 percent. This compares to relative frequencies of 41 vs 33 percent of the entire sample.

Assistant Professors all have the same job title and hence the same placement rank. We can however analyze differences in prestige of the institutions that hired them. Figure 10 shows that placing at a top-ranked university is unlikely for all durations, but point estimates are slightly increasing with a duration from 5 to 7 years to completion.⁸ Top placement probability does not increase significantly across subsamples of different duration. However, when plotting each institutions’ average placement prestige and average completion times for the assistant professor subsample, there is again a positive correlation. This relationship is

⁸Few candidates place as Assistant Professors after a completing their PhD in 4 or less years, which makes interpretation of the estimated probabilities for those subsamples difficult.

plotted in Figure 11. As before, we convert the categorical institutional prestige variable into a numerical one, by assigning the values 1, 2 and 3 to the Top, Middle, and Low category, respectively.⁹

Taken together, the results of the subsample of ‘Assistant Professors’ confirm the impression of the full sample analysis: While the results and estimates presented do not allow for causal interpretation, statistically, completion times and placement prestige are positively related. Table 6, columns 3 and 4 contain the estimates of the ordered probit models for this subsample.

6 Conclusion

Recent years have seen an increasing convergence of economics PhD Programs in Europe to their US counterparts. Completion times in the top programs have steadily risen to, and now reached, a median of 6 years. This brings them rather close to completion times in US programs as surveyed several years earlier by Stock et al. (2009) and Stock and Siegfried (2014). However, program and funding structures remain different due to institutional factors. Our findings may therefore be of relevance to funding authorities and administrators.

Our results suggest that higher placement prestige is statistically associated with longer completion times. In addition, we uncover a number of facts relating completion times and placement prestige to personal researcher characteristics. The data do not show evidence of systematic differences by gender in either the duration or the placement prestige of European economics PhD programs. On the other hand, undergraduate background turns out to be a significant predictor of success in an economics PhD program, if measured by initial placement prestige.

The descriptive nature of our data does not allow the identification of the causes of increased completion times. Given that limitation, we refrain from suggesting any normative implications of our findings. Nevertheless, we expect our findings to be relevant for those training and hiring young economists as they may benefit from data on the European peer group. They may also be relevant to decision makers who define the parameters of graduate programs and set funding structures: our findings provide a few descriptive statistics that may help them to evaluate the consequences of different funding choices.

⁹For the full sample, including a quadratic term on completion time shows a diminishing relationship, where longer completion times stop improving placement prestige around 6.4 years. For the assistant professor subsample, the quadratic relationship is convex: flat for completion times up to 5.5 years and then a steeper effect of completion time on placement prestige.

7 Appendix

7.1 Tables and Figures

Table 1: Program Details

| | |
|--------------------|--|
| Autonoma Barcelona | The Graduate Program at the <i>Universitat Autònoma de Barcelona</i> consists of a two-year Master in Economic Analysis, followed by a research phase. The entire path is counted. |
| Bocconi | The program at <i>Bocconi University</i> is officially described as a four year program, with the first two years dedicated to course work. However, our analysis shows that candidates take substantially longer to finish their PhD. |
| Bonn | The program at <i>Universität Bonn</i> is structured into 4 years, of which the first two are mainly course work. Time can be extended into the fifth year for the academic job market. |
| Cambridge | The full program at the <i>University of Cambridge</i> is split into a one-year MPhil (coursework) phase and a PhD phase (research). Both are counted as time to completion. |
| Carlos III | The Graduate Program at <i>Universidad Carlos III de Madrid</i> consists of a two-year Master in Economic Analysis, followed by a three year PhD in Economics. Sufficient performance of the former provides entry to the latter. The entire path is counted. |
| CEMFI | The PhD program at the <i>Centro de Estudios Monetarios y Financieros</i> starts out with two years of coursework, which is taken jointly with a master's program. Some master's students subsequently enroll as PhD students. In either case, the entire path is counted. |
| EUI | The program at the <i>European University Institute</i> is entirely standardized, with coursework as part of the PhD program. There was a small terminal master's program in the past consisting of part of the same coursework. |
| Frankfurt | The program at <i>Göthe Universität</i> in Frankfurt is officially described as a four year program, with the first two years dedicated to course work. However, our analysis shows that candidates take substantially longer to finish their PhD. |
| IIES | The PhD program at the <i>Institute for International Economic Studies</i> is organized jointly with the Department of Economics of the University of Stockholm. Entry into IIES is competitive out of the program. We count the full time spent in the PhD program, also if part of it was spent outside of the IIES. |

| | |
|-----------|--|
| LSE | The full program at the <i>London School of Economics and Political Science</i> is split into a two-year MRes (coursework) phase and a PhD phase (research). Some who obtained a previous master's degree (usually a terminal MSc from LSE) may be allowed to complete the MRes in one year instead of two. Both the time spent on the MRes and the PhD phase are counted as time to completion, but previous degrees are not. |
| Mannheim | The program at <i>Universität Mannheim</i> lasts 5 years, of which the first two years are course work. Funding is committed for the entire period. |
| Oxford | The full program at the <i>University of Oxford</i> is split into a two-year Mphil (coursework) phase and a DPhil phase (research). Both are counted as time to completion. |
| Paris SE | The <i>Paris School of Economics (PSE)</i> is a collection of Economics departments in Paris. PhD candidates from these schools are listed as PhD candidates of PSE. Three different subsets of this set of schools each jointly offer a master's degree, which consists of one year of core coursework (the Master 1) and one year of advanced coursework (the Master 2). Subsequently, students may be admitted to a PhD program. The entire path is counted. |
| SSE | The program at the <i>Stockholm School of Economics</i> starts with a two year course phase after which two to three years of research follow. |
| Tilburg | The five-year graduate program at <i>Tilburg University</i> consists of a two-year Research Master and a three-year PhD program. The entire path is counted. |
| Tinbergen | The <i>Tinbergen Institute</i> is a joint graduate school and research institute of the Erasmus University Rotterdam, the University of Amsterdam, and the Free University Amsterdam, Netherlands. Tinbergen offers a two-year MPhil degree, after which students can be offered doctoral positions in one of the three universities. The three universities also hire PhD students for four year positions that do not require formal coursework (further to previous degrees), and some of these are listed as Tinbergen placements. Because we cannot distinguish between the two, we list all students that the Tinbergen Institute lists and count time spent in the MPhil as well. |
| Toulouse | The <i>Toulouse School of Economics (TSE)</i> doctoral program consists of a Master 2 (French university system) in Econometric Theory and Econometrics, which is explicitly part of the 'doctoral track', a DEEQA degree, which is essentially the second year of coursework, and a research phase. The entire path is counted. |

| | |
|---------|---|
| UCL | The program at <i>University College London</i> is structured into MRes. (one year, coursework), MPhil. (second year, research) and PhD (following two years). Thereafter, students have another year to complete their thesis with full student status. |
| UPF | The typical path towards a PhD at <i>Universitat Pompeu Fabra (UPF)</i> includes one year of core courses in an MSc program, one year of advanced courses in an Mphil program, and then a research phase. While the MSc is also a large terminal degree (at least with respect to UPF), it is part of the core sequence of courses for a UPF PhD. Thus, the entire path is counted. |
| Warwick | The program at the <i>University of Warwick</i> is structured into a two-year MRes. followed by a 4 year PhD (total: 2+4). Students should submit towards the end of year 3 of the PhD and go on the job market in year 4. |
| Zurich | The program at the <i>University of Zurich</i> has a two year course phase followed by a research phase which is not formally structured. |

Table 2: Percentage of reported job market candidates eventually listed as placements for the Academic year 2015/16. Blanks indicate that job market candidates were not yet listed during our first stage of data collection.

| Percentage listed | 2016 |
|--------------------------|-------------|
| EUI | 100% |
| LSE | 100% |
| Oxford | 43% |
| Cambridge | |
| UPF | 0% |
| Carlos III | 100% |
| Toulouse | 100% |
| Paris SE | 100% |
| Tinbergen | 75% |
| Tilburg | 13% |
| Autonoma Barcelona | 86% |
| CEMFI | 100% |
| UCL | 83% |
| Warwick | |
| Zurich | |
| Bonn | 89% |
| Mannheim | 92% |
| IIES | 100% |
| SSE | 25% |
| Bocconi | 100% |
| Frankfurt | 83% |
| Average | 77% |

Table 3: Average Time to Job Market (years)

| Program | 2012¹⁰ | 2013 | 2014 | 2015 | 2016 | <i>Average</i> | <i>Weighted</i>¹¹ |
|--------------------|--------------------------|-------------|-------------|-------------|-------------|-----------------------|-------------------------------------|
| Autonoma Barcelona | 6.00 | 6.20 | 5.50 | 6.00 | 6.14 | <i>5.97</i> | 6.03 |
| Bocconi | 6.50 | 5.88 | 6.20 | 6.86 | 5.80 | <i>6.25</i> | 6.24 |
| Bonn | 4.80 | 5.33 | 5.67 | 4.75 | 5.56 | <i>5.22</i> | 5.33 |
| Cambridge | 4.80 | 5.33 | 5.67 | | | <i>5.27</i> | 5.21 |
| Carlos III | 5.89 | 6.29 | 5.67 | 5.56 | 5.50 | <i>5.78</i> | 5.79 |
| CEMFI | 5.75 | | 6.50 | 6.20 | 6.00 | <i>6.11</i> | 6.08 |
| EUI | 4.45 | 4.75 | 5.18 | 4.89 | 5.10 | <i>4.88</i> | 4.87 |
| Frankfurt | 5.44 | 5.60 | 5.78 | 5.75 | 6.00 | <i>5.71</i> | 5.70 |
| IIES | 6.00 | 6.00 | 6.00 | 7.00 | 6.60 | <i>6.32</i> | 6.27 |
| LSE | 6.31 | 5.79 | 6.79 | 6.14 | 6.30 | <i>6.27</i> | 6.25 |
| Mannheim | 5.56 | 5.20 | 5.38 | 5.78 | 5.75 | <i>5.53</i> | 5.53 |
| Oxford | 6.14 | 5.31 | 5.50 | 5.56 | 6.14 | <i>5.73</i> | 5.64 |
| Paris SE | 6.13 | 6.00 | 6.00 | 6.27 | 6.30 | <i>6.14</i> | 6.16 |
| SSE | 6.00 | 5.50 | 5.50 | 5.33 | 6.00 | <i>5.67</i> | 5.67 |
| Tilburg | | 4.80 | | | 5.50 | <i>5.15</i> | 5.23 |
| Tinbergen | 5.32 | 4.93 | 5.44 | 5.39 | 5.94 | <i>5.40</i> | 5.40 |
| Toulouse | 5.70 | 5.50 | 5.75 | 6.60 | 6.80 | <i>6.07</i> | 6.20 |
| UCL | | | 6.40 | 6.29 | 6.42 | <i>6.37</i> | 6.38 |
| UPF | | | | 5.50 | 6.50 | <i>6.00</i> | 5.88 |
| Warwick | | 5.64 | 5.50 | 6.00 | | <i>5.71</i> | 5.70 |
| Zurich | 4.00 | 5.00 | 5.20 | 7.50 | | <i>5.43</i> | 5.56 |
| <i>Average</i> | <i>5.58</i> | <i>5.50</i> | <i>5.77</i> | <i>5.97</i> | <i>6.02</i> | <i>5.76</i> | <i>5.77</i> |

Table 4: Median Time to Job Market (years)

| Program | 2012¹² | 2013 | 2014 | 2015 | 2016 | Average |
|--------------------|--------------------------|-------------|-------------|-------------|-------------|----------------|
| Autonoma Barcelona | 6.00 | 6.00 | 5.50 | 6.00 | 6.00 | <i>5.90</i> |
| Bocconi | 6.50 | 6.00 | 6.00 | 6.00 | 6.00 | <i>6.10</i> |
| Bonn | 5.00 | 5.00 | 5.00 | 5.00 | 6.00 | <i>5.20</i> |
| Cambridge | 4.00 | 5.00 | 6.00 | | | <i>5.00</i> |
| Carlos III | 6.00 | 6.00 | 6.00 | 6.00 | 5.50 | <i>5.90</i> |
| CEMFI | 6.00 | | 6.50 | 6.00 | 6.00 | <i>6.13</i> |
| EUI | 4.00 | 5.00 | 5.00 | 5.00 | 5.00 | <i>4.80</i> |
| Frankfurt | 6.00 | 6.00 | 6.00 | 5.50 | 6.00 | <i>5.90</i> |
| IIES | 6.00 | 6.00 | 6.00 | 7.00 | 7.00 | <i>6.40</i> |
| LSE | 6.00 | 6.00 | 7.00 | 6.00 | 6.00 | <i>6.20</i> |
| Mannheim | 5.00 | 5.00 | 5.00 | 6.00 | 6.00 | <i>5.40</i> |
| Oxford | 6.00 | 5.00 | 6.00 | 5.00 | 6.00 | <i>5.60</i> |
| Paris SE | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | <i>6.00</i> |
| SSE | 6.00 | 5.00 | 5.00 | 5.00 | 6.00 | <i>5.40</i> |
| Tilburg | | 5.00 | | | 6.00 | <i>5.50</i> |
| Tinbergen | 5.00 | 5.00 | 5.00 | 5.00 | 6.00 | <i>5.20</i> |
| Toulouse | 6.00 | 5.50 | 5.50 | 6.50 | 7.00 | <i>6.10</i> |
| UCL | | | 6.00 | 6.00 | 6.50 | <i>6.17</i> |
| UPF | | | | 5.50 | 6.00 | <i>5.75</i> |
| Warwick | | 6.00 | 5.50 | 6.00 | | <i>5.83</i> |
| Zurich | 4.00 | 5.00 | 5.00 | 7.50 | | <i>5.38</i> |
| <i>Average</i> | <i>5.50</i> | <i>5.47</i> | <i>5.68</i> | <i>5.84</i> | <i>6.06</i> | <i>5.71</i> |

Table 5: Number of observations

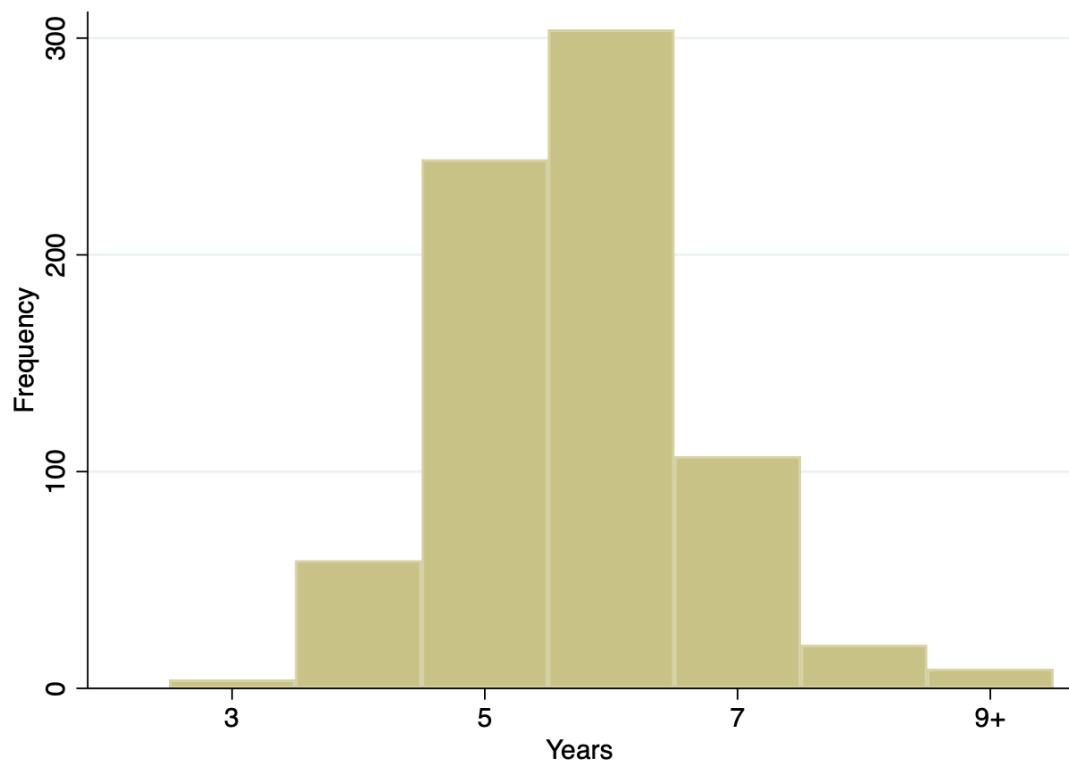
| Program | 2012¹³ | 2013 | 2014 | 2015 | 2016 | Total |
|--------------------|--------------------------|-------------|-------------|-------------|-------------|--------------|
| Autonoma Barcelona | 7 | 10 | 4 | 2 | 7 | 30 |
| Bocconi | 4 | 8 | 5 | 7 | 5 | 29 |
| Bonn | 5 | 9 | 9 | 4 | 9 | 36 |
| Cambridge | 5 | 6 | 3 | 0 | 0 | 14 |
| Carlos III | 9 | 7 | 9 | 9 | 4 | 38 |
| CEMFI | 4 | 0 | 2 | 5 | 1 | 12 |
| EUI | 11 | 12 | 11 | 9 | 10 | 53 |
| Frankfurt | 9 | 5 | 9 | 8 | 6 | 37 |
| IIES | 1 | 7 | 1 | 1 | 5 | 15 |
| LSE | 16 | 14 | 14 | 21 | 10 | 75 |
| Mannheim | 9 | 10 | 13 | 9 | 12 | 53 |
| Oxford | 7 | 16 | 6 | 9 | 7 | 45 |
| Paris SE | 8 | 9 | 6 | 11 | 10 | 44 |
| SSE | 5 | 6 | 6 | 3 | 4 | 24 |
| Tilburg | 0 | 5 | 0 | 0 | 8 | 13 |
| Tinbergen | 25 | 15 | 25 | 31 | 16 | 112 |
| Toulouse | 10 | 2 | 8 | 10 | 10 | 40 |
| UCL | 0 | 0 | 10 | 7 | 12 | 29 |
| UPF | 0 | 0 | 0 | 10 | 6 | 16 |
| Warwick | 0 | 11 | 6 | 6 | 0 | 23 |
| Zurich | 1 | 1 | 5 | 2 | 0 | 9 |
| <i>Total</i> | <i>136</i> | <i>153</i> | <i>152</i> | <i>164</i> | <i>142</i> | <i>747</i> |

Table 6: Regression table

| | (1) Completion Time | (2) Placement Prestige | (3) Completion Time AP | (4) Institution Prestige AP |
|---------------------------|---------------------------|------------------------------|------------------------------|-----------------------------------|
| <i>Gender</i> | | | | |
| M | -0.14 (-1.37) | -0.04 (-0.41) | -0.25 (-1.65) | -0.07 (-0.42) |
| <i>Field</i> | | | | |
| Econometrics | -0.14 (-0.77) | -0.32 (-1.58) | -0.21 (-0.84) | -0.22 (-0.79) |
| Finance | -0.15 (-0.87) | -0.16 (-0.94) | -0.38 (-1.33) | -0.19 (-0.71) |
| Macro | -0.00 (-0.00) | 0.19 (1.37) | 0.25 (1.28) | -0.10 (-0.45) |
| Micro | -0.01 (-0.12) | 0.08 (0.55) | -0.11 (-0.58) | 0.02 (0.10) |
| <i>Year of Market</i> | 0.12*** (3.79) | -0.03 (-0.89) | 0.10* (2.05) | -0.02 (-0.44) |
| <i>Undergrad field</i> | | | | |
| Economics/Finance | -0.10 (-0.50) | 0.01 (0.05) | -0.25 (-0.85) | 0.20 (0.67) |
| Engineering/Math/Physics | 0.18 (0.80) | -0.34 (-1.38) | -0.08 (-0.25) | 0.51 (1.46) |
| Social sciences/law/other | -0.12 (-0.36) | 0.88* (2.27) | -1.05** (-2.60) | -0.01 (-0.02) |
| <i>Completion Time</i> | | | | |
| Completion Time 3 years | | -0.26 (-0.60) | | -6.28*** (-10.58) |
| Completion Time 5 years | | 0.16 (0.89) | | 0.09 (0.33) |
| Completion Time 6 years | | 0.12 (0.67) | | -0.03 (-0.11) |
| Completion Time 7 years | | 0.29 (1.35) | | -0.18 (-0.55) |
| Completion Time 8 years | | 0.37 (1.10) | | 0.07 (0.14) |
| Cut 1 | -3.00*** (-6.99) | -0.33 (-0.80) | -2.93*** (-4.83) | -1.76** (-2.94) |
| Cut 2 | -1.47*** (-4.20) | 0.34 (0.83) | -1.51** (-2.85) | -0.25 (-0.42) |
| Cut 3 | -0.08 (-0.23) | | -0.13 (-0.25) | |
| Cut 4 | 1.30*** (3.76) | | 1.49** (2.86) | |
| Cut 5 | 2.35*** (6.43) | | 2.55*** (4.78) | |
| Institution fixed effects | Yes | Yes | Yes | Yes |
| Observations | 650 | 625 | 276 | 276 |
| Pseudo R^2 | 0.09 | 0.06 | 0.12 | 0.07 |

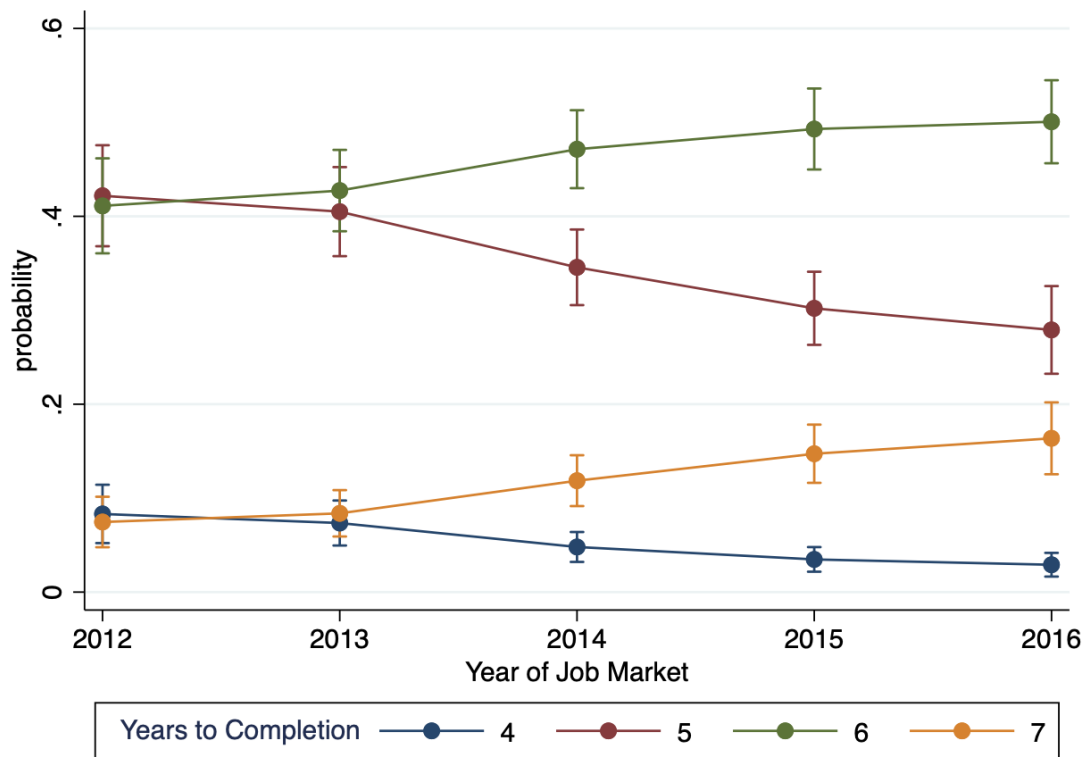
Note: Results of ordered probit regressions. Estimation is done with robust standard errors. Base categories of the ordered probit regression are the following: Gender – Female, Field – Applied, Undergrad – Business Administration. Significance levels are noted as follows: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. In columns (1) and (3) Completion time is a categorical outcome (not as a continuous variable). In columns (2) and (4), the two prestige variables are recoded as follows: Top becomes ‘1’, Middle becomes ‘2’, and Low becomes ‘3’. They are then used as a categorical outcome (not as a continuous variable). For more detail on the definition of these prestige rankings, please refer to the text. ‘AP’ in column (3) and (4) stands for Assistant Professor sample.

Figure 1: Completion Times



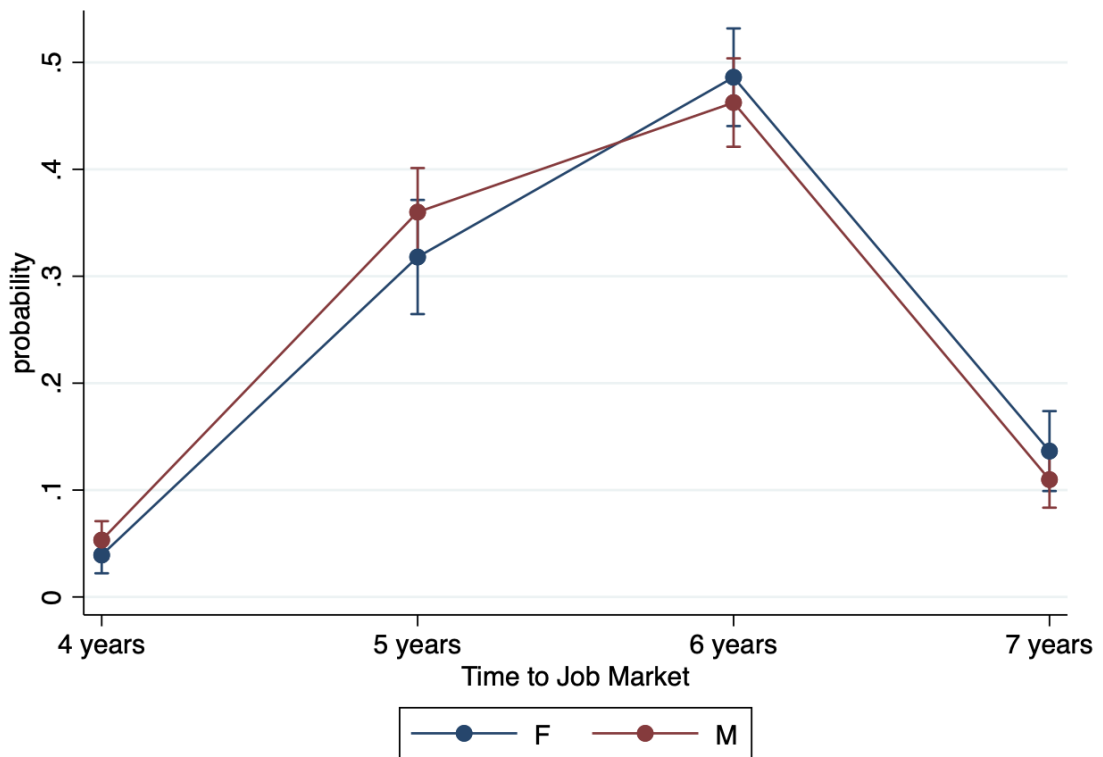
Note: Histogram of completion times for the full sample. Completion time is defined as Time to Job Market, please refer to the text for details.

Figure 2: Predicted Probability Distribution of Completion Times



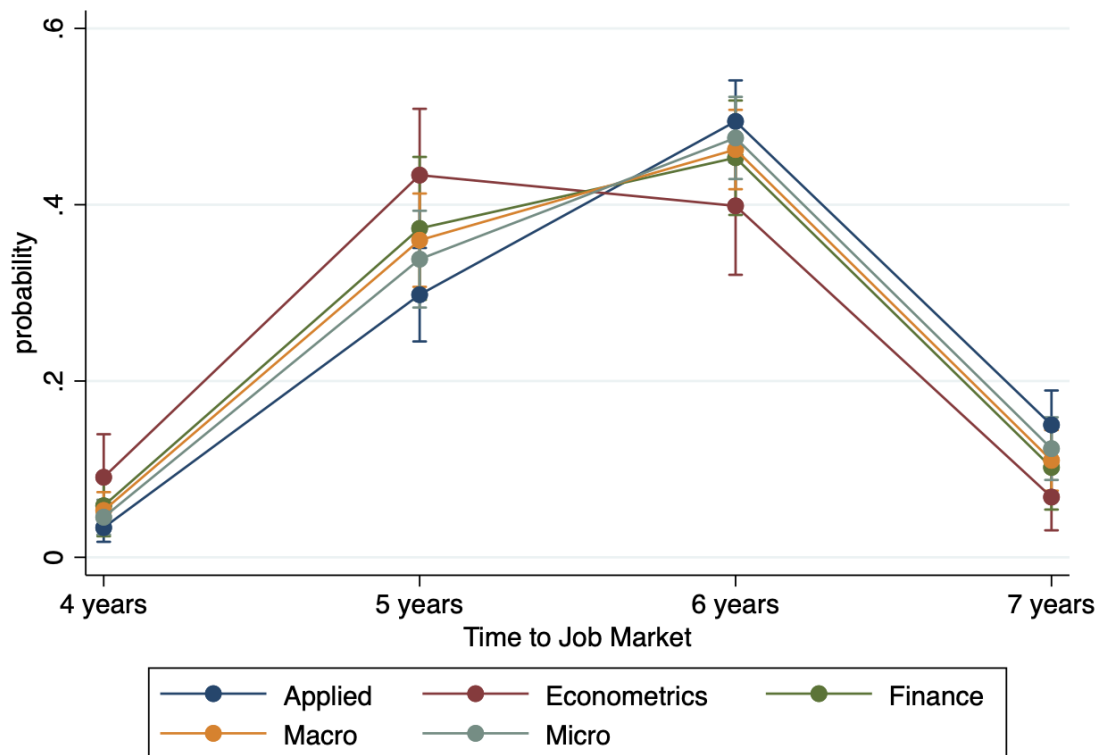
Note: Probabilities are calculated using an ordered probit regression of completion time on job market year, controlling for research field, gender, institution, and field of undergraduate studies. Estimation is done with robust standard errors. In the figure, all controls are held at their sample means. Dots mark point estimates and upper and lower bars mark 95 percent confidence intervals.

Figure 3: Predicted Probability Distribution of Completion Times by Gender



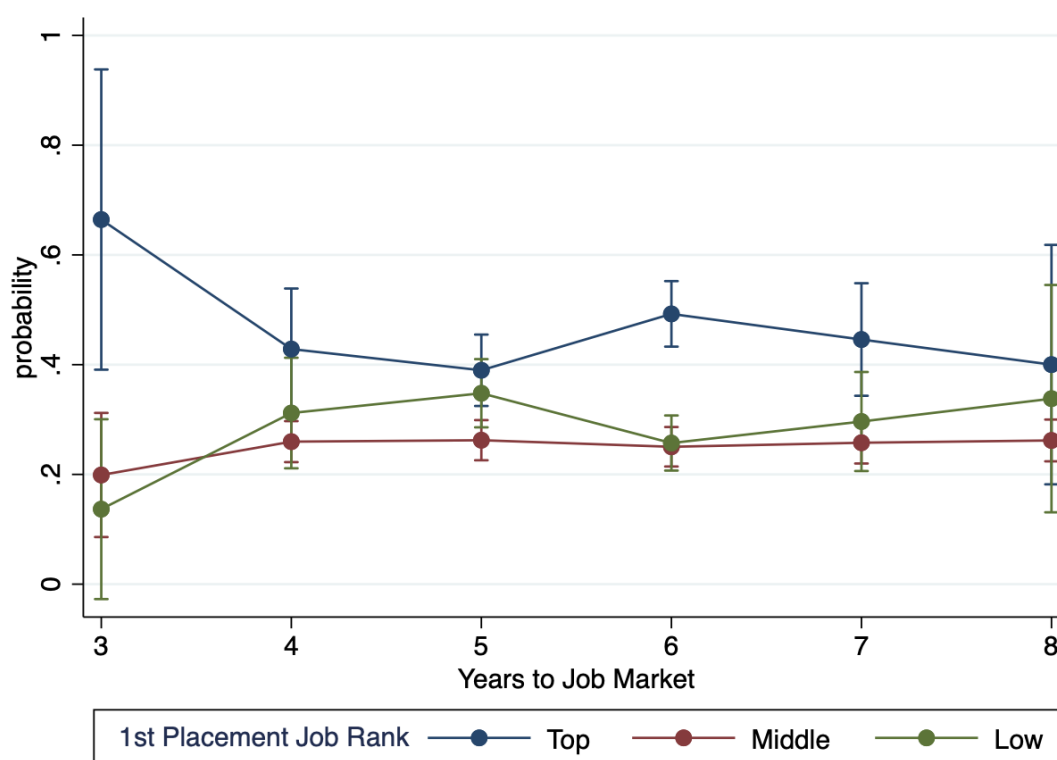
Note: Probabilities are calculated using an ordered probit regression of completion time on gender, controlling for research field, job market year, institution, and field of undergraduate studies. Estimation is done with robust standard errors. In the figure, all controls are held at their sample means. Dots mark point estimates and upper and lower bars mark 95 percent confidence intervals.

Figure 4: Predicted Probability Distribution of Completion Times by Research Field



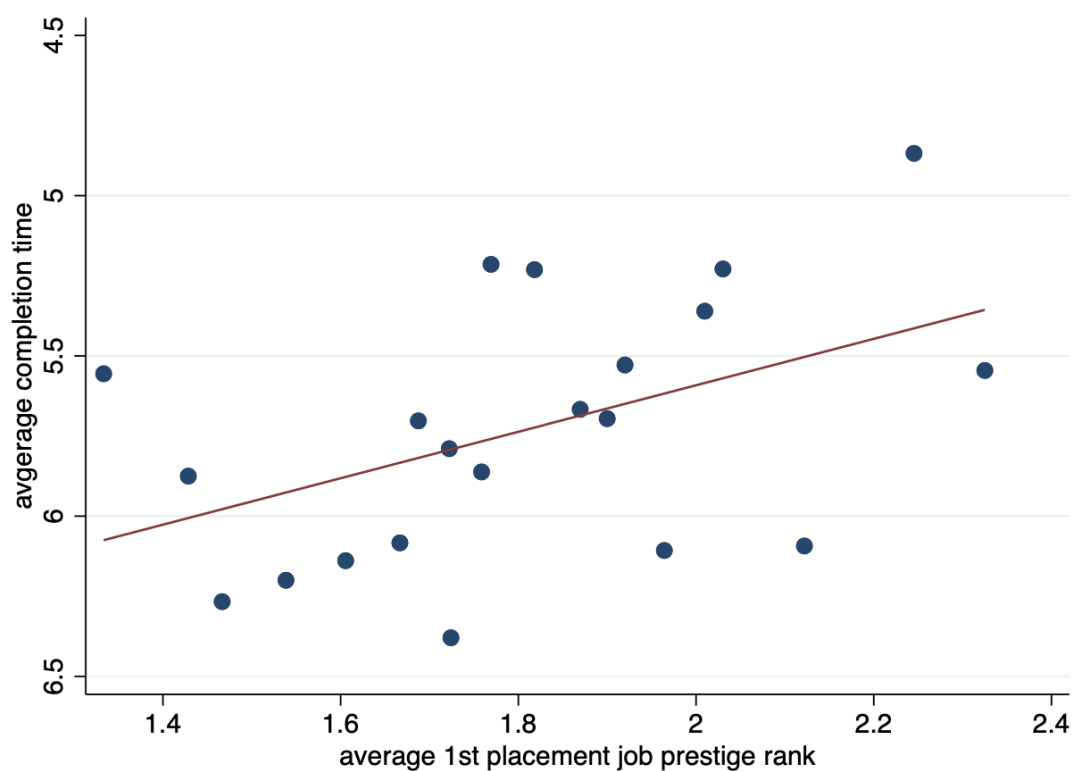
Note: Probabilities are calculated using an ordered probit regression of completion time on research field, controlling for gender, job market year, institution, and field of undergraduate studies. Estimation is done with robust standard errors. In the figure, all controls are held at their sample means. Dots mark point estimates and upper and lower bars mark 95 percent confidence intervals.

Figure 5: Predicted First Job Placement Prestige by Completion Time



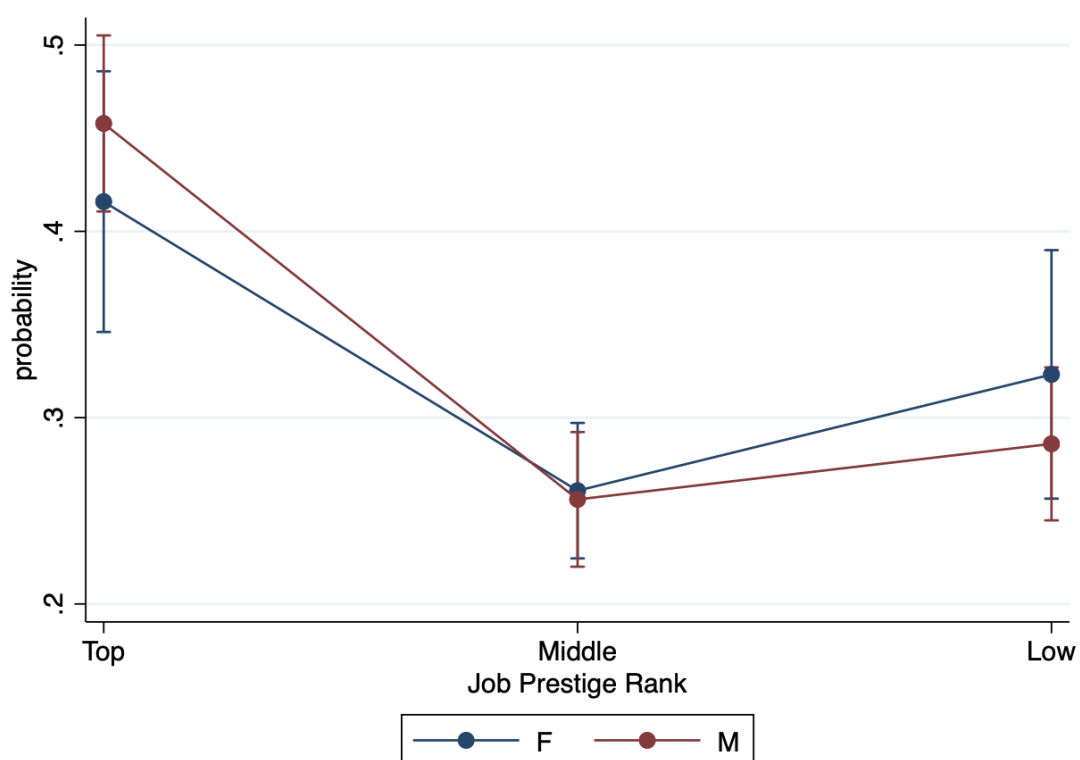
Note: Probabilities are calculated using an ordered probit regression of first job placement prestige on years to job market, controlling for research field, gender, job market year, institution, and field of undergraduate studies. Estimation is done with robust standard errors. In the figure, all controls are held at their sample means. Dots mark point estimates and upper and lower bars mark 95 percent confidence intervals. For details on the Job Ranking, please refer to the text. Subsample includes two observations with a completion time of only three years.

Figure 6: Placement Prestige and Completion Times across Europe



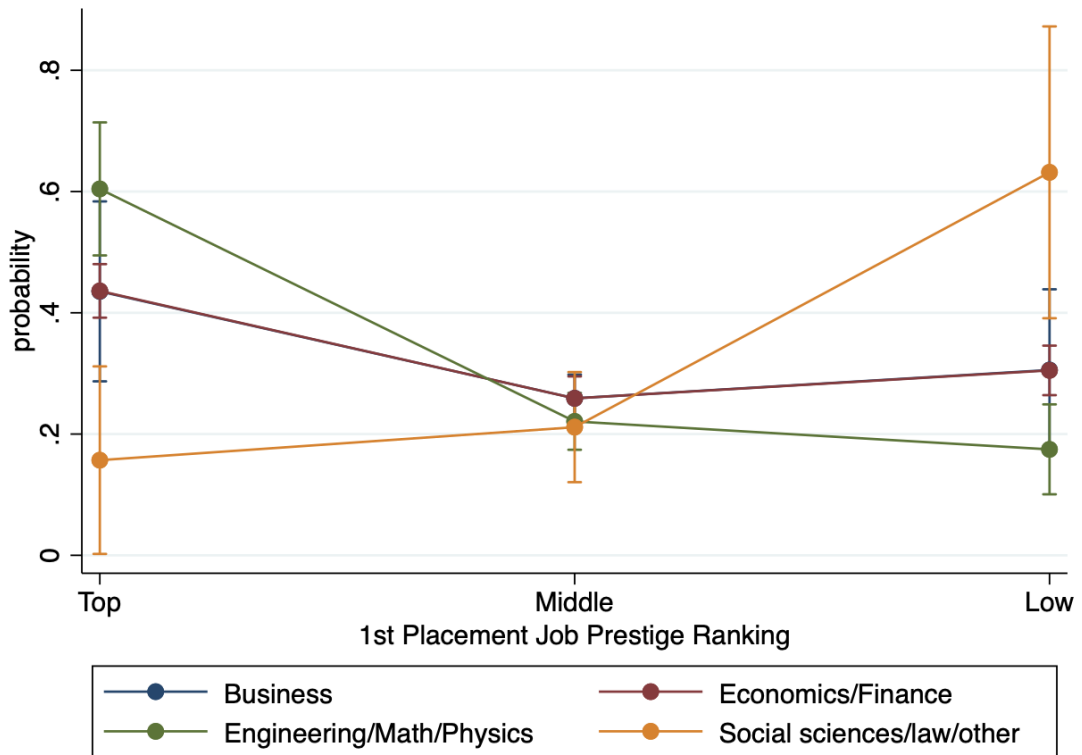
Note: The figure plots the average completion time against the average prestige of the first position for graduates of each PhD-granting institution in the sample. Top job prestige placement is recoded as '1', Middle job prestige placement is recoded as '2', and Low job prestige placement is recoded as '3'. Cohort completion times averaged over the sample period. Each dot represents an institution.

Figure 7: Predicted First Job Placement by Gender



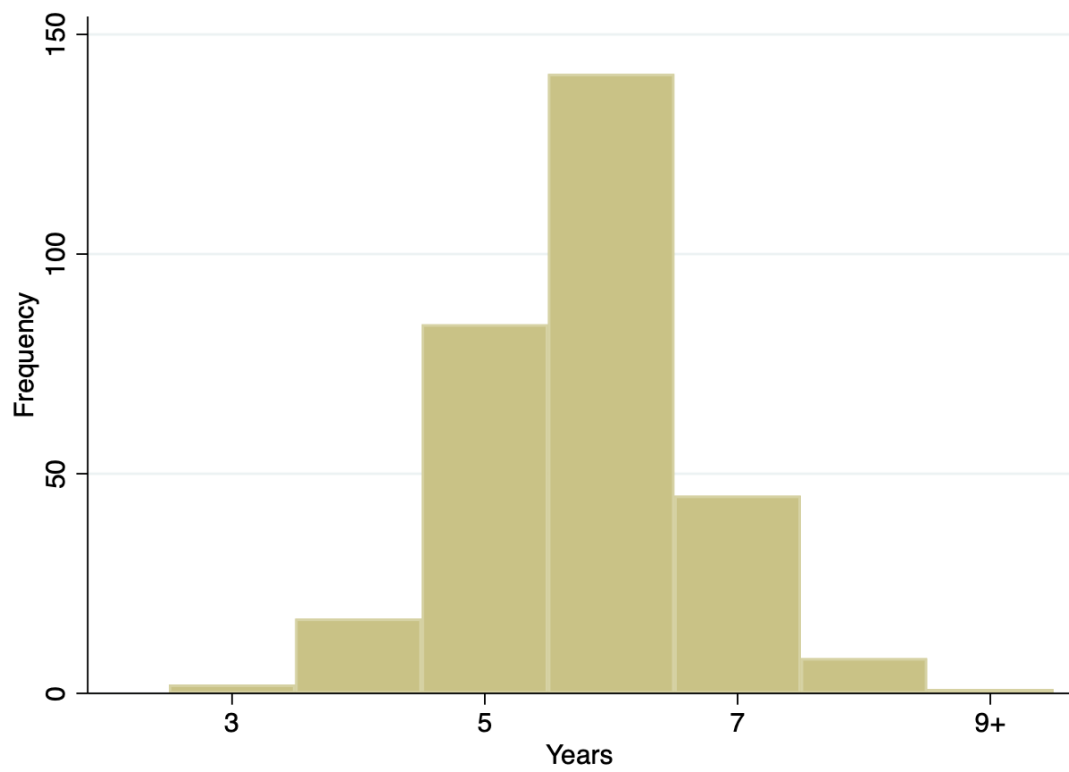
Note: Probabilities are calculated using an ordered probit regression of first job placement prestige on gender, controlling for years to job market, research field, job market year, institution, and field of undergraduate studies. Estimation is done with robust standard errors. In the figure, all controls are held at their sample means. Dots mark point estimates and upper and lower bars mark 95 percent confidence intervals. For details on the Job Ranking, please refer to the text. Subsample includes two observations with a completion time of only three years.

Figure 8: Predicted PhD Placement Prestige by Field of Undergrad Studies



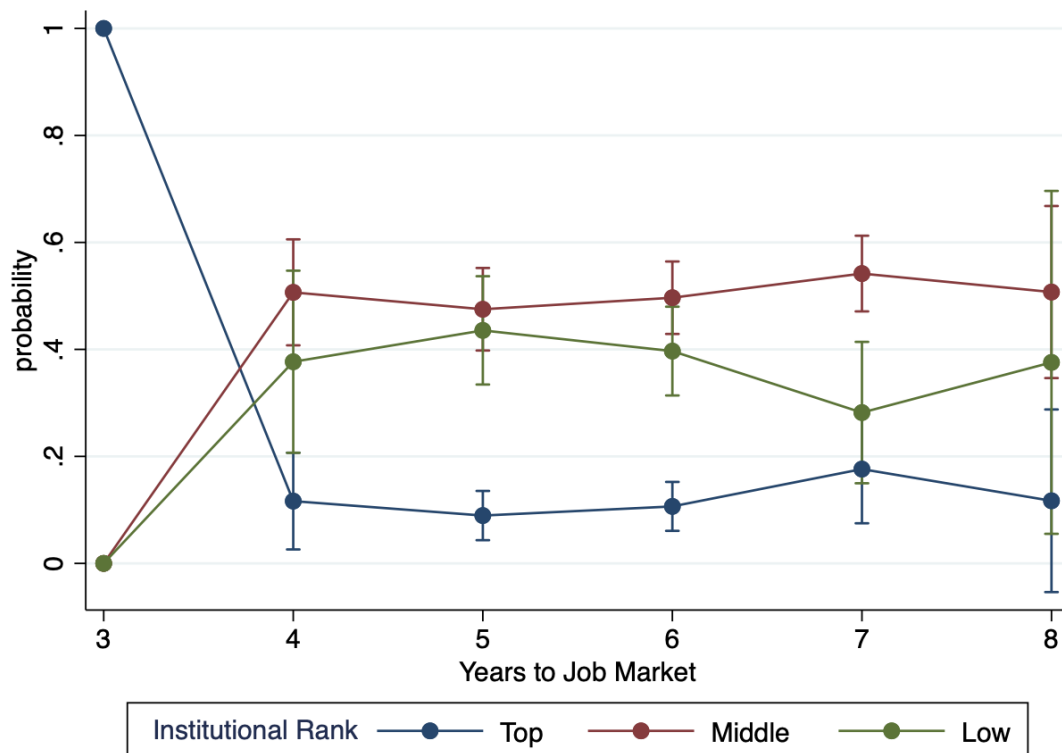
Note: Probabilities are calculated using an ordered probit regression of first job placement prestige on field of undergraduate studies, controlling for years to job market, gender, research field, job market year, and institution. Estimation is done with robust standard errors. In the figure, all controls are held at their sample means. Dots mark point estimates and upper and lower bars mark 95 percent confidence intervals. For details on the Job Ranking, please refer to the text. Subsample includes two observations with a completion time of only three years.

Figure 9: Completion Times - Assistant Professors



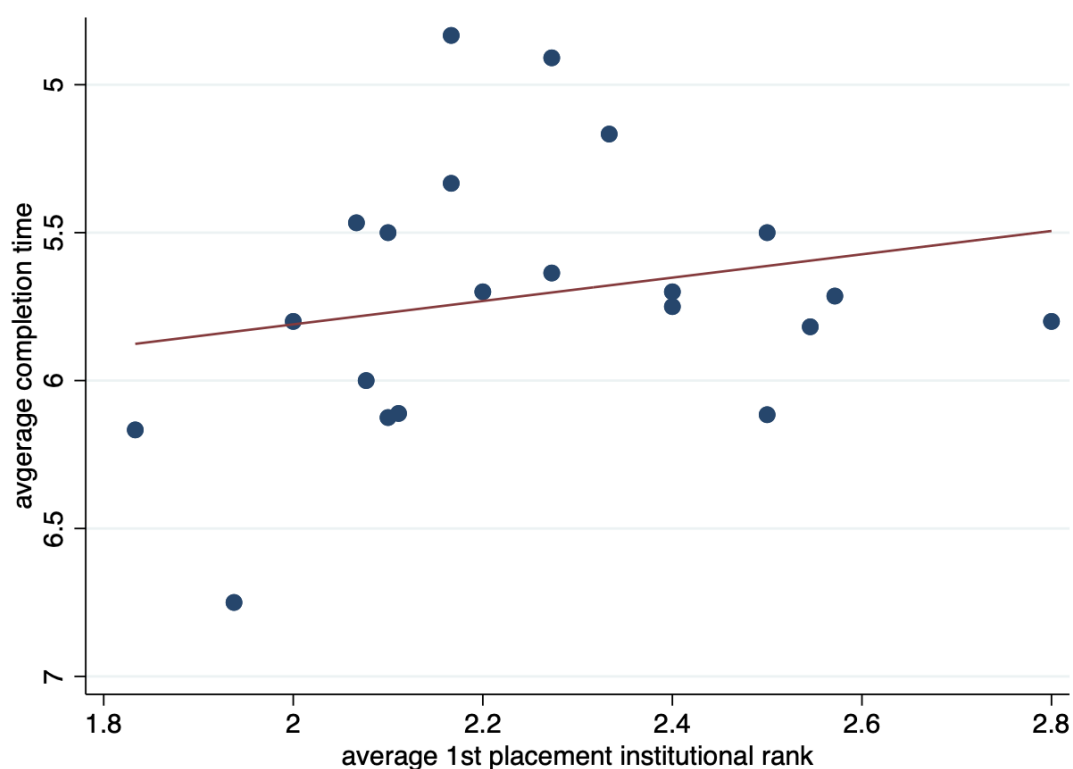
Note: Histogram of completion times for those with first placement as assistant professor. Completion time is defined as Time to Job Market, please refer to the text for details.

Figure 10: Predicted First Placement Institutional Prestige by Completion Time - Assistant Professors



Note: Probabilities are calculated using an ordered probit regression of first job placement institutional prestige on years to job market, controlling for research field, gender, job market year, institution, and field of undergraduate studies. Estimation is done with robust standard errors. In the figure, all controls are held at their sample means. Dots mark point estimates and upper and lower bars mark 95 percent confidence intervals. For details on the Job Ranking, please refer to the text. Subsample includes two observations with a completion time of only three years. For details on Institutional Ranking, please refer to the text. Subsample: First placement as assistant professor. Subsample includes a single observation with a completion time of only three years.

Figure 11: Placement Institutional Prestige and Completion Times across Europe - Assistant Professors



Note: The figure plots average completion time against average institutional prestige rank of hiring institution for graduates of each PhD-granting institution in the sample who obtained a job as assistant professor. Top prestige institutions are recoded as '1', Middle prestige institutions are recoded as '2', and Low prestige institutions are recoded as '3'. Cohort completion times averaged over the sample period. Each dot represents an institution.

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- Stock, W. A., T. A. Finegan, and J. J. Siegfried (2009). Completing an economics phd in five years. *The American Economic Review* 99(2), 624–629.
- Stock, W. A. and J. J. Siegfried (2014). Fifteen years of research on graduate education in economics: What have we learned? *The Journal of Economic Education* 45(4), 287–303.
- Stock, W. A., J. J. Siegfried, and T. A. Finegan (2011, May). Completion rates and time-to-degree in economics phd programs (with comments by David Colander, N. Gregory Mankiw, Melissa P. Mcinerney, James M. Poterba). *American Economic Review* 101(3), 176–88.