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## Economics PhD programs in Europe: Completion times and job placement

Árpád Ábrahám<sup>a,b</sup>, Benedikt Dengler<sup>c</sup> and Vinzenz Ziesemer<sup>d</sup> 

<sup>a</sup>School of Economics, University of Bristol, Bristol, UK; <sup>b</sup>European University Institute, Fiesole, Italy; <sup>c</sup>Federal Ministry for Economic Affairs and Energy, Berlin, Germany; <sup>d</sup>Erasmus University Rotterdam, Rotterdam, Netherlands

### ABSTRACT

Stock, Finegan, and Siegfried establish that completion times in U.S. economics PhD programs have been on the rise, with the median steadily approaching six years. Do European programs experience the same trend? The authors of this article present new hand-collected data on job market candidates from the top European PhD programs in economics. In the past five years, completion times have been rising steadily, and the median is now approaching six years. Empirical evidence suggests that a shorter PhD duration is statistically associated with less prestigious placements. The authors further investigate how PhD duration and placement prestige vary with personal researcher characteristics such as gender or field of undergraduate studies.

### KEYWORDS

Completion times; economics education; Europe; graduate studies; job placement

### JEL CODES

A11; A23

Recent years have seen an increasing convergence of economics PhD programs in Europe toward their U.S. counterparts.<sup>1</sup> 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 toward filling this gap.<sup>2</sup>

Using a unique hand-collected dataset, we add to the results of Stock, Finegan, and Siegfried (2009) and Stock and Siegfried (2014) on completion times in U.S. graduate programs in economics. We find that completion times are on the rise in European structured graduate programs, too. In the past five years, median completion times have been rising steadily, and the median is now approaching six years. We also provide some qualitative descriptions of the differences between European programs and their U.S. counterparts, in particular with regard to program structure and funding.<sup>3</sup>

Our analysis focuses on “job market candidates.” These are the students who compete in the international academic job market for economics graduates.<sup>4</sup> We believe this to be the policy-relevant subsample for four 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 U.S. 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 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.

We also investigate 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

**CONTACT** Árpád Ábrahám  [arpad.abraham@bristol.ac.uk](mailto:arpad.abraham@bristol.ac.uk)  Professor, School of Economics, University of Bristol, Bristol BS8 1QU, UK.

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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 preparing for the job market. However, both possibilities 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.

## 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 U.S. programs in style. Several publicly available rankings aided our search for candidate programs.

Our procedure resulted in a list of 21 programs. Of these, five 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”]), four 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”]), three in Germany (*Universität Bonn* [“Bonn”], *Göthe Universität* [“Frankfurt”]), *Universität Mannheim* [“Mannheim”]), two in France (*Paris School of Economics* [“Paris SE”], *Toulouse School of Economics* [“Toulouse”]), two in Italy (*Bocconi University* [“Bocconi”], *European University Institute* [“EUI”]), two in the Netherlands (*Tilburg University* [“Tilburg”], *Tinbergen Institute* [“Tinbergen”]), two in Sweden (*Institute for International Economic Studies* [“IIES”], *Stockholm School of Economics* [“SSE”]), and one 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 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 the program structure for each of the European programs. Generally, the setup of these programs is very similar to that of U.S. programs: they consist of a coursework phase, where the first year comprises core courses and the second year consists of electives and moves students toward 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 U.S. programs.

There is one big difference in the setup compared to U.S. 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 U.S.-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

**Table 1.** Program details.

Autonoma Barcelona	The graduate program at the <i>Universitat Autònoma de Barcelona</i> consists of a two-year Master's 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 coursework. However, our analysis shows that candidates take substantially longer to finish their PhDs.
Bonn	The program at <i>Universität Bonn</i> is structured into four years, of which the first two are mainly coursework. 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's 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 coursework. However, our analysis shows that candidates take substantially longer to finish their PhDs.
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 outside of the program. We also count the full time spent in the PhD program, 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 five years, of which the first two years are coursework. 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's 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 DEEA 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 (first 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 toward 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 four-year PhD (total: 2 + 4). Students should submit toward 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 that is not formally structured.

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 three-year bachelor's degree in his or her field of interest, followed by a one- or two-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” U.S.-type program into the European system by making the coursework phase a master’s 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 place on students leads to the admission of mostly (or in some cases, exclusively) students who have 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 earn 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 U.S. counterparts.

### **Program funding**

There are large differences in funding from program to program as well. Not too dissimilar from the United States, 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 provided only 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 U.S. PhD programs arises in the European programs that separate their course phase into a stand-alone master’s degree. Here, the majority of the programs do not provide funding for the master’s stage. Funding is then restricted to the research phase of the PhD, following the initial one or two years of coursework.

### **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 2015–16) and placement results of past job markets (2011–12 through 2014–15) online, whenever data were available. We searched for each candidate’s CV using personal Web sites, professional Web sites, and LinkedIn profiles. This led to some, but very limited, missing data for students who were listed as job market candidates but whose entry dates cannot be established.

We focus on candidates who 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 U.S. literature, where students typically enter that same job market (which originated and takes place in the United States) 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 U.S. literature cited in this article, 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 article.

Our approach makes our data more reliable and more comparable to U.S. 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 are 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 United States, where the defense typically follows the job market. As a result, our measure is likely to be more comparable to U.S. 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 are assigned to the categories top, middle, and bottom, according to our best effort.

In addition to the job quality ranking just discussed, placement institutions were coded for “prestige” as follows. Outcomes were classified into three different classes: academic, institutional, and private sector. Within each class of placements, we assigned specific institutions as a 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>5</sup> For institutional jobs, we ranked prominent international institutions such as IMF, ECB, or World Bank, 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 the 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 our best effort to capture the prestige of a job and an institution, it is clear that some nuance will get lost along the 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 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 were reported to be on the market in 2015–16. 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.

## Sample selection and representativeness

Our attempt in this article is, in the 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 2015–16 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](#). 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.<sup>6</sup>

Another issue is missing data. For a 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

**Table 2.** Percentage listed.

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

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.

years for which a smaller program did not deliver job market candidates (CEMFI). However, we do not believe that this influences our conclusions with regard 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 Web sites. 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 of 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.

## Results

### *Completion times*

Our results on completion times are displayed in tables 3–5. Average and median completion times have been rising since 2013. Both the average (table 3) and median (table 4) are at six years for the 2016 job market cohorts. This finding is remarkably consistent across programs, with both averages and medians lying between five and seven years for all programs. We missed 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 presents a histogram of completion times across all programs for the last two years in our sample. Completion times are rather concentrated around six years. While five and seven years of completion time also occur frequently, almost no students finish in four years or less.

**Table 3.** Average time to job market (years).<sup>a</sup>

Program	2012	2013	2014	2015	2016	Average	Weighted <sup>b</sup>
Autonoma Barcelona	6.00	6.20	5.50	6.00	6.14	5.97	6.03
Bocconi	6.50	5.88	6.20	6.86	5.80	6.25	6.24
Bonn	4.80	5.33	5.67	4.75	5.56	5.22	5.33
Cambridge	4.80	5.33	5.67			5.27	5.21
Carlos III	5.89	6.29	5.67	5.56	5.50	5.78	5.79
CEMFI	5.75		6.50	6.20	6.00	6.11	6.08
EUI	4.45	4.75	5.18	4.89	5.10	4.88	4.87
Frankfurt	5.44	5.60	5.78	5.75	6.00	5.71	5.70
IIES	6.00	6.00	6.00	7.00	6.60	6.32	6.27
LSE	6.31	5.79	6.79	6.14	6.30	6.27	6.25
Mannheim	5.56	5.20	5.38	5.78	5.75	5.53	5.53
Oxford	6.14	5.31	5.50	5.56	6.14	5.73	5.64
Paris SE	6.13	6.00	6.00	6.27	6.30	6.14	6.16
SSE	6.00	5.50	5.50	5.33	6.00	5.67	5.67
Tilburg		4.80			5.50	5.15	5.23
Tinbergen	5.32	4.93	5.44	5.39	5.94	5.40	5.40
Toulouse	5.70	5.50	5.75	6.60	6.80	6.07	6.20
UCL			6.40	6.29	6.42	6.37	6.38
UPF				5.50	6.50	6.00	5.88
Warwick		5.64	5.50	6.00		5.71	5.70
Zurich	4.00	5.00	5.20	7.50		5.43	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>

<sup>a</sup>Blanks indicate that there were zero observations for the respective institution in that year.

<sup>b</sup>Observation Weighted Average Time to Job Market

**Table 4.** Median time to job market (years).<sup>a</sup>

Program	2012	2013	2014	2015	2016	Average
Autonoma Barcelona	6.00	6.00	5.50	6.00	6.00	5.90
Bocconi	6.50	6.00	6.00	6.00	6.00	6.10
Bonn	5.00	5.00	5.00	5.00	6.00	5.20
Cambridge	4.00	5.00	6.00			5.00
Carlos III	6.00	6.00	6.00	6.00	5.50	5.90
CEMFI	6.00		6.50	6.00	6.00	6.13
EUI	4.00	5.00	5.00	5.00	5.00	4.80
Frankfurt	6.00	6.00	6.00	5.50	6.00	5.90
IIES	6.00	6.00	6.00	7.00	7.00	6.40
LSE	6.00	6.00	7.00	6.00	6.00	6.20
Mannheim	5.00	5.00	5.00	6.00	6.00	5.40
Oxford	6.00	5.00	6.00	5.00	6.00	5.60
Paris SE	6.00	6.00	6.00	6.00	6.00	6.00
SSE	6.00	5.00	5.00	5.00	6.00	5.40
Tilburg		5.00			6.00	5.50
Tinbergen	5.00	5.00	5.00	5.00	6.00	5.20
Toulouse	6.00	5.50	5.50	6.50	7.00	6.10
UCL			6.00	6.00	6.50	6.17
UPF				5.50	6.00	5.75
Warwick		6.00	5.50	6.00		5.83
Zurich	4.00	5.00	5.00	7.50		5.38
<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>

<sup>a</sup>Blanks indicate that there were zero observations for the respective institution in that year.

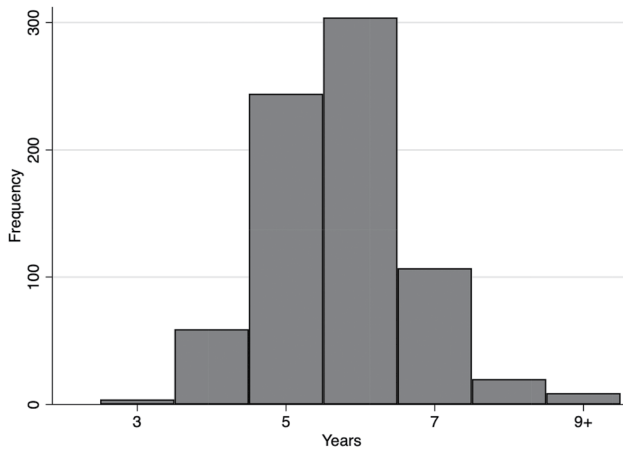
### Covariates of completion times

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 eight years to be outliers and remove such observations. For each covariate presented (in the figures we refer to), 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. The confidence intervals shown are 95 percent confidence intervals. Table 6, column 1, contains the estimates of our ordered probit model.



**Table 5.** Number of observations.

Program	2012	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>



*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 1.** Completion times.

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 six years becomes significantly more likely than completion in five years over the sample period, which is not yet the case in the early sample years. The same is true when comparing completion in seven years to completion in four 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 toward the end of the sample.

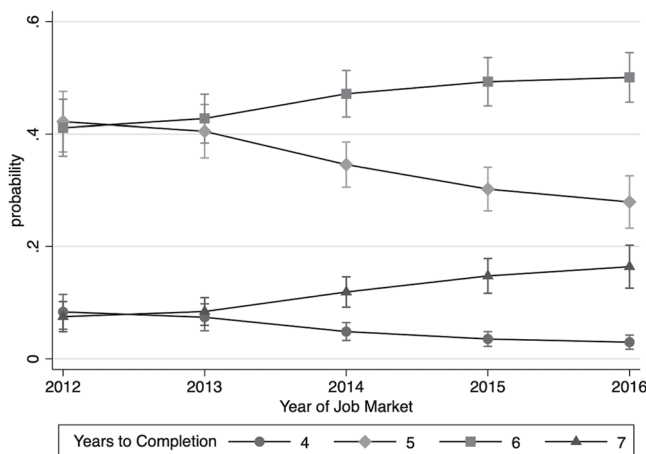
[Figure 3](#) shows that the predicted completion times of female candidates are slightly longer than those of their male counterparts; however, the differences are not statistically significant. [Figure 4](#) shows that the same is true for PhD candidates in different subfields of economics, although, interestingly, students working in econometrics seem to take less time to enter the job market, everything else equal.<sup>7</sup>

**Table 6.** Regression table.

	(1)		(2)		(3)		(4)	
	Completion time		Placement prestige		Completion time AP		Institution prestige AP	
<i>Gender: M</i>	-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
N		650		625		276		276
Pseudo R <sup>2</sup>		0.09		0.06		0.12		0.07

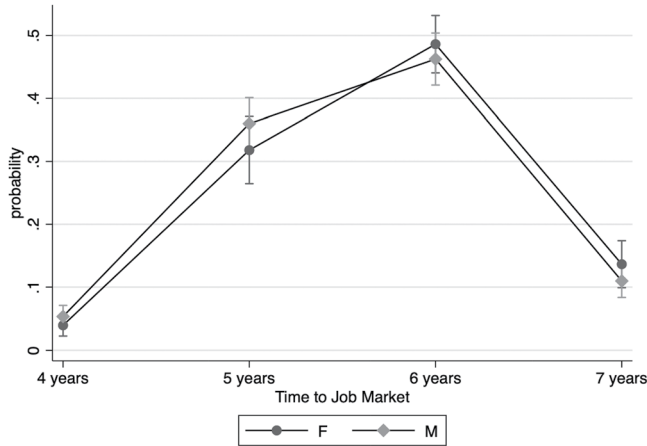
Note: Results of ordered probit regressions. Estimation is done with robust standard errors. Base categories of the ordered probit regression are the following: Gender—Female, Field—Applied, Undergrad—Business Administration. In columns (1) and (3) Completion time is a categorical outcome (not as a continuous 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 columns (3) and (4) stands for Assistant Professor sample.

Significance levels are noted as follows: \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$



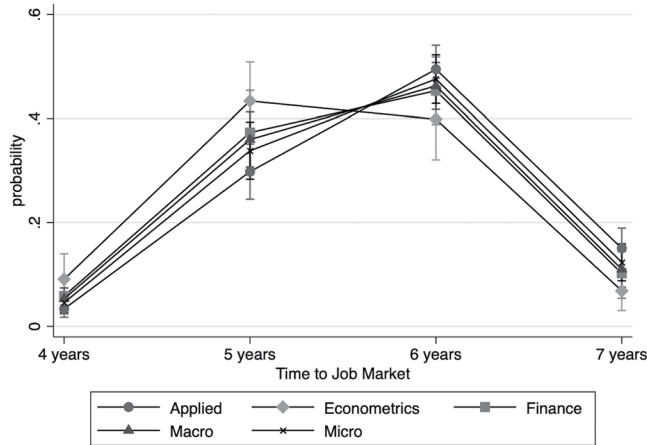
Note: Probabilities are calculated using an ordered probit regression of completion time on job market year, controlling for research field, gender, institution, and field of undergraduate studies. Estimation is done with robust standard errors. In the figure, all controls are held at their sample means.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

**Figure 2.** Predicted probability distribution of completion times.



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 3. Predicted probability distribution of completion times by gender.



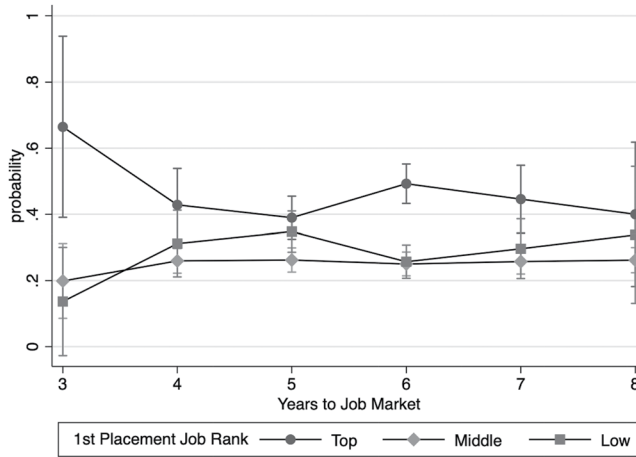
Note: Probabilities are calculated using an ordered probit regression of completion time on research field, controlling for gender, job market year, institution, and field of undergraduate studies. Estimation is done with robust standard errors. In the figure, all controls are held at their sample means.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

Figure 4. Predicted probability distribution of completion times by research field.

**Covariates of placement prestige**

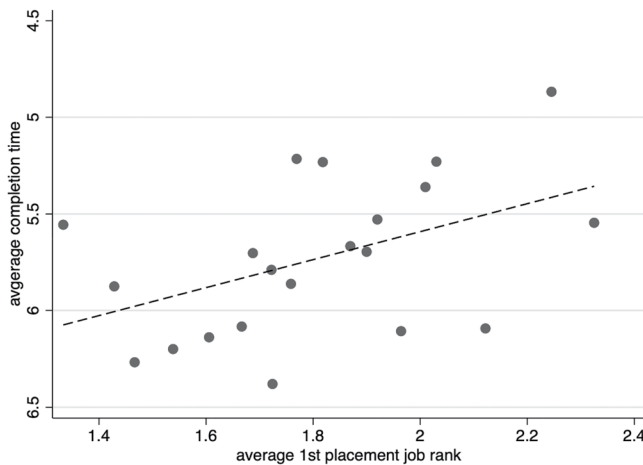
We estimate a similar model to that of completion time, this time using our placement prestige index as the dependent variable, pooled over all classes of placement. In addition to the covariates reported for completion time, we also include Time to Job Market as an additional explanatory variable. An 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. The results reported are obtained in the same way as in the previous subsection. Table 6, column 2, contains the estimates.

Figure 5 shows the probabilities of placing in a top-, middle- or low-ranked job within the sample graduating in four, five, six, seven, or eight years.<sup>8</sup> While for a duration of four or five years, low and high placement prestige are statistically equally likely, going on the job market after six years is associated with a significantly higher probability of placing in a top-ranked job relative to a middle- or low-ranked



*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.

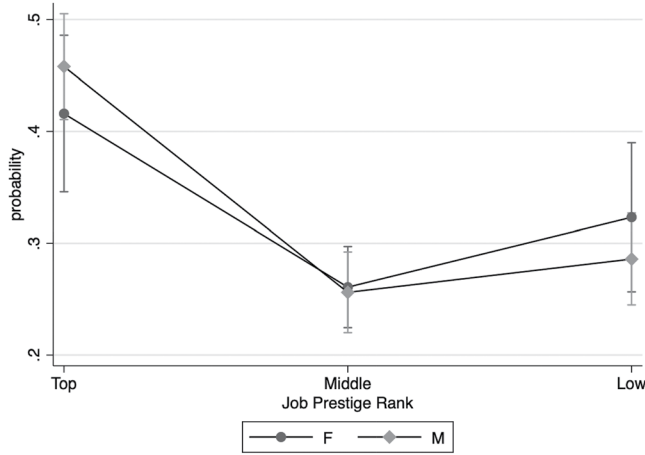
**Figure 5.** Predicted first job placement prestige by completion time.



*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..

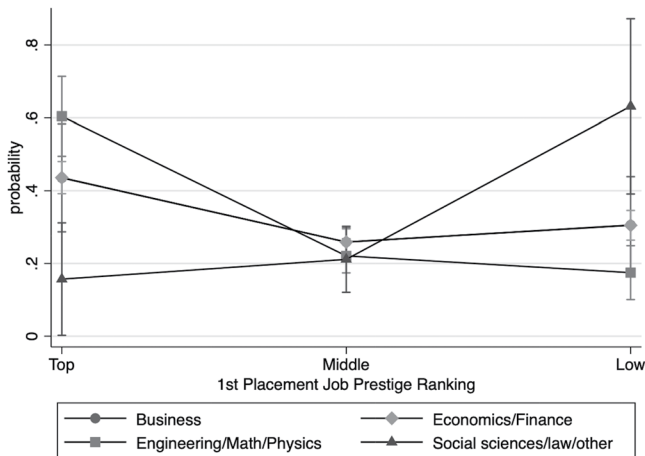
**Figure 6.** Placement prestige and completion times across Europe.

one. This effect attenuates again for graduates with a duration above six 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 categories, 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. Because 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.



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.

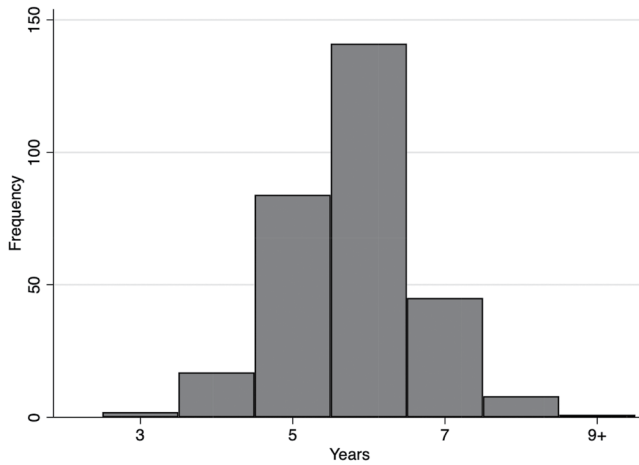
Figure 7. Predicted first job placement by gender.



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.

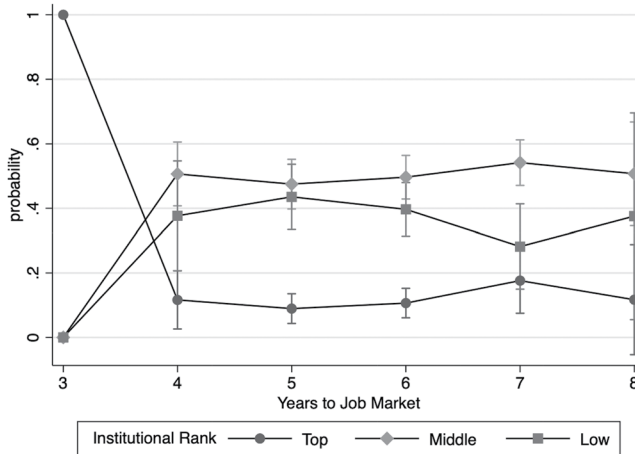
Figure 8. Predicted PhD placement prestige by field of undergraduate studies.

Figure 7 shows that gender does not vary significantly with placement prestige. Because comparing placement prestige by subfield of economics is not particularly meaningful, we instead report placement prestige by the 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



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 9. Completion times—assistant professors.



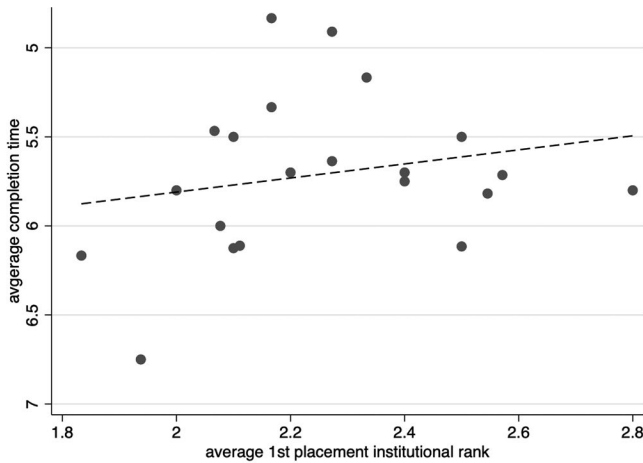
Note: Probabilities are calculated using an ordered probit regression of first job placement institutional prestige on years to job market, controlling for research field, gender, job market year, institution, and field of undergraduate studies. Estimation is done with robust standard errors. In the 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 10. Predicted first placement institutional prestige by completion time—assistant professors.

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 percent of the full sample.



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.

**Figure 11.** Placement institutional prestige and completion times across Europe—assistant professors.

Sample frequencies for the completion times of this subsample are presented in [figure 9](#). The relative frequency of six vs. five years of completion times is skewed in favor of six 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 the 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 five to seven years to completion.<sup>9</sup> Top placement probability does not increase significantly across subsamples of different duration. However, when plotting each institution’s average placement prestige and average completion times for the assistant professor subsample, there is again a positive correlation. This relationship is 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 categories, respectively.<sup>10</sup>

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, contains the estimates of the ordered probit models for this subsample.

## Conclusion

Recent years have seen an increasing convergence of economics PhD programs in Europe to their U.S. counterparts. Completion times in the top programs have steadily risen and now reach a median of six years. This brings them rather close to the completion times in U.S. programs, as surveyed several years earlier by Stock, Finegan, and Siegfried (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 also may 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.

## Notes

1. The opinions in this article are those of the authors and do not necessarily reflect the views of the German Federal Ministry for Economic Affairs and Climate Action.
2. This project started as an internal project at the European University Institute (EUI) during the period when all 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 regard to completion time. While such information was readily available for U.S. 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.
3. Because our analysis focuses on a subset of all European programs, with emphasis on including programs that resemble top U.S. programs in structure, our results should not be taken as representative of European economics PhD education more broadly.
4. 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.”
5. 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 from the ones we used for our analysis.
6. The  $p$ -value associated with a two-tailed  $t$ -test for no difference in sample means, assuming unequal variance, is 0.53.
7. We 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.
8. Few candidates complete their PhD in three years, which makes interpretation of the estimated probabilities for those subsamples difficult.
9. Few candidates place as assistant professors after completing their PhD in four or less years, which makes interpretation of the estimated probabilities for those subsamples difficult.
10. For 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.

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## ORCID

Vinzenz Ziesemer  <http://orcid.org/0000-0001-9704-1658>

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