



PhD Graduate Study 2008-2013

Registry data from Statistics Denmark

Where do PhD graduates from the University of Copenhagen find employment?

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University of Copenhagen - Research & Innovation

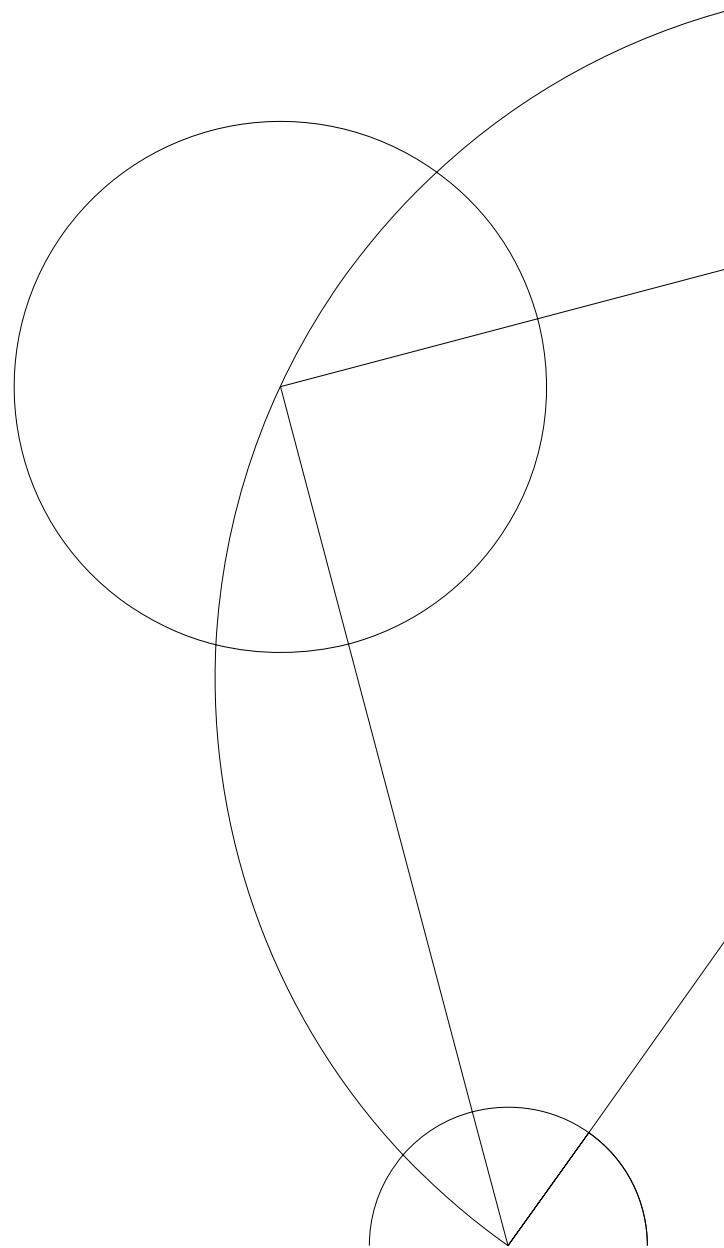


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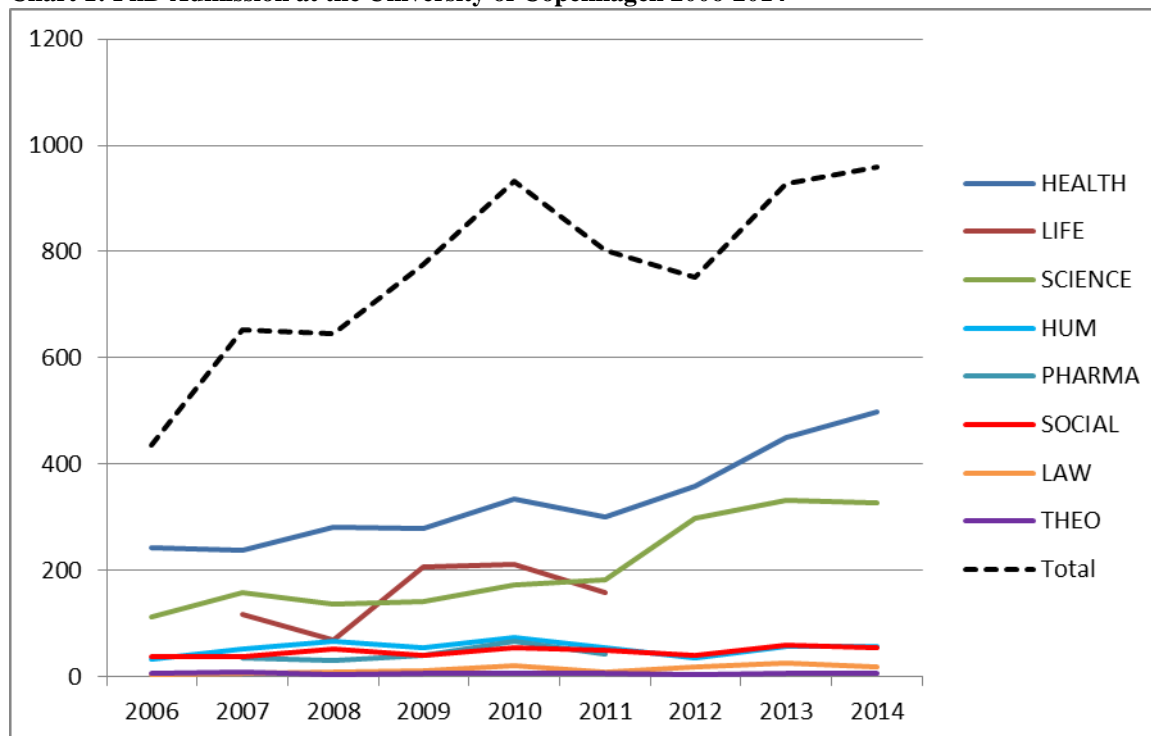
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PhD graduates from The University of Copenhagen 2008-2013

Background

With the Globalization Agreement in 2006 the Ministry of Science, Innovation and Higher Education asked the Danish universities to double the admission of PhDs in 2010. This challenge was met by The University of Copenhagen as shown by the chart below:

Chart 1: PhD Admission at the University of Copenhagen 2006-2014



Source: The University of Copenhagen Study Statistics. NB: 2009-2014 is registered by the years of the calendar, whereas the previous year were registered by school years. LIFE and PHARMA merged with UCPH and is counted from 2007 until the internal merger of the faculties in 2011.

Table 1: Figures behind Chart 1: PhD Admission at the University of Copenhagen 2006-2014

	2006	2007	2008	2009	2010	2011	2012	2013	2014
HEALTH	242	238	281	278	333	300	358	450	499
LIFE	-	118	69	207	210	158	-	-	-
SCIENCE	113	157	136	141	172	182	299	332	327
HUM	32	52	65	54	73	54	35	56	56
PHARMA	-	35	29	40	65	42	-	-	-
SOCIAL	38	37	52	40	53	49	40	59	54
LAW	4	7	9	11	20	9	17	24	17
THEO	6	9	4	5	7	7	3	6	6
Total	435	653	645	776	933	801	752	927	959

The purpose of the study is to explore the following questions¹:

1. Where do the UCPH PhD graduates find employment? What lines of business are they engaged in and in what types of jobs?
2. How much time passed from graduation to the first employment?
3. What salary are they paid?
4. How many international PhDs from the UCPH find work in Denmark after graduation?
5. How many Danish PhDs from the UCPH go abroad after graduation?

Documentation

The PhD Graduate Study 2008-2013 is based on data from Statistics Denmark. The data from before 2008 is not of a quality that allows for comparative studies and is therefore not included. 2013 is the most recent available year for statistical data to date. When reading the statistics one should keep in mind that data is drawn on the graduates' first registered employment. It is not unusual for PhD graduates to take a temporary assignment at the University until a permanent position is available.

PhD graduates are looked up in the population registry the quarter before their graduation. For people that do not exist in the population in the quarter before graduation, data regarding gender, nationality and age are listed as Unknown.

Then, it is examined how many individuals in the population are found in the registry for wage earners within one year after their graduation. For these individuals the following variables are attached:

- Weeks before the first employment (a count of the number of full weeks that pass from the graduation date until the first registered employment)
- Sector of employment (2013 only)
- Line of business for the first employment (listed based on the workplace's primary activities)
- Job category for the first employment after graduation. The categories are reported by the workplaces. Note that only institutions with more than 10 employees report on job categories
- Number of hours worked per week in the first month of employment divided into intervals
- Salary divided into intervals specified by the narrow concept of pay for the first month of employment²

Individuals who are not found in the registry for wage earners are looked up in the registry for recipients of public benefits, the business registry (CVR), and finally the emigration registry (see Table 2).

In order to ensure the anonymity each graduate, there must be at least 3 individuals in a group before information regarding department, year and faculty is disclosed. The highest possible level

¹ The questions were formulated by PhD-KUFIR on 02.06.14

²The narrow concept of pay includes salary income incl. labor and employee benefits, which are A-income, but excl. ATP contributions and other employer benefits.

of detail with regard to institutional origin has been pursued. This means that the data in 2008-2012 cannot be allocated on a time series (except in the faculty count in Chart 2).

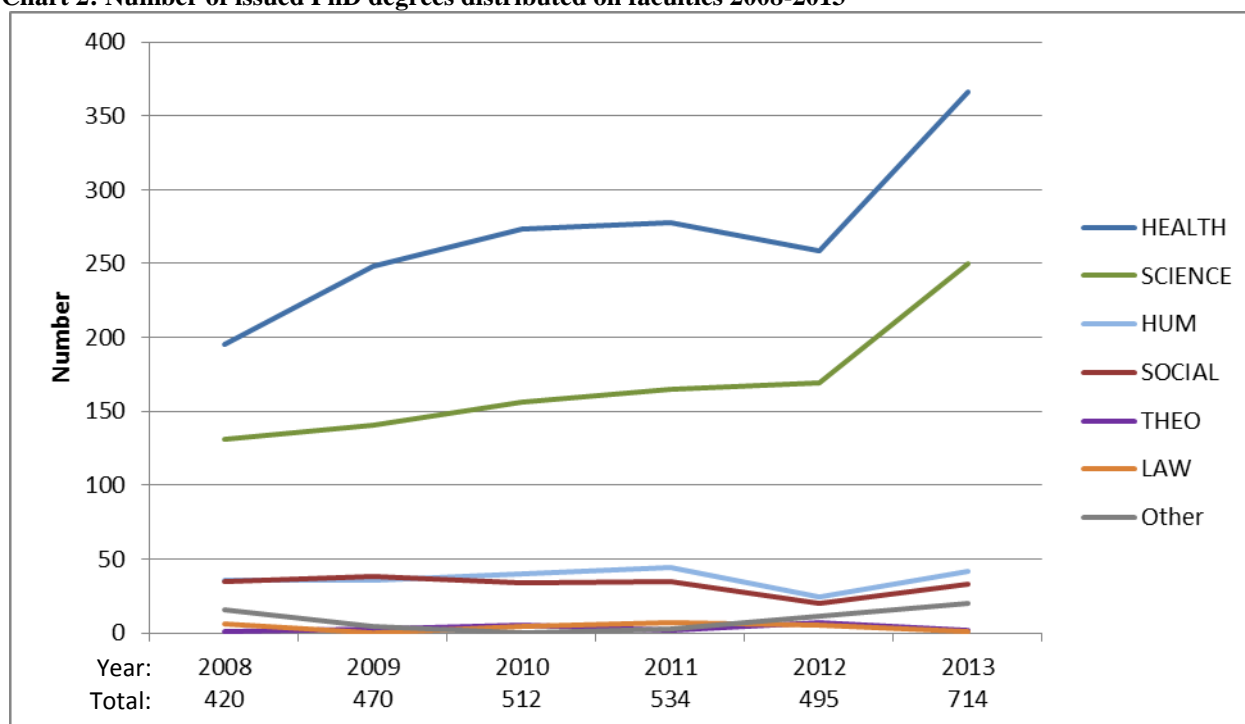
Faculty data is organized to reflect the current organizational structure of The University of Copenhagen.

Number of PhD degrees issued by the University of Copenhagen in 2008-2013

The increased number of PhD admissions is reflected in an increased number of PhD graduates 3-4 years later. The big boost in admissions in 2010 (see Table 1) is thus reflected in the number of graduates in 2013.

The Globalization Fund's emphasis on the medical, natural and technical sciences is reflected in the increase of graduates from the Faculty of Health and Science in the period:

Chart 2: Number of issued PhD degrees distributed on faculties 2008-2013



Source: Statistics Denmark

Table 2: Figures behind Chart 2: Number of issued PhD degrees 2008-2013

	2008	2009	2010	2011	2012	2013
HEALTH	195	248	273	278	259	366
SCIENCE	131	141	156	165	169	250
HUM	36	36	40	44	24	42
SOCIAL	35	38	34	35	20	33
THEO	1	3	5	2	7	2
LAW	6	0	4	7	5	1
Other*	16	4	0	3	11	20
Total	420	470	512	534	495	714

Source: Statistics Denmark

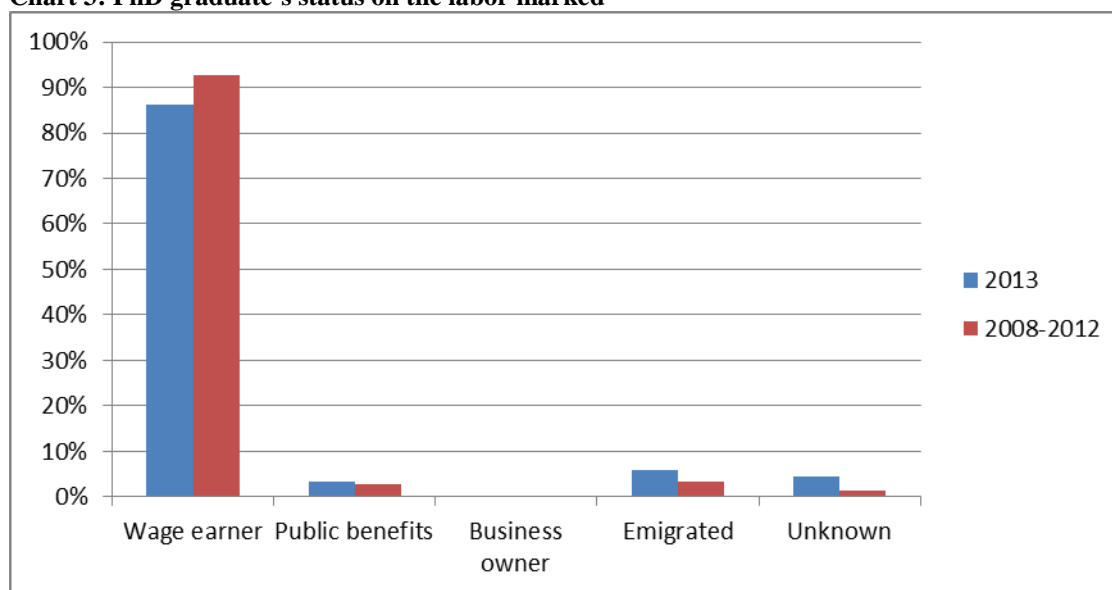
* Other includes PhDs registered at UCPH, but not at a faculty.

The PhD graduates' status in the labor market

Chart 3 provides an overview of PhD graduates' status in the labor market within the first year after graduation. First, the graduates are looked up in the wage earner registry, where the majority is found. If they are not found among wage earners within the first year, they are looked up in the registry for recipients of public benefits (*dagpenge*). The remainder of the population is looked in the business registry (CVR) and those still not found are sought for in the emigration registry. If they are not found in any of these registries, they are marked Unknown.

The registered business owners shown in Chart 3, thus only counts CVRs created by graduates not found among wage earners. To get a more complete image of the entrepreneurial PhDs we decided to look up the whole group of graduates in 2013, and found a total of 38 PhDs (5%) who registered for a business.

Chart 3: PhD graduate's status on the labor marked



Source: Statistics Denmark

It is not possible to determine what the group Unknown doing, but Statistics Denmark estimates that the group primarily consists of unregistered emigrants and a group of self-supported unemployed.

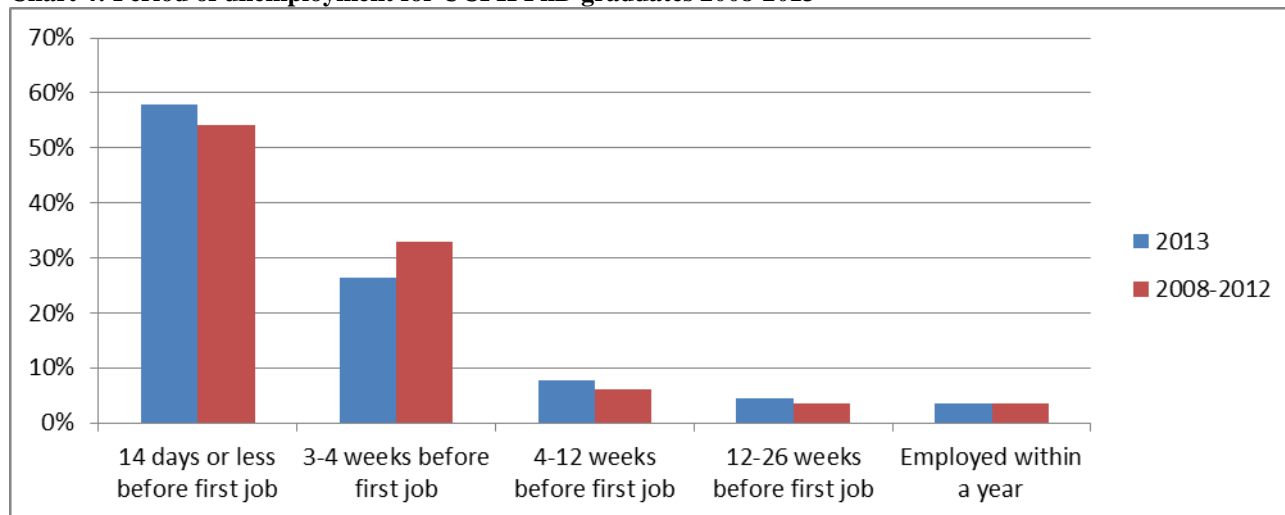
Public benefits in this context means *dagpenge* (unemployment insurance), and fraction who is on parental leave or sick leave. The group "public benefits" represent respectively 2.6% and 3.4% and is the only group we can say with certainty is unemployed. By comparison, the Danish Confederation of Professional Associations (AC) puts the unemployment among Master's holders in general at 4.3%, while the unemployment rate for recent Master's graduates with a degree age of 1-2 years is at 13.2% in July 2015³

³ <http://www.ac.dk/politik/beskaeftigelse-og-arbejdsmarked/akademikernes-ledighedsstatistik/ledighed-juli-2015.aspx>

How long time passes before PhD graduates get their first job?

The chart below shows data drawn on the graduates, who are wage earners. 85- 90% of the graduates obtain their first employment within the first 4 weeks after graduation.

Chart 4: Period of unemployment for UCPH PhD graduates 2008-2013



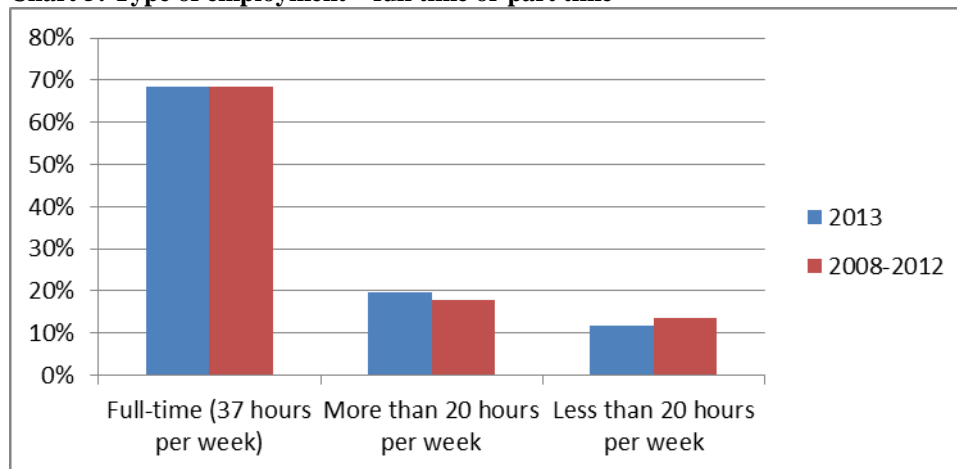
Source: Statistics Denmark

Looking at the development of unemployment throughout the period 2008-2013, there is no significant variation in relation to the volume increase in 2013.

Type of employment for UCPH PhD graduates 2008-2013

Chart 5 shows that about a third of the wage earners are not working full-time in their first job after graduation. Part-time recruitment typically takes place in a university or a hospital and a possible explanation is a desire on the graduates' part, to maintain links to the university, for instance as research or teaching assistants until a more permanent position is available. It is further noted that this trend may also have an influence on the relatively high number of graduates who have found their first job at a university, see Chart 8.

Chart 5: Type of employment – full time or part time

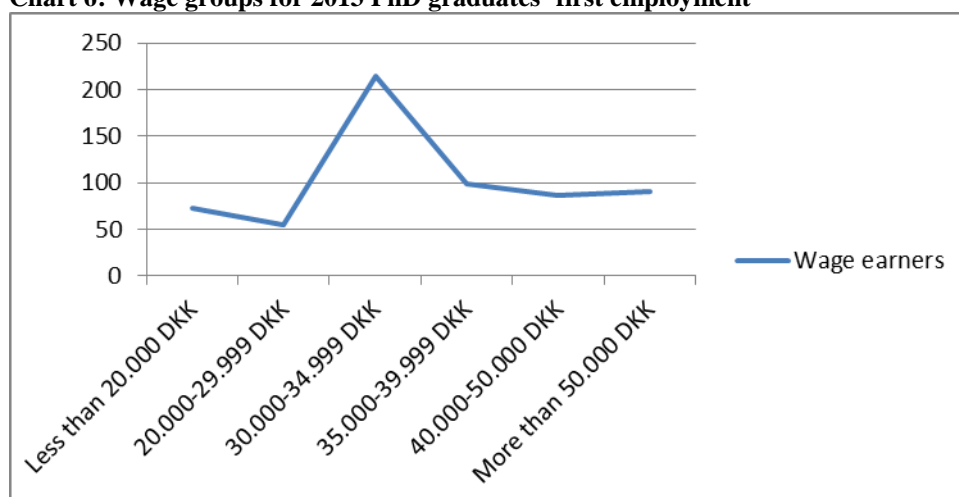


Source: Statistics Denmark

How much does the UCPH PhDs make in their first employment?

Focusing on the wage earning graduates from 2013, they are distributed as follows in their first appointment:

Chart 6: Wage groups for 2013 PhD graduates' first employment



Source: Statistics Denmark

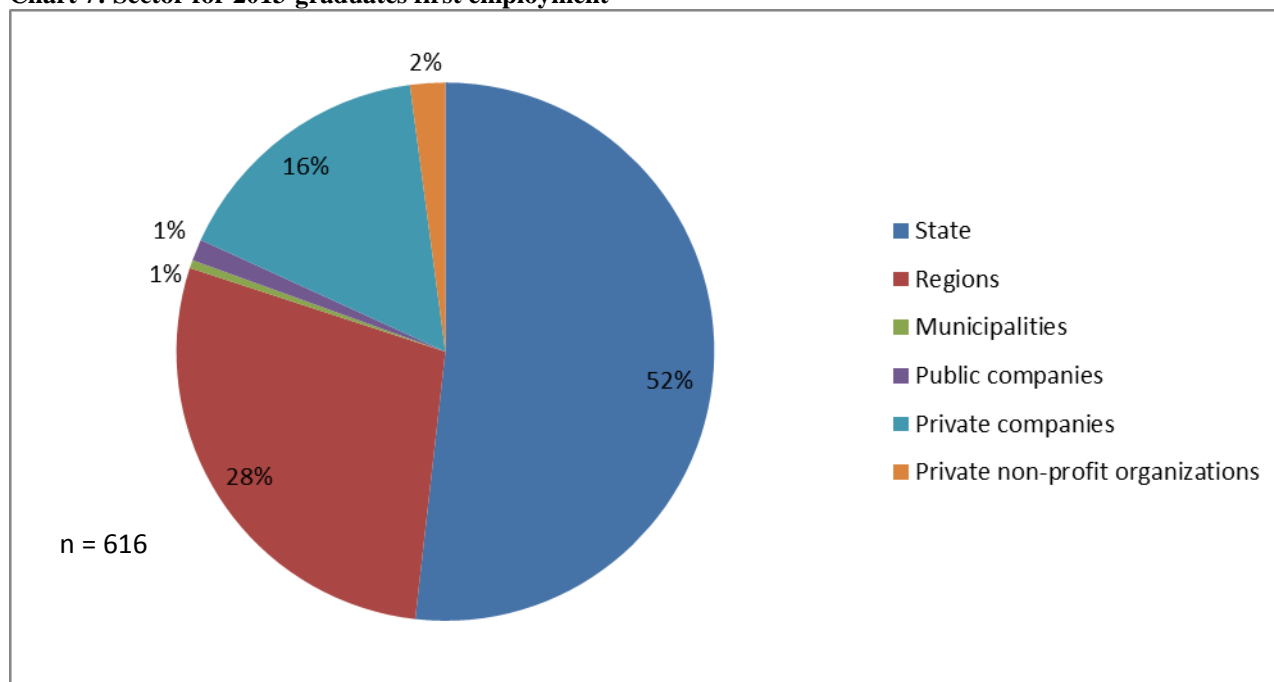
Data on the wages of Master's graduates lies outside of the scope of this study, so a comparison has not been possible.

The Think Tank DEA has compared wages among the health and science PhDs in the private sector with Master's holders from the same fields, and concludes that PhDs initially make approximately 6% less than Master's holders with the equivalent work experience, but that they after five years have surpassed the Master's holders, and make 7% more.⁴

In what sectors do the UCPH PhDs find employment?

In 2013 we retrieved data on sectors for the first time, and the image correlates well with picture we knew from the lines of business, see Chart 8:

Chart 7: Sector for 2013-graduates first employment



Source: Statistics Denmark

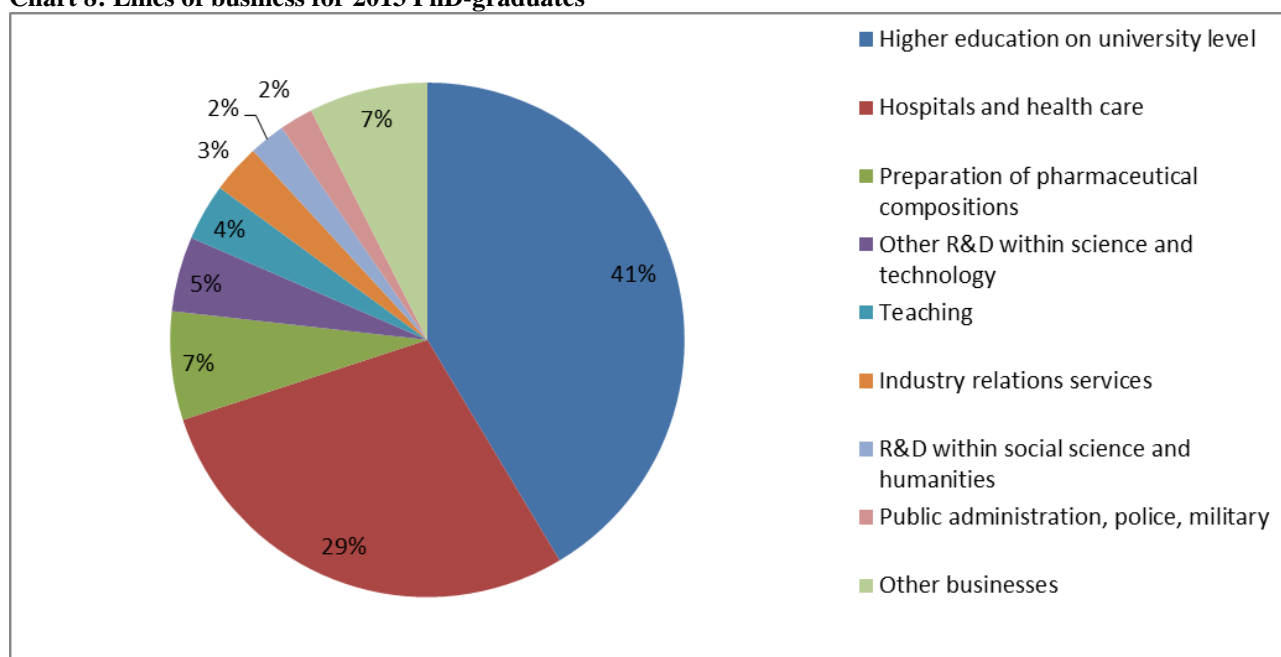
⁴ DEA, *Arbejdsmarkedet efter endt uddannelse for ph.d.er*, Dec. 2014 (Danish only)

80% of the state employees are employed with a university and 98% of the regional employees are with a hospital.

In which lines of business are the UCPH PhDs employed?

The first employment for the PhD graduates is distributed as shown in the following lines of business. The business classification used is the Danish Industrial Classification of 2007 which is based on the European standard. It is the institutions who report to Statistics Denmark which line of business they belong to.

Chart 8: Lines of business for 2013 PhD-graduates



Source: Statistics Denmark

The chart shows that about 40% of the PhD graduates work in universities, which matches the 80% share of the state sector employees mentioned below Chart 7.

In spite of the increase in PhDs in 2013 there has been no significant change to the distribution of PhDs in the lines of business in the labor market.

International PhD graduates and mobility

As shown in Table 4 the University of Copenhagen has seen growth in the number of international PhDs:

Table 4: Share of international PhD graduates in 2008-2013

	Total number of PhD graduates:	International PhD graduates	Share of international PhD graduates
2008-2012	2431	373	15%
2013	714	144 (46 Unknown)	20% (6% Unknown)

Source: Statistics Denmark

Figures from the University's own system indicate that the share of international PhDs are 23% in 2013 and 30% in 2014 – thus the Unknown group in the data from Statistics Denmark are presumably about 50-50 Danish and non-Danish graduates.

Top 10 nationalities among international PhD graduates from the UCPH in 2008-2013:

1. Germany
2. China
3. Italy
4. India
5. Norway
6. Poland
7. Sweden
8. The Netherlands
9. USA
10. Russia/Iceland/Spain*

*An equal amount of graduates from the countries sharing the 10th place.

Table 5: Share of graduates with a foreign citizenship who emigrate within the first year

International PhDs	Emigrates	Stays in DK	Share who stay in DK
2008-2012:	135	238	64%
2013	35	109	76%

Source: Statistics Denmark

The table shows that the majority of the international PhDs stay in Denmark and contribute to the workforce in this country. About a quarter of the 2013 graduates emigrate, and use their degree from the University of Copenhagen in other parts of the world.

Top 10 most common countries UCPH PhDs emigrate to in 2008-2013:

1. USA
2. Great Britain
3. Germany
4. Canada
5. Sweden
6. Norway
7. Switzerland
8. Australia
9. China
10. France

Mobility among Danish PhDs

Table 5 shows that 8-10% of the Danish PhDs emigrate within the first year, and that a portion of the emigrants return to Denmark within the first year after graduation.

Table 6: Mobility among Danish PhD graduates within the first year of graduation

Danish PhDs	Total number of Danish PhDs	Number of Danish emigrants	Number returned	Emigrated share	Hereof returned share
2008-2012	2058	196	76	10%	39%
2013	524 (46 Unknown)	44 (10 Unknown)	6 (2 Unknown)	8% (22% Unknown)	14% (20% Unknown)

Source: Statistics Denmark