Initial insights into PHIL employment using administrative registers from Statistics Denmark (DST)

In staccato

Identification of CBS students

1. Identify CBS graduates (BSc as well as MSc) using the UDDA register (year-by-year administrative register with educational information for the entire population).
    1) We are not able to assign all graduates to the specific programs at CBS. For a large group of graduates, the specific program is not registered; these are merely registered as graduating from CBS.
2. Create unbalanced panel dataset for the 2005 to 2015 period (yearly data). There are too few observations prior to 2005 to make the data reliable.
3. A person enters the dataset for the first time in the year when she or he obtains her or his BSc. When this person obtains a MSc, the dataset is updated accordingly. It is the year of the MSc degree that determines the cohort to which the person belongs.
4. CBS graduates are sorted into three groups:
    1) BSc(Phil)+MSc(Phil)
    2) BSc(Phil)+MSc(Other)
    3) BSc(Other)+MSc(Other)
        i. We cannot exclude that there are Phil graduates in the group of Others. This uncertainty is due to what is mentioned in point 1.1) above.
5. In this way, the analysis allows for comparisons between graduates of business administrative and philosophy and other CBS students. The analysis only includes persons with a MSc degree. See Table 1 for an overview of the final number of observations.
6. This data is then augmented with data from the DREAM, IDAN, and FIRM registers in order to obtain information about employment, wage income, job type, and industry affiliation.

Table 1. Number of observations by cohort

	BSc(Phil)+MSc(Phil)	BSc(Phil)+MSc(Other)	BSc(Other)+MSc(Other)
2005	14	29	775
2006	12	39	782
2007	17	29	806
2008	15	36	828
2009	16	51	907
2010	16	34	917
2011	12	33	981
2012	22	30	903
2013	8	27	1040
2014	11	39	931
2015	10	17	524
Total	185	418	10937

Employment

7. Different measures of employment:
   1) Self-supporting, which means that the person does not receive any transfer payments (also not unemployment insurance; here, parental leave and sickness is not counted as transfer payments).
      i. For this measure, we count the number of self-supported weeks. This is done for each cohort, i.e., for each group of CBS graduate for each year based on year of graduation.
      ii. We count over the first 26 weeks after graduation (first half year), weeks 27-52 (second half year), weeks 53-104 (second year), and finally weeks 105-205 (third year).
      iii. Please see Exhibit 1 below. Possible interpretation: In the first half year after graduation, pure Phil students are generally less self-supporting that other students. This is different for the mixed Phil students. The earlier cohorts tended to be less self-supporting, but the later ones are self-supporting to the same degree as all other CBS graduates on average. Overall, the gaps narrow in the second half year after graduation, and they are as good as gone by the end of the second year. This could suggest that Phil students end up about the same place as all other CBS graduates, but that it takes them more time to get there. There might be good, deliberate reasons for this.
      iv. In continuation of this finding, we have looked at the number of jobs that the different cohorts have had during the first year after graduation. The working hypothesis was that Phil graduates' lower degree of self-support in the first year after graduation could be due to several short-term employments (e.g. project employment) compared to other CBS graduates. This is not, however, the case.
   2) November employment, which is DST's main employment measure, which is based on a person's employment by the end of November in a given year.
      i. For this measure, we calculate the share that has a November employment. For now, this is done for each group of CBS graduates for each year after graduation, but without looking at the graduation cohorts, i.e., here it is not possible to detect any changes between the earlier cohorts and the later cohorts (but this can of course be added to the analysis).
      ii. Note that November employment is only registered if a person receives a wage by the end of November. Temporary unemployment around this specific time of the year is thus quite influential, which is why the self-support measure might be a better way to look at it. From DST's administrative registers, it is also possible to find the number of days in paid employment (not included at this stage).
      iii. Please see Exhibit 2 below. Possible interpretation: In terms on November employment, there is not much difference between the three groups in the first year after graduation. Further away from graduation, a gap between the groups starts appearing. This can be seen from the solid lines. On the face value, this suggests that Phil graduates are less likely to stay in November employment as years pass; it is, however, important to note that we are down to 30 Phil observations 10 years from graduation, which makes the reported mean quite sensitive to a few special cases. Moreover, November employment is only registered for wage earners that are not self-employed or earn money from their own business. If we include these instances, numbers change. This can be seen from the broken lines, where mixed Phil graduates in particular come to resemble the other graduates (again, caution to the relatively low number of observations for the group of pure Phil graduates).
   3) One of the things that could be done with this data (but has not been explored so far) is to look for cases, where a graduate continues her or his employment in the organization where she or he worked as a student.

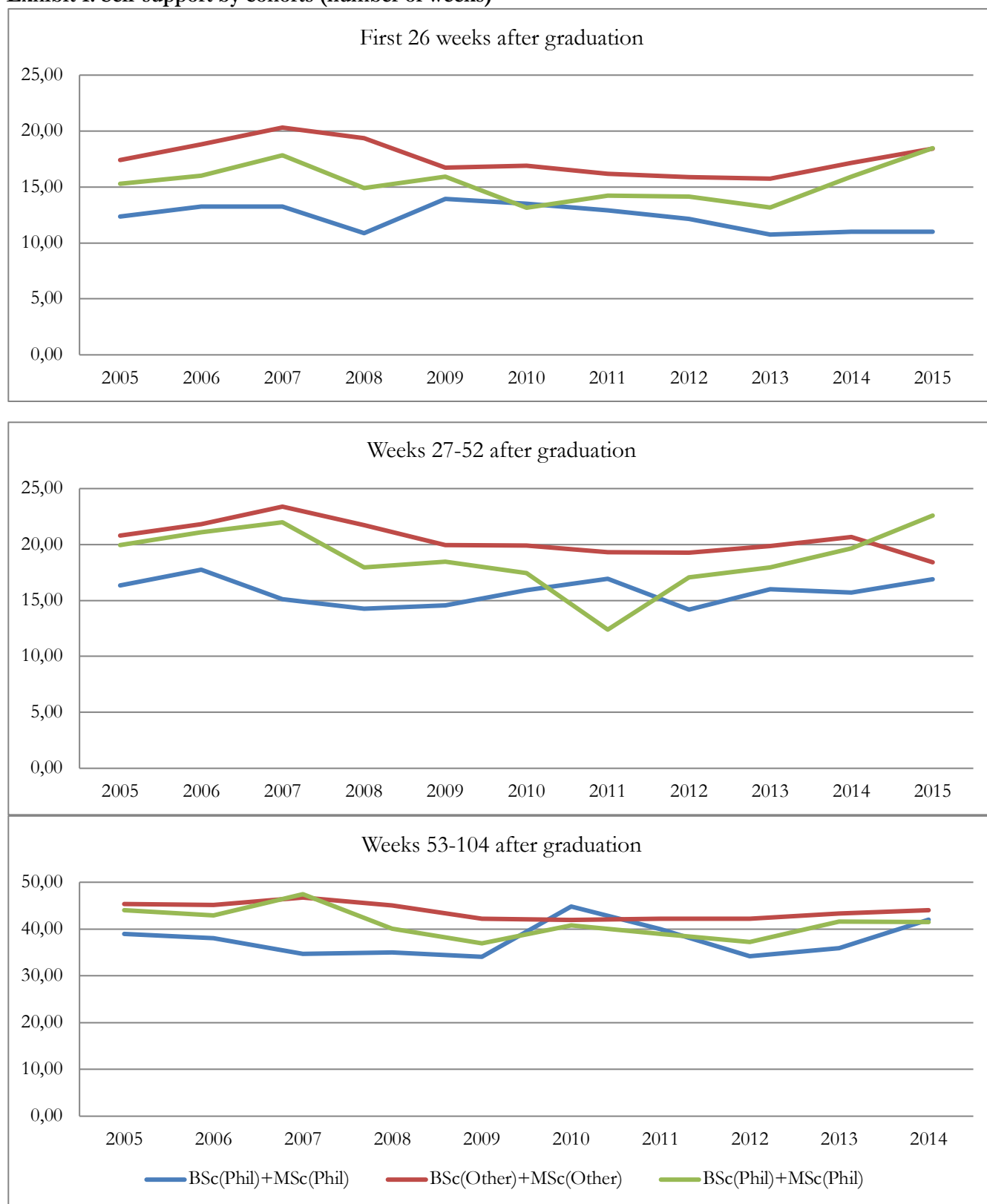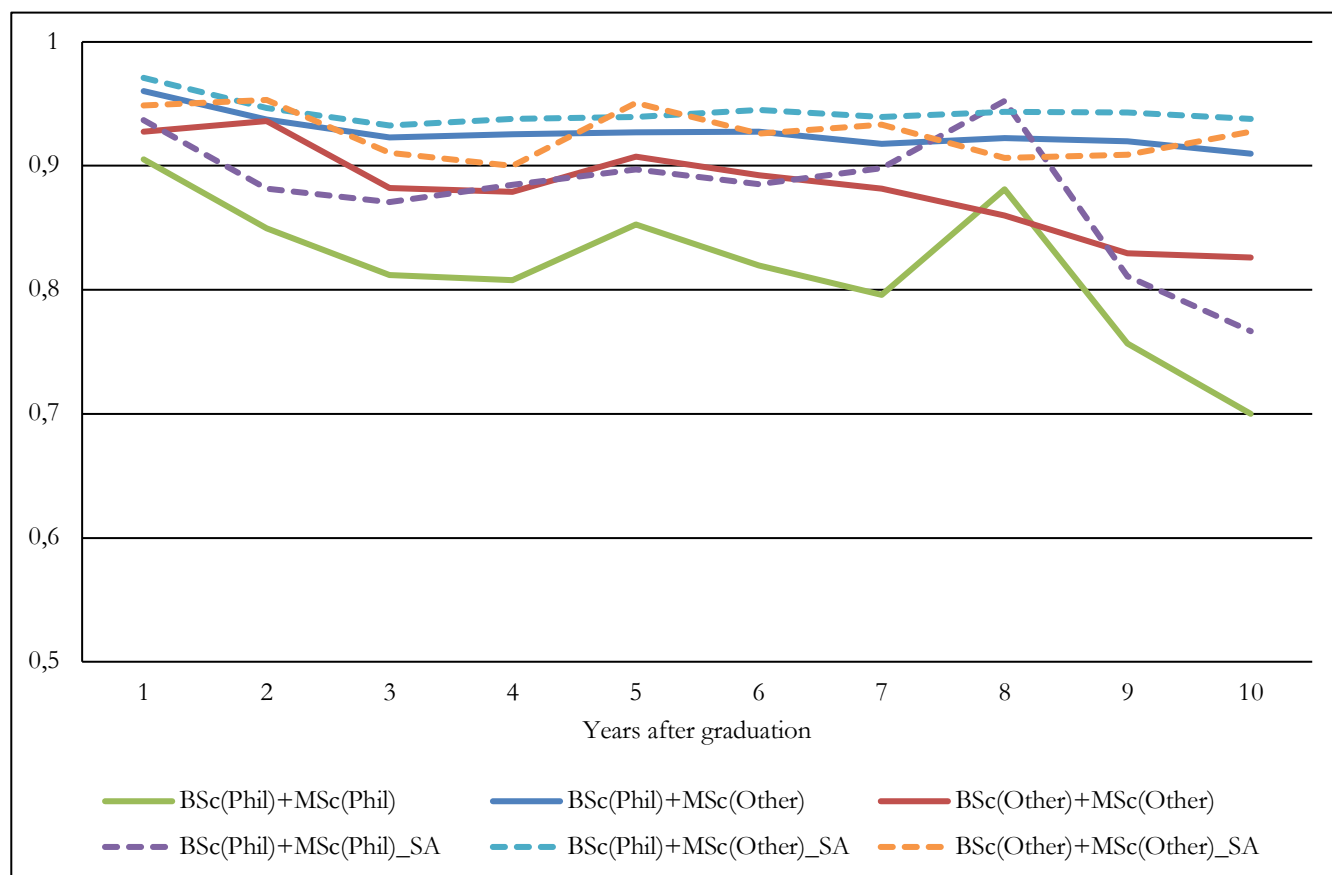**Exhibit 1. Self-support by cohorts (number of weeks)**

First 26 weeks after graduation

Weeks 27-52 after graduation

Weeks 53-104 after graduation

— BSc(Phil)+MSc(Phil)   — BSc(Other)+MSc(Other)   — BSc(Phil)+MSc(Phil)

Exhibit 2. November employment by year after graduation (share of cohort)

Wage income

8. Measure of wage income:
   1) One measure: The total amount of wage income received by a person in a given year.
      i. For this measure, we simply calculate the average income for each group of graduates for each year. To make comparisons of different cohorts of graduates meaningful, all wages are converted into 2017 prices. For now, this is done for each group of CBS graduates for each year after graduation, but without looking at the graduation cohorts, i.e., here it is not possible to detect any changes between the earlier cohorts and the later cohorts (but this can of course be added to the analysis).
      ii. Please see Exhibit 3 below. Possible interpretation: In the first years after graduation, there is not much difference between the different groups. After the second year, pure Phil graduates experience a lower rate of wage increase than the two other groups. The trend is almost identical for mixed Phil graduates and other graduates, although the former is slightly lower. Bearing in mind what we saw about the different groups' degree of self-support in Exhibit 1, i.e., that two years after graduation, all groups are self-supporting to about the same degree, at least two explanations presents themselves: One is that Phil graduates generally are self-supporting the same degree but accept (voluntarily or involuntarily) job that pay a lower salary. Another is that older cohorts of Phil graduates (those who are in the data for several years) tended to accept job with relatively low salaries.

Exhibit 3. Wage income by year after graduation (DKK, 2017 prices)
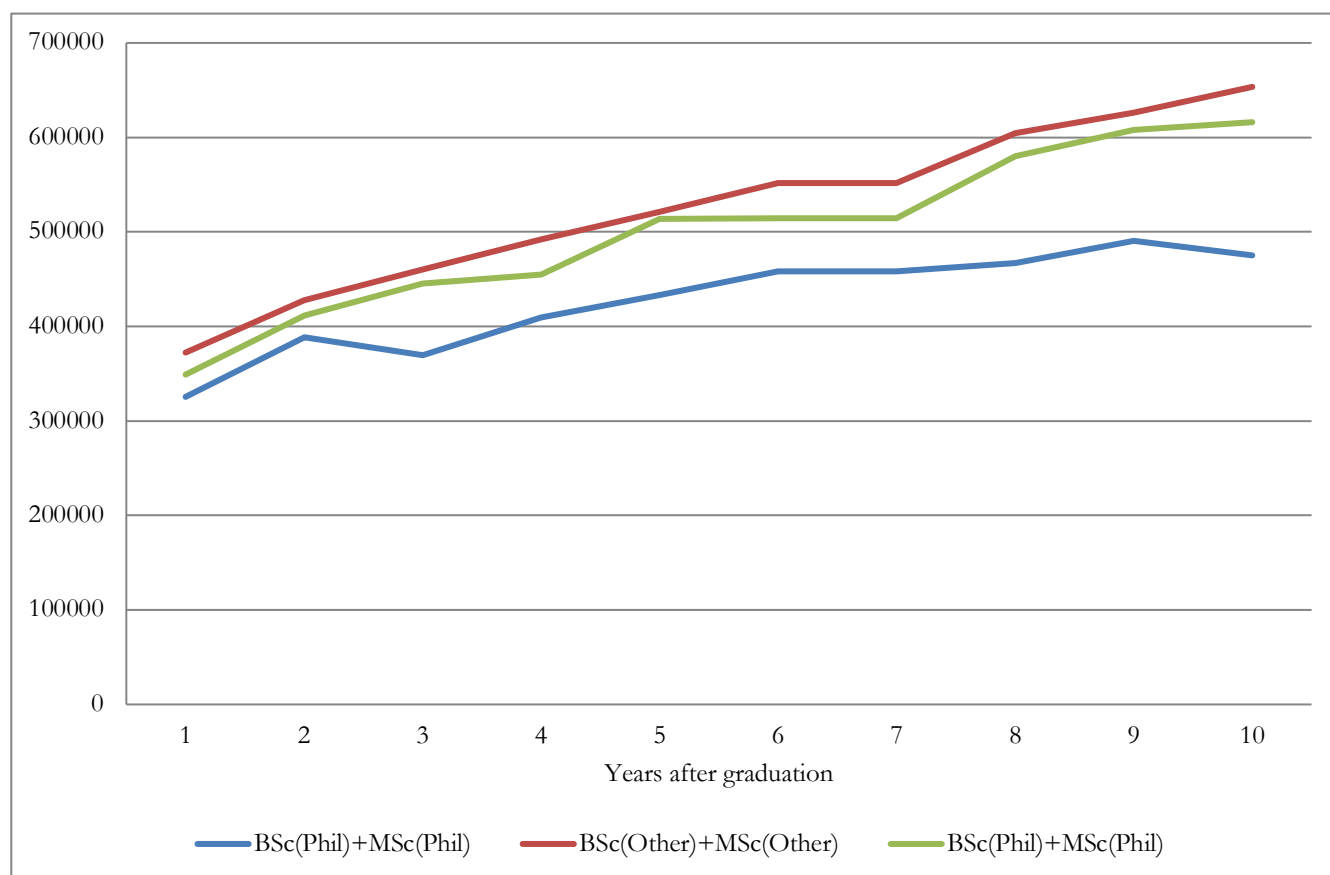
9. To get a sense of the type of jobs that CBS graduates undertake, we use a rather aggregate variable for this initial investigation. Specifically, the IDAN register contains a variable with employer-reported information about the type of job that an employee undertakes. There is a hierarchical structure in this variable that allows it to be aggregated at various levels. We use the most aggregate level, which allows us to discriminate between the job types reported in Table 2. We look at the job type in the first year after graduation.
    1) Note that small employers are not obliged to report the same details about themselves or their employees as larger firms. This is part of the explanation for why we do not have job type information for all the identified graduates. Another is that we are not allowed to extract data from DST when there are 5 or fewer observations in a category.
    2) Please see Table 2 and in particular Panel B, where the relative numbers are reported. Here we see that pure Phil graduates are overrepresented in the group of employees at the highest level. By this standard, pure Phil graduates are able to land good jobs, but recalling the wage income from before, these seem to be good job in relatively low-paying companies. Alternatively, this has to do with the sector in which the graduates are employed – more on this next.

Table 2. Job type, first year after graduation

	BSc(Phil)+MSc(Phil)	BSc(Other)+MSc(Other)	BSc(Phil)+MSc(Phil)
Employer	NA	11	NA
Top manager	NA	197	8
Employee at highest level	54	2762	92
Employee at medium level	16	2416	79
Employee at ground level	13	1168	31
Other	NA	58	NA
Employee, unspecified	NA	324	8
Not reported	9	279	16
	Panel B: Shares		
Employer	0%	0%	0%
Top manager	0%	3%	3%
Employee at highest level	59%	38%	39%
Employee at medium level	17%	33%	34%
Employee at ground level	14%	16%	13%
Other	0%	1%	0%
Employee, unspecified	0%	4%	3%
Not reported	10%	4%	7%

10. As a final thing, we what to look at the industries in which the graduates work. Again, we use a rather aggregate variable for this initial investigation. Specifically, the FIRM register contains a variable with information about the employers' main industry affiliation. Again, we use the most aggregate level, which allows us to discriminate between the job types reported in Table 3. We look at the industry affiliation in the first year after graduation.

    1) Note that small employers are not obliged to report the same details about themselves or their employees as larger firms. When it comes to industry affiliation, this is also part of the explanation for why we do not have job type information for all the identified graduates. Another is, again, that we are not allowed to extract data from DST when there are 5 or fewer observations in a category.

    2) Please see Tabel 3 and in particular Panel B, where the relative numbers are reported. Here we see that pure Phil graduates are overrepresented in the group of public sector employees.

Table 3. Industry affiliation, first year after graduation

	BSc(Phil)+MSc(Phil)	BSc(Other)+MSc(Other)	BSc(Phil)+MSc(Phil)
Industri, råstofindvinding og forsyningsvirksomhed	NA	447	20
Bygge og anlæg	NA	22	NA
Handel og transport mv.	6	823	22
Information og kommunikation	5	733	26
Finansiering og forsikring	6	1073	18
Ejendomshandel og udlejning	NA	64	4
Erhvervsservice	23	1750	56
Offentlig administration, undervisning og sundhed	24	475	25
Kultur, fritid og anden service	5	159	4
Uoplyst aktivitet	21	1660	60
	Panel B: Shares		
Industri, råstofindvinding og forsyningsvirksomhed	0%	6%	9%
Bygge og anlæg	0%	0%	0%
Handel og transport mv.	7%	11%	9%
Information og kommunikation	6%	10%	11%
Finansiering og forsikring	7%	15%	8%
Ejendomshandel og udlejning	0%	1%	2%
Erhvervsservice	26%	24%	24%
Offentlig administration, undervisning og sundhed	27%	7%	11%
Kultur, fritid og anden service	6%	2%	2%
Uoplyst aktivitet	23%	23%	26%