

# Economics PhD Programs in Europe: Completion Times and More<sup>†</sup>

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## Abstract

Stock et al. (2009) establish that completion times in US economics PhD programs have been on the rise, with the median steadily approaching 6 years. Is the same true for European programs? 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 lower quality placements. This paper further investigates how PhD duration and placement quality 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.

Using a unique hand-collected dataset, we add to results by Stock et al. (2009) and Stock and Siegfried (2014) on completion times in US graduate programs in economics. We find that their conclusions on completion time hold in European structured graduate programs as well. 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.<sup>1</sup>

Our analysis focuses on job market candidates. These are the students that compete on the international academic job market for economics graduates.<sup>2</sup> 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. That job market is the highest international standard for young researchers in economics. Second, this measure ensures that the students we consider are at the same stage of their career as their US counterparts. Third, over the last years, the international job market has become an important recruiting device 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.

Our conclusions suggest that European universities and policy makers should accept six years as a standard completion time, as indeed most US universities have had to do in the past. Funding schedules and considerations should be adjusted to complement this empirical

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<sup>1</sup>This project started as an internal project at the European University Institute (EUI), where we tried 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.

<sup>2</sup>For 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."

fact. Currently, many formal funding programs are significantly shorter. In practice, students and universities then lengthen the availability of funding through a patch-work of part-time employment positions, post-doctoral positions, outside resources, separating course work into master programs, etcetera. In many cases however, this is associated with a diversion of time and resources from academic activities. This can put European graduate students at a disadvantage compared to their American peers. This conclusion is strengthened further by the fact that candidates who go on the market in the sixth year of their PhD have a significantly higher probability of top ranked initial placements. Since training internationally competitive candidates is the stated goal of most, if not all PhD programs, the results presented in this paper suggest that providing sufficient funding is indeed a useful way to achieve that goal.

Besides the results of completion time and placement quality, this paper investigates how completion time and initial placement quality 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. We find field and gender do not significantly correlate with completion time nor with placement quality. We do find however, that the probability of placing in a top ranked institution is significantly lower for economics PhD candidates trained in social sciences, compared to candidates trained in economics, finance, business, engineering or natural sciences. We interpret this finding as evidence for the importance of formal mathematical training for the successful completion of an economics PhD.

## 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 (Cambridge, LSE, Oxford, UCL, Warwick), 4 in Spain (Autonoma Barcelona, Carlos III, CEMFI, UPF), 3 in Germany (Bonn, Frankfurt, Mannheim), 2 in France (Paris School of Economics, Toulouse), 2 in Italy (Bocconi, EUI), 2 in the Netherlands (Tilburg, Tinbergen Institute), 2 in Sweden (IIES, Stockholm School of Economics), and 1 in Switzerland (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 masters 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 masters degree as well? We suspect that this is largely due to the current setup of European academia and the structure of public funding for higher education. Following the Bologna process, the typical European student completes a 3-year Bachelors degree in his field of interest, followed by a 1- or 2-year Masters degree. State 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 Masters 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 Masters 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.

In the second stage (in the Summer of 2017), we collected job market outcomes and additional covariates per candidate. Job market outcomes were codified for 'quality' 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.<sup>3</sup> 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. In addition to the institutional quality ranking just discussed, we created a job quality ranking depending on the job title of the first placement job.

Additional covariates collected include gender, field (codified as micro, macro, applied, econometrics, or finance), fields of undergraduate studies (economics, business, natural sciences/engineering, social sciences/humanities), age, and nationality. (Data on the latter two

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<sup>3</sup>The 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 slightly from the ones we used for our analysis.

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 below.

As we explain above, we focus on candidates that enter the international job market at the end of their PhD. Delivering competitive candidates to this job market is the stated goal of most programs in our sample. Our approach makes our data more reliable and more comparable to US data on completion times than European data from official sources would be. European programs differ strongly in how they account for coursework time and time spent on the job market (which is sometimes after defense), 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 the time spend in a PhD 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 course period and the time spent on the job market. The measure is not dependent on the timing of the defense.

## 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, 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.

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, 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 are not relevant to our research setup.

## 5 Results

**Completion Times** Tables 3, 4, 5 and 6 below contain our results on completion times. 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 at 736. We do not observe qualitative changes to our results when calculating observation-weighted averages (Table 6).

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, Field of Economics, Gender, PhD Institution and Field of Undergraduate Studies, estimated with robust standard errors. For each covariate presented, 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.

The 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 through 6. Completion in 6 or 7 years becomes significantly more likely over the sample period, with 6 years being significantly more likely in 2015 and 2016, the opposite of what is observed in the early sample years. Going on the job market in the 4th year of the PhD, while still likely in 2009 and 2010, is becoming increasingly unlikely towards the end of the sample.

Figure 3 shows that 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.

**Covariates of Placement Quality** We estimate a similar model to the one above, this time using our placement quality 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 quality and that the reported association is purely statistical in nature. Results reported are obtained in the same way as in the previous subsection.

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. While for a duration of 4 or 5 years, all placement qualities 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 ranked one. This effect attenuates again for graduates with a duration above 6 years. Figure 6 plots the average completion time and placement quality for graduates of each PhD-granting institution in the sample. As is apparent from the figure, average completion time and average placement quality are associated positively in the sample. While, as already mentioned above, this does not suggest that longer completion times are causing better placement, it is a clear indicator that high quality candidates are taking 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 quality. Since comparing placement quality by subfield of economics is not particularly meaningful, we instead report placement quality by undergraduate background of PhD candidates in Figure 8. While there is no statistical difference between candidates that have a background in Economics, Business, Natural Sciences or Engineering, candidates with a social science or humanities background place significantly worse relative to the other backgrounds. We view this as evidence for the importance of sufficient formal training.



**Assistant Professor Subsample** Since the primary goal of many PhD programs is preparing candidates for a career in Academics, we present some additional results on the subsample of candidates with a first placement job title as 'Assistant Professor'.

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 29 vs 46 percent. This compares to relative frequencies of 32 vs 39 percent of the entire sample. Figure 10 shows that placing at a top-ranked university is unlikely for all durations, but point estimates are slightly increasing from 5 to 7 years of time to completion.<sup>4</sup> Comparing top placement probability changes across subsamples of different duration reveals insignificant estimates (Figure 11). However, when plotting average placement institution's quality and average completion times for the assistant professor subsample, there is again a positive correlation. This relationship is plotted in Figure 12.

Taken together, results the subsample of 'Assistant Professor' 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 quality are positively related.

## 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 by Stock et al. (2009) and Stock and Siegfried (2014). However, program and funding structures remain different due to institutional factors.

Our results suggest that higher placement quality is statistically associated with longer completion times. This conclusion implies that, if placement quality is their goal, policy makers and universities should design programs that can consistently provide funding for 6 years of economics PhD work. A failure to do so disadvantages students and potentially hurts the recruitment of talented candidates, contributing to out-migration of academic talent from Europe. As a bottom line, this is likely to result in a lower quality academic environment and puts European academic programs at a disadvantage with respect to their US counterparts. The issue is particularly salient as we focus on the arguably highest-rated European programs, which aspire to compete with top US schools for the same applicants.

In addition, we uncover a number of additional facts relating completion times and placement quality to personal researcher characteristics. The data do not show evidence of a systematic

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<sup>4</sup>Only 23 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.

gender bias in either the duration or the placement quality 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 quality.

## References

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## Tables and Figures

Table 1: Program Details

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UAB	The Graduate Program consists of a two-year Master in Economic Analysis, followed by a research phase. The entire path is counted.
Bocconi	The program 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 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 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 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 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	Program 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 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 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 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 lasts 5 years, of which the first two years are course work. Funding is committed for the entire period.
Oxford	The full program is split into a two-year Mphil (coursework) phase and a DPhil phase (research). Both are counted as time to completion.

Paris SE	The Paris School of Economics (PSE) 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 starts with a two year course phase after which two to three years of research follow.
Tilburg	The five-year graduate program consists of a two-year Research Master and a three-year PhD program. The entire path is counted.
Tinbergen	The Tinbergen Institute 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 TSE 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 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 UPF 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 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 has a two year course phase followed by a research phase which is not formally structured.

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<b>Percentage listed</b>	<b>2016</b>
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 2: Percentage of reported job market candidates eventually listed as placements for the Academic year 2015/16

<b>Program</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>Average</b>
Autonoma Barcelona	6.00	6.20	5.50	6.00	6.14	<i>5.97</i>
Bocconi	6.50	5.88	6.20	6.86	5.80	<i>6.25</i>
Bonn	4.80	5.38	5.67	4.75	5.56	<i>5.23</i>
Cambridge	4.80	5.33	5.67			<i>5.27</i>
Carlos III	5.89	6.29	5.67	5.56	5.50	<i>5.78</i>
CEMFI	5.75		6.50	6.20	6.00	<i>6.11</i>
EUI	4.45	4.75	5.18	4.89	5.10	<i>4.88</i>
Frankfurt	5.44	5.60	5.78	5.75	6.00	<i>5.71</i>
IIES	6.00	6.00	6.00	7.00	6.60	<i>6.32</i>
LSE	6.31	5.79	6.79	6.14	6.30	<i>6.27</i>
Mannheim	5.60	5.00	5.38	5.78	5.75	<i>5.50</i>
Oxford	6.14	5.31	5.50	5.56	6.14	<i>5.73</i>
Paris SE	6.13	6.00	6.00	6.27	6.30	<i>6.14</i>
SSE	6.00	5.50	5.50	5.33	6.00	<i>5.67</i>
Tilburg		4.80			5.50	<i>5.15</i>
Tinbergen	5.32	4.93	5.44	5.39	5.94	<i>5.40</i>
Toulouse	5.70	5.50	5.75	6.60	6.80	<i>6.07</i>
UCL			6.56	6.29	6.42	<i>6.42</i>
UPF				5.50	6.50	<i>6.00</i>
Warwick		5.64	5.50	6.00		<i>5.71</i>
Zurich	4.00	5.00	5.20	7.50		<i>5.43</i>
<i>Average</i>	<i>5.58</i>	<i>5.49</i>	<i>5.78</i>	<i>5.97</i>	<i>6.02</i>	<i>5.76</i>

Table 3: Average Time to Job Market (years)

<b>Program</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>Average</b>
Autonoma Barcelona	6	6	6	6	6	<i>5.90</i>
Bocconi	7	6	6	6	6	<i>6.10</i>
Bonn	5	5	5	5	6	<i>5.20</i>
Cambridge	4	5	6			<i>5.00</i>
Carlos III	6	6	6	6	6	<i>5.90</i>
CEMFI	6		7	6	6	<i>6.13</i>
EUI	4	5	5	5	5	<i>4.80</i>
Frankfurt	6	6	6	6	6	<i>5.90</i>
IIES	6	6	6	7	7	<i>6.40</i>
LSE	6	6	7	6	6	<i>6.20</i>
Mannheim	5	5	5	6	6	<i>5.40</i>
Oxford	6	5	6	5	6	<i>5.60</i>
Paris SE	6	6	6	6	6	<i>6.00</i>
SSE	6	5	5	5	6	<i>5.40</i>
Tilburg		5			6	<i>5.50</i>
Tinbergen	5	5	5	5	6	<i>5.20</i>
Toulouse	6	6	6	7	7	<i>6.10</i>
UCL			6	6	7	<i>6.17</i>
UPF				6	6	<i>5.75</i>
Warwick		6	6	6		<i>5.83</i>
Zurich	4	5	5	8		<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 4: Median Time to Job Market (years)

<b>Program</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>Total</b>
Autonoma Barcelona	7	10	4	2	7	30
Bocconi	4	8	5	7	5	29
Bonn	5	8	9	4	9	35
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	5	5	13	9	12	44
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	9	7	12	28
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>132</i>	<i>147</i>	<i>151</i>	<i>164</i>	<i>142</i>	<i>736</i>

Table 5: Number of observations



<b>Program</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>Average</b>
Autonoma Barcelona	6.00	6.20	5.50	6.00	6.14	6.03
Bocconi	6.50	5.88	6.20	6.86	5.80	6.24
Bonn	4.80	5.38	5.67	4.75	5.56	5.34
Cambridge	4.80	5.33	5.67			5.21
Carlos III	5.89	6.29	5.67	5.56	5.50	5.79
CEMFI	5.75		6.50	6.20	6.00	6.08
EUI	4.45	4.75	5.18	4.89	5.10	4.87
Frankfurt	5.44	5.60	5.78	5.75	6.00	5.70
IIES	6.00	6.00	6.00	7.00	6.60	6.27
LSE	6.31	5.79	6.79	6.14	6.30	6.25
Mannheim	5.60	5.00	5.38	5.78	5.75	5.55
Oxford	6.14	5.31	5.50	5.56	6.14	5.64
Paris SE	6.13	6.00	6.00	6.27	6.30	6.16
SSE	6.00	5.50	5.50	5.33	6.00	5.67
Tilburg		4.80			5.50	5.23
Tinbergen	5.32	4.93	5.44	5.39	5.94	5.40
Toulouse	5.70	5.50	5.75	6.60	6.80	6.20
UCL			6.56	6.29	6.42	6.43
UPF				5.50	6.50	5.88
Warwick		5.64	5.50	6.00		5.70
Zurich	4.00	5.00	5.20	7.50		5.56
<i>Average</i>	<i>5.61</i>	<i>5.50</i>	<i>5.74</i>	<i>5.83</i>	<i>6.02</i>	<i>5.77</i>

Table 6: Observation Weighted Average Time to Job Market

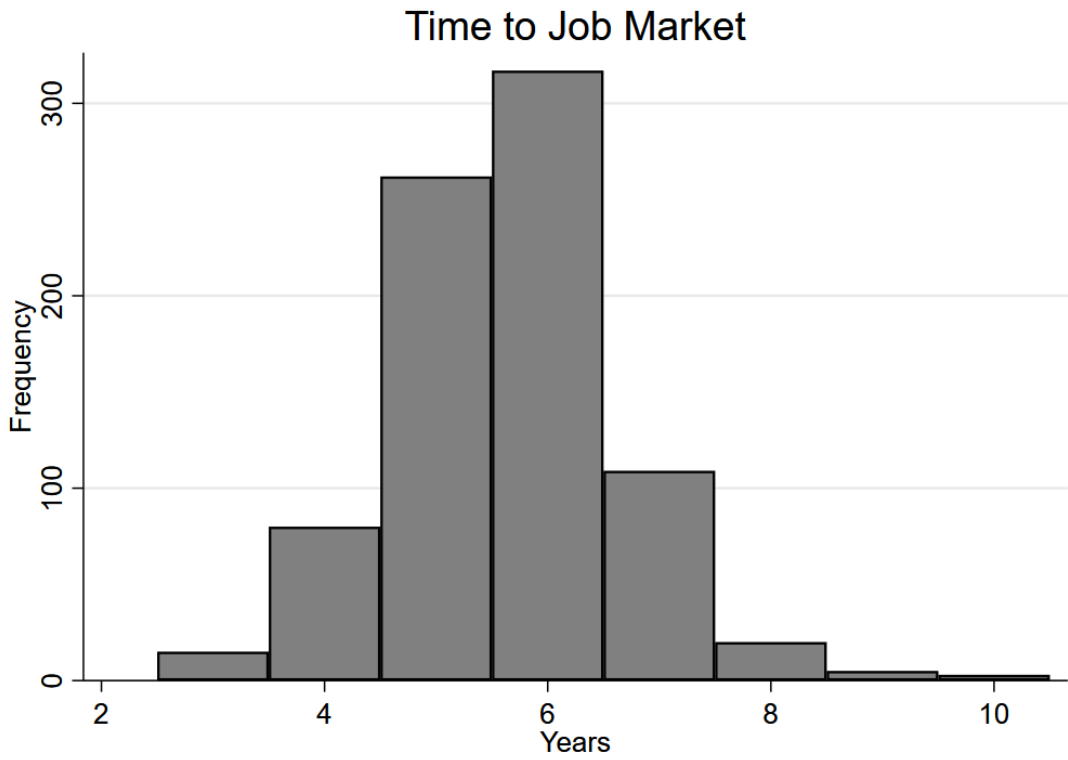


Figure 1

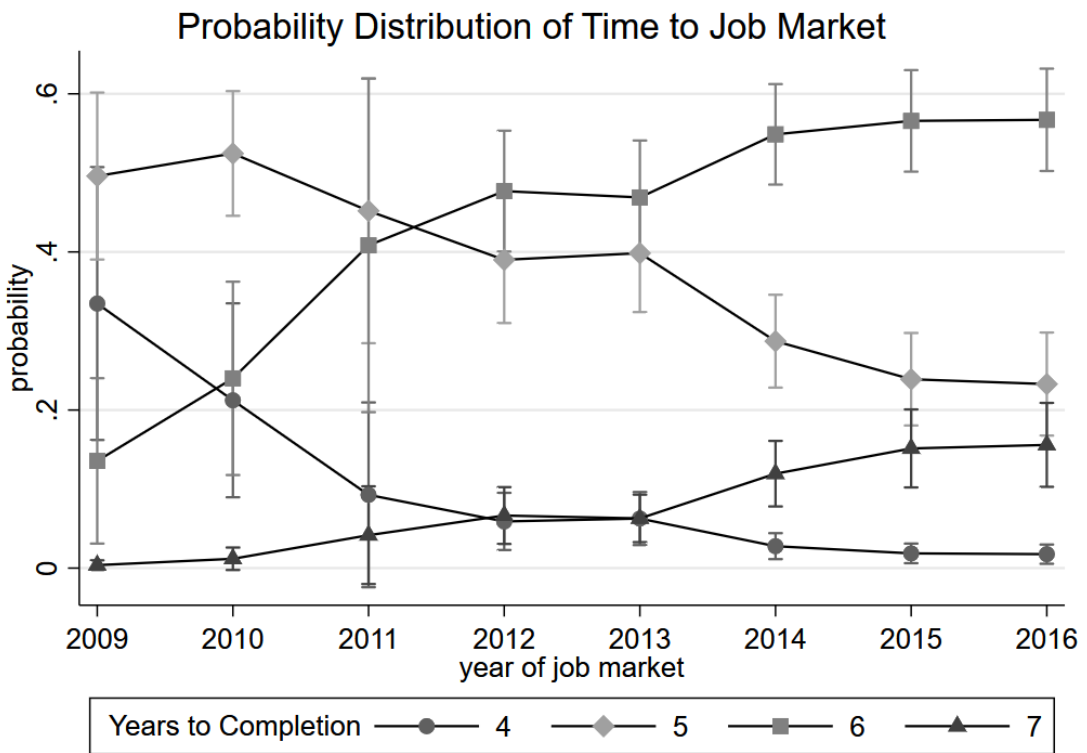


Figure 2

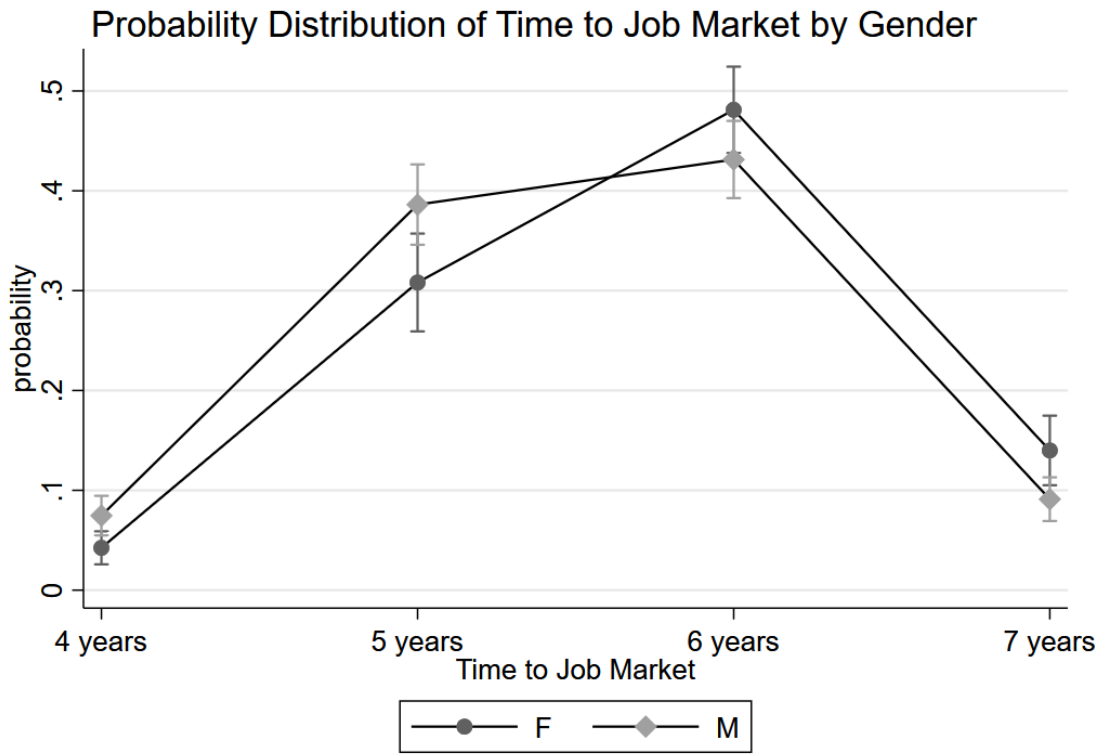
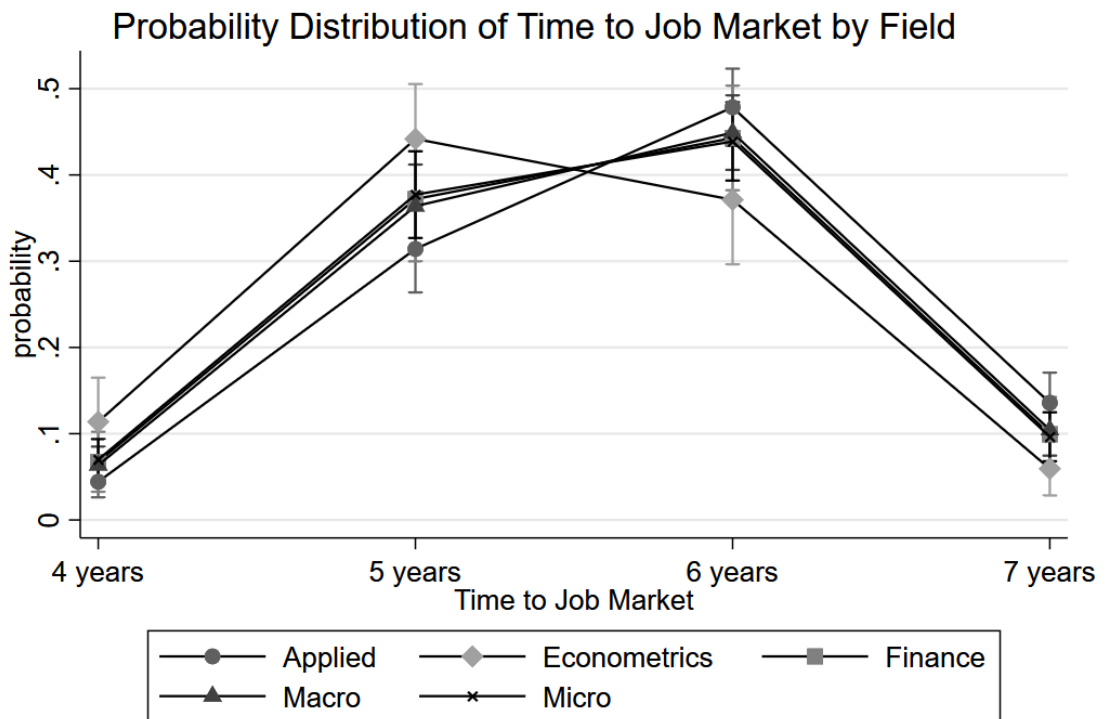
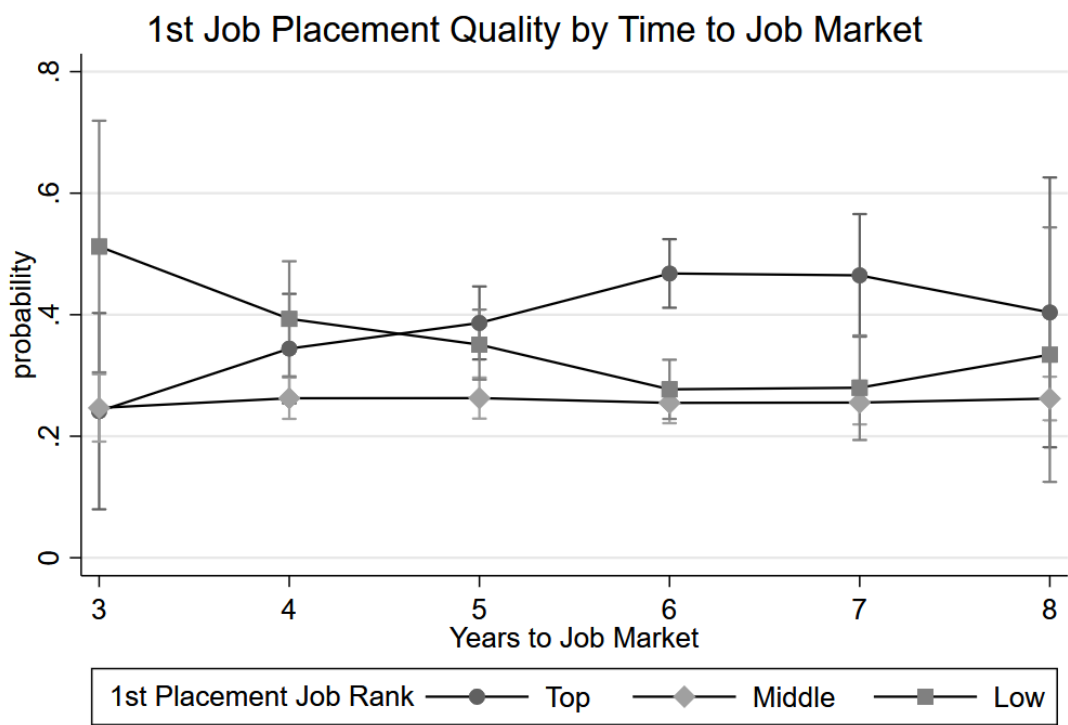


Figure 3



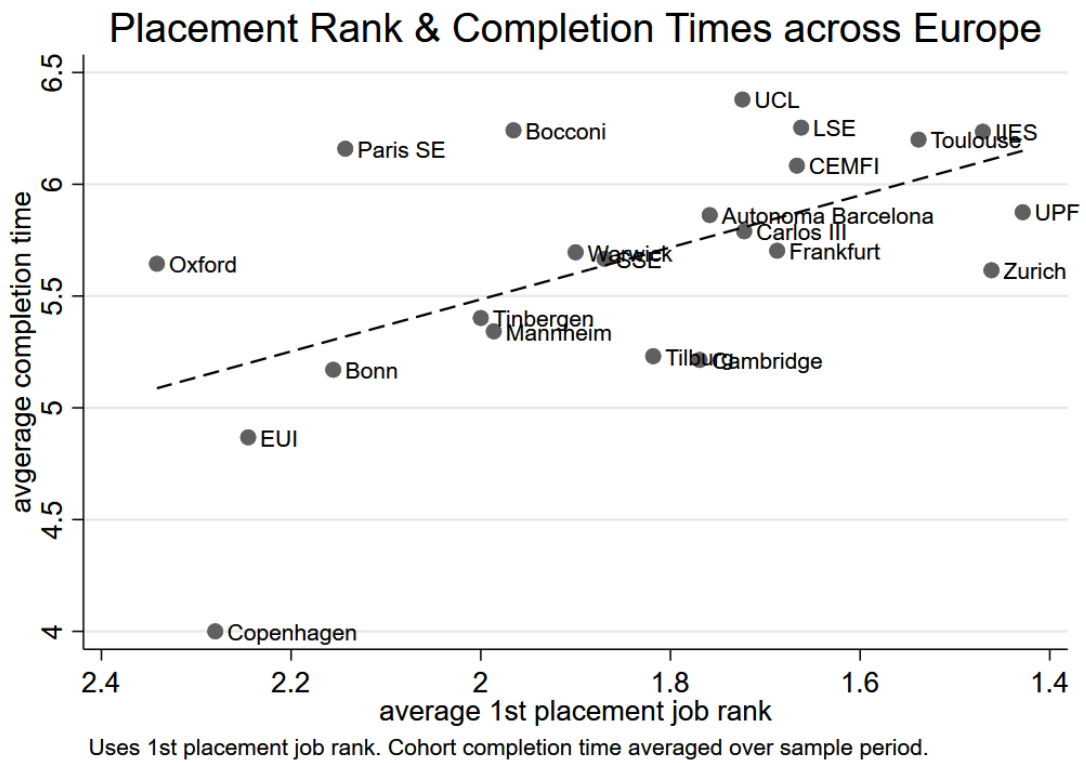
Note: Dots mark point estimates and upper and lower bars mark 95 percent confidence intervals.

Figure 4



Note: For details on the Job Ranking, please refer to the text.

Figure 5



Note: The figure plots the average completion time against the average rank of the first position for graduates of each PhD-granting institution in the sample.

Figure 6

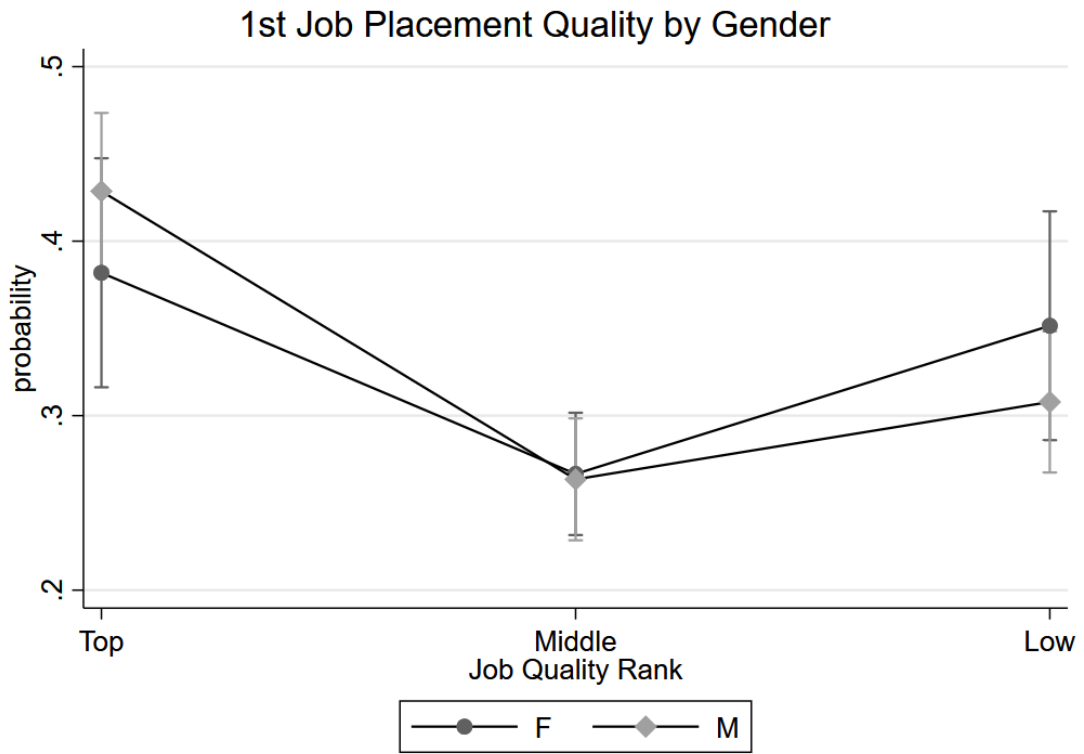


Figure 7

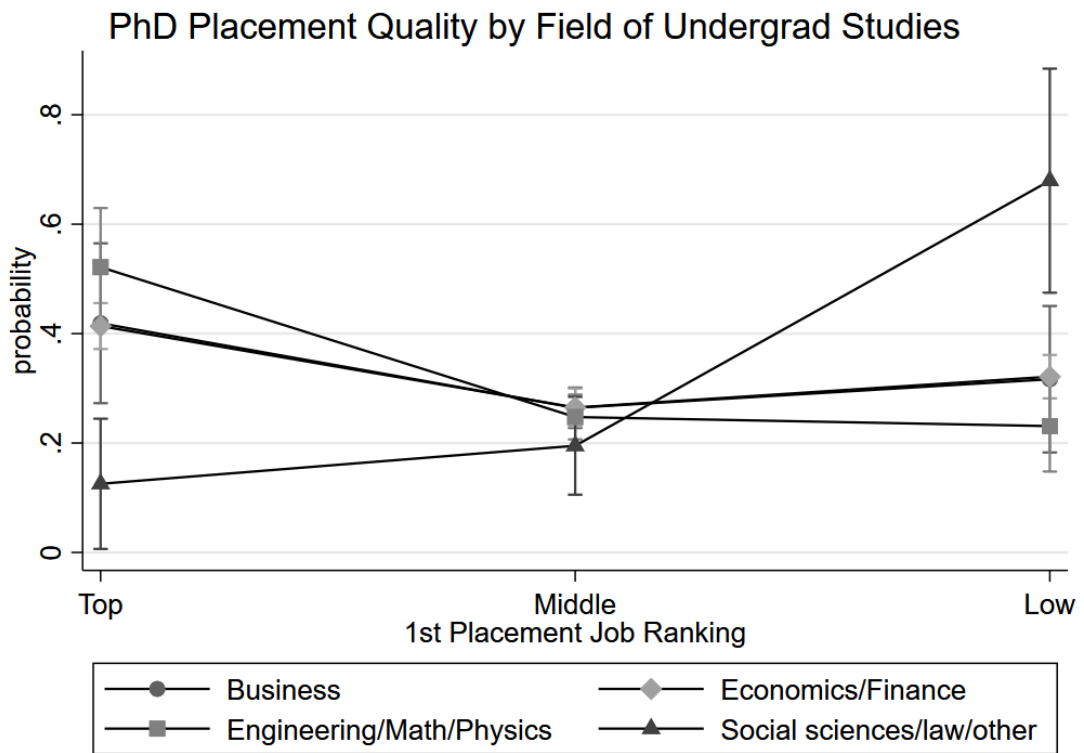


Figure 8

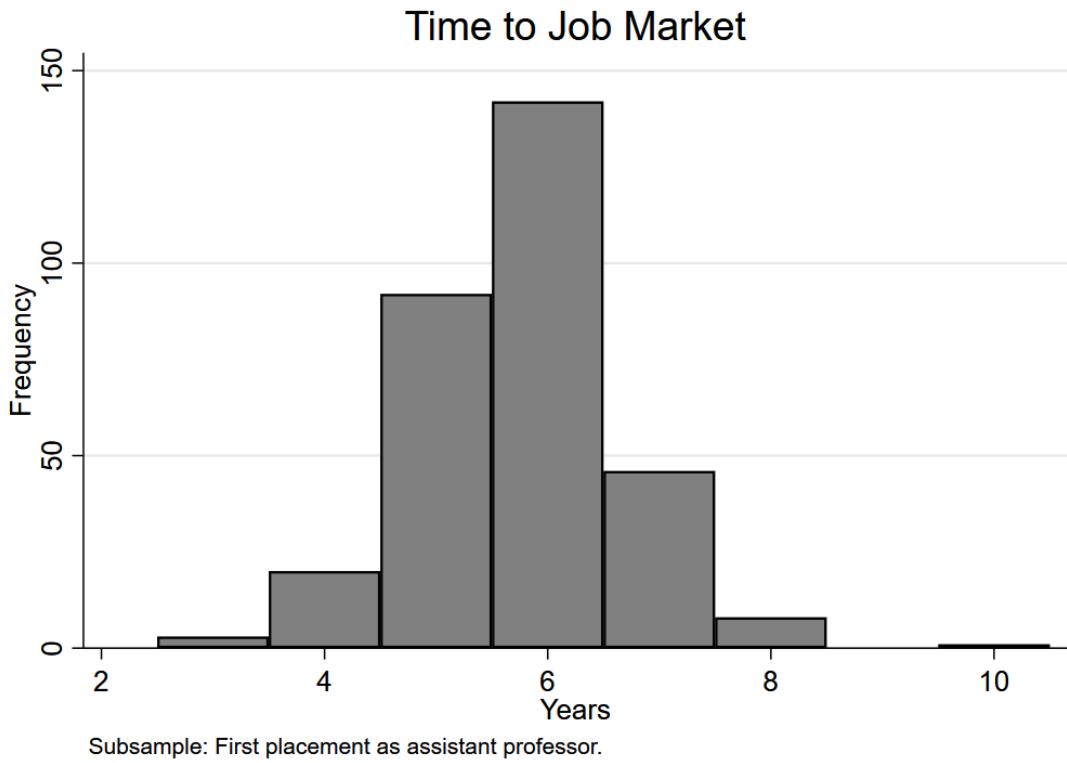


Figure 9

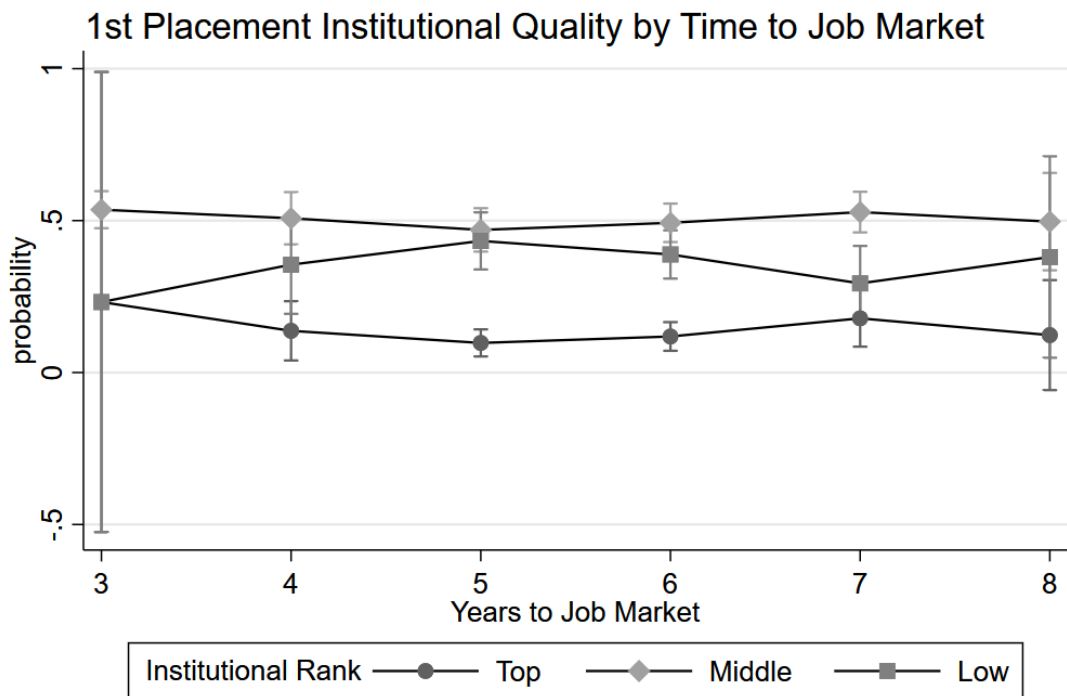


Figure 10

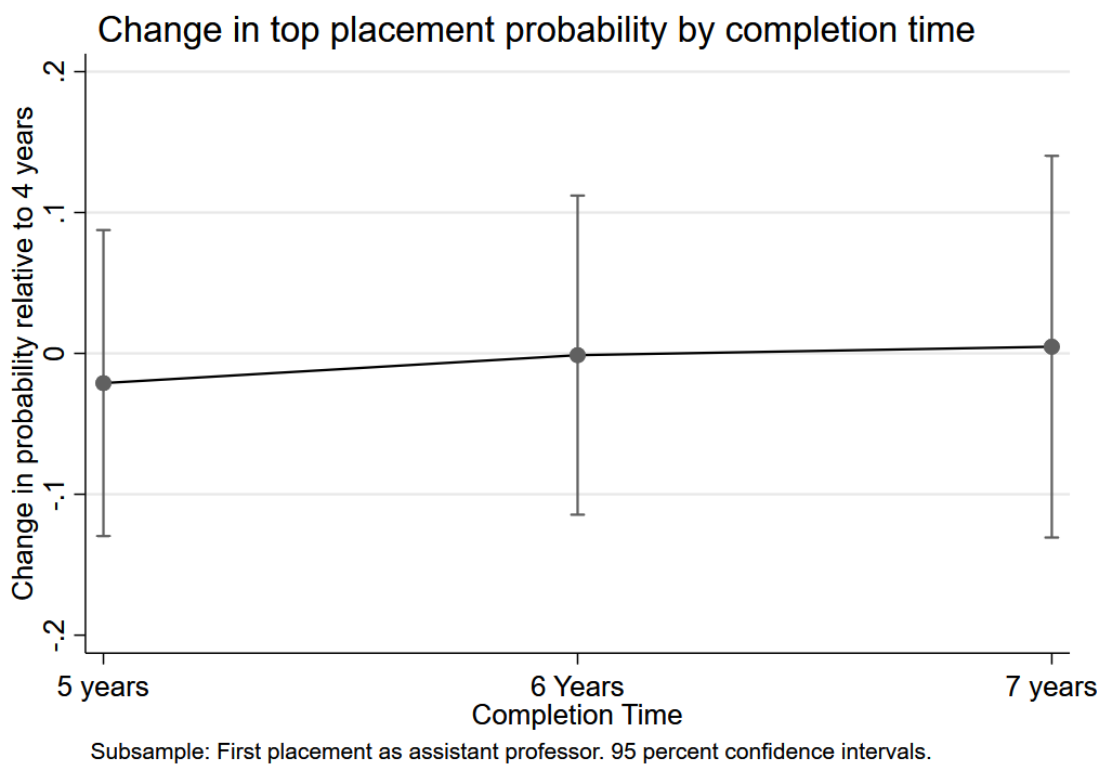
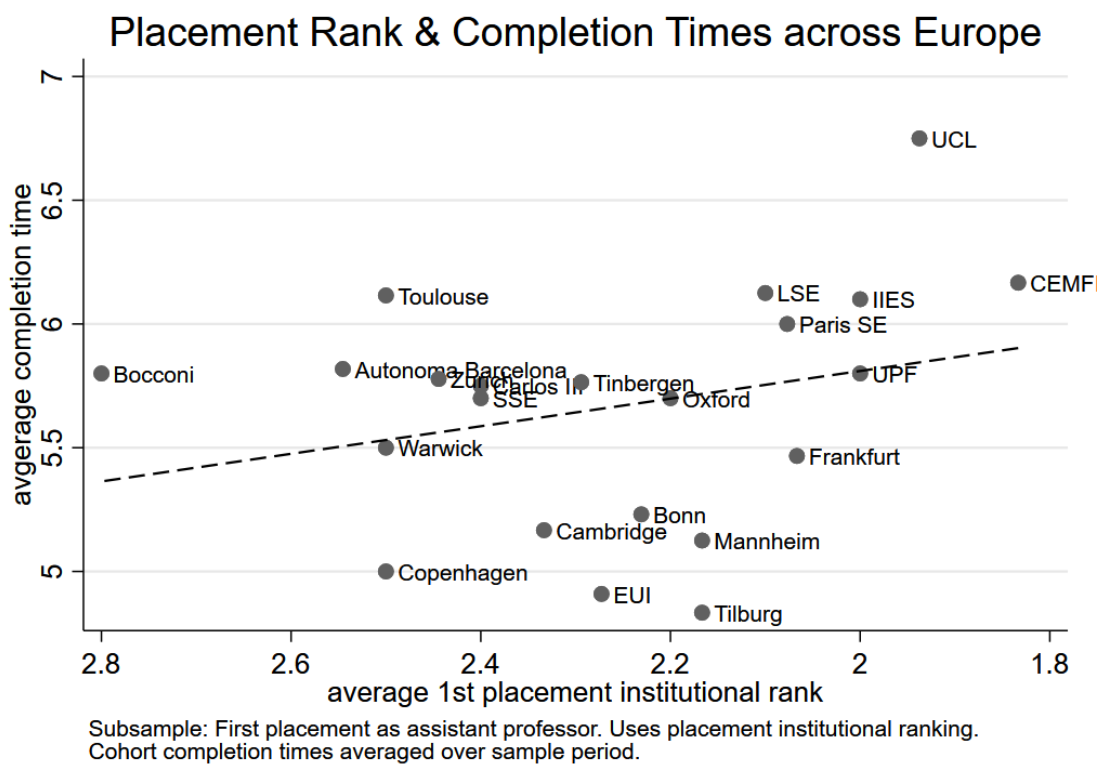


Figure 11





Note: The figure plots average completion time against average rank of hiring institution for graduates of each PhD-granting institution in the sample.

Figure 12