Reviewing one year milestone survey results

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A. Goal of the report

The funding of the project allowed for accepting three test-cohorts (in total 48 students) who were allowed to take IPSDS courses at no costs in exchange for participation in the evaluation. The goal of this report is to summarize key results of the one year follow-up surveys. For cohort 1, such a survey has been conducted four times, with the most recent survey sent to 11 students. For cohort 2, such a survey has been conducted three times, with the most recent survey sent to 15 students. For cohort 3, such a survey has been conducted two times, with the most recent survey sent to 17 students.

B. Data sources

Data was collected via a web-based survey conducted each year for the cohorts since they started the study (questionnaire can be accessed here). It is important to note that reported changes, such as changes in position and salary, are always referring to changes that occurred within the last academic year. The response rate for the survey constituted 88% in 2017 (the survey was sent to 12 participants and 4 dropouts), 85% in 2018 (the survey was sent to 26 participants and 1 dropout), and 88% in 2019 (the survey was sent to 39 participants and 2 dropouts).

Of the 39 IPSDS participants that received the survey, the majority reside in Germany (15 students), are female (22 students), and work within the public sector (25 students). Table 1 details the students' current age, degrees, and years of work experience.

Table 1: IPSDS participants' current age, degrees, and years of work experience (n=39)

Age	Highest Degree Earned	Subject of Highest Degree	Years of work experience
min=25	Bachelors=7	Sociology=8	min=4
max=60	Diplom=2	Statistics=6	max=19
mean=38	Diplom(MA)=2	Economics=5	mean=10
median=36	Masters=22	Political Science=5	median=9
	PhD=5	Social Science=5	
		Other=10*	

*Note: Degrees with less than 5 students are summed here.

C. Key outcomes

Among key outcomes we focus on self-reported improvement of work performance, receiving a pay raise as well as changing one's position (within one's organization or changing to another employer).

In 2017, two out of 14 participants in the first cohort (21%) reported that the Program helped them receive a new position. In 2018, nine out of 22 respondents (41%) reported a position change that they perceived to be (at least partly) due to their participation in the program. In 2019, 11 out of 38 (29%) reported a position change that they perceived to be (at least partly) due to their participation in the program.

Disaggregating this into the respective cohorts for 2019, three of the four participants in the first cohort who reported a position change perceived that their participation in the program (at least partly) helped them receive this new position. This was true for all four of the participants in the second cohort who reported a position change, and one of the three participants in the third cohort.

10 participants in 2017 (72%), 17 in 2018 (77%), and 35 in 2019 (92%) reported their improvement in work performance as a result of their participation in the IPSDS. Looking at 2019 specifically, for the first cohort 8 participants (80%) reported their improvement in work performance as a result of their participation in the IPSDS. An even higher percentage of people reported the same for the second (12 participants, 92%) and third cohort (13 participants, 87%).

Furthermore, six respondents in 2017 (43%), seven (32%) in 2018, and 20 (53%) indicated that they received a pay raise. For 2019 specifically, within the first cohort, seven participants (70%) indicated that they received a pay raise. Similarly, six participants (50%) within the second cohort and five participants (33%) within the third cohort reported the same.

D. Satisfaction with support and curriculum

Students were asked to report how difficult they found to receive IPSDS support in the following areas: IT (e.g., Zoom, learning platform), course registration, curriculum, and career development (1- Not difficult at all, 2- A little difficult, 3- Somewhat difficult, 4- Very difficult). Figure 1 shows distributions of the variables in question for 2019. In both 2017 and 2018, median for all areas apart from the career development ranges between 1 and 1.5. For 2019, medians for all areas apart from the career development were 1. The median for the career development constituted 2 for all years.

In addition, students were asked to what extent they think IPSDS curriculum matches their needs (1- Not at all, 2- A little, 3- Somewhat, 4- A lot). Figure 2 depicts distribution of the variable for 2019, with the median equal to 4, which held for all cohorts except the second whose median was 3.5. For 2017 the overall median was 3 (SD=0.83) and for 2018 the median was 4 (SD=0.61).
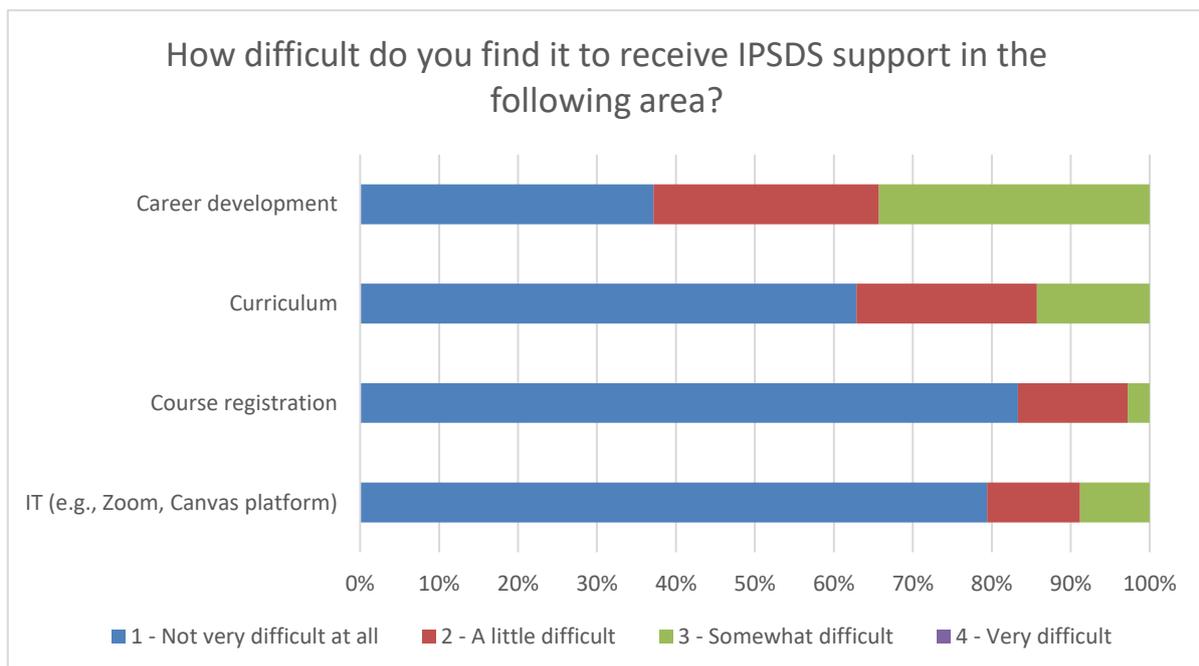

Figure 1. Barchart of how difficult students find to receive IPSDS support in the following areas: career development, curriculum, course registration, and IT (e.g., Zoom, learning platform). This charts sums across cohorts. Note: the option "Very difficult" was never selected.
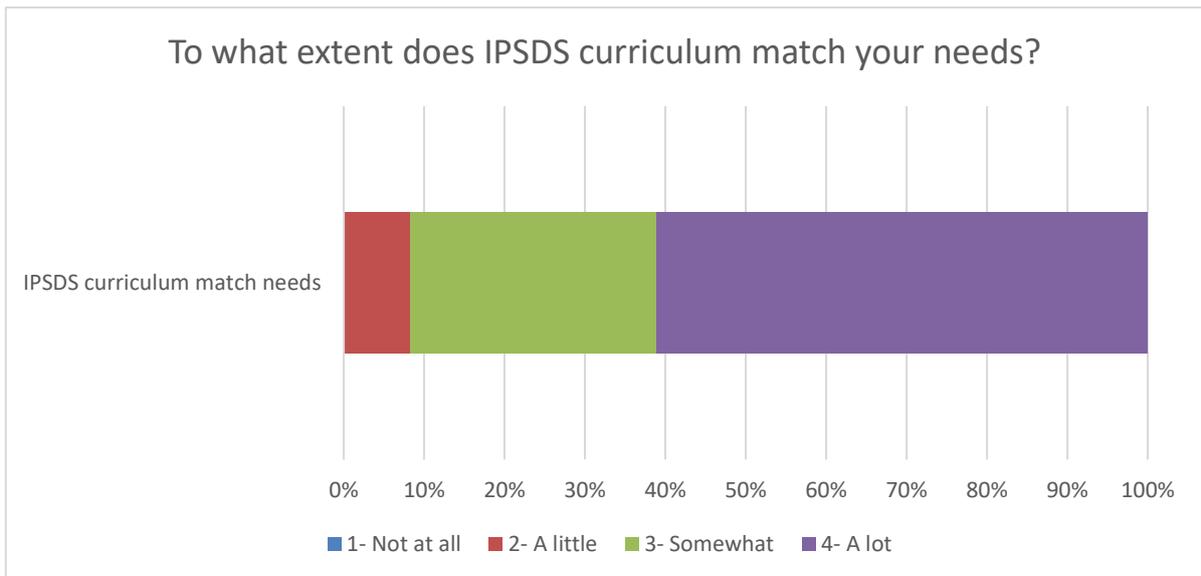
Figure 2. Barchart for the question: "To what extent does IPSDS curriculum match your needs?" This charts sums across cohorts. Note: the option "Very difficult" was never selected.

In 2018, respondents were asked what subjects they would include that are not currently covered in the IPSDS curriculum. 14 out of 22 respondents (64%) provided their suggestions: non-probability samples; more courses on machine learning; more courses on statistical modeling; more courses on data visualization; time-series analysis; forecasting techniques; text mining; dashboards; official statistics; more training in R; statistics on a more advanced level. In 2019 a similar question was asked and 24 out of 38 respondents (63%) provided there suggestions: machine and statistical learning; statistics (mathematics); data science; time series analysis; data reporting and visualization; Tableau, more SQL and Python; official statistics; statistical theory; big data applications and analysis; conducting surveys in developing countries.

E. Main challenges and work-life balance

At the start-of-the-program survey, students were also asked to report how satisfied they were with their work-balance: "How satisfied are you with the balance between the time you spend on your paid work and the time you spend on other aspects of your life?" (0- Extremely dissatisfied; 10- Extremely satisfied). The median score for all the cohorts was 7. Both 2017 and 2018 one year follow-up survey surveys indicated a lower satisfaction with the work-life balance: for 2017 median=5, SD=2.5; for 2018 median=5, SD=2.4. In 2019 the median was 7 with the median of cohort 1 being 8, cohort 2 being 6, and cohort 3 being 7.5.

In addition, in all three years, students were asked to describe main challenges that students faced during the program. In 2017, 13 out of 14 respondents (93%) indicated time balancing between work, other responsibilities and studying as the main challenge they faced during the program. One respondent indicated not having enough practical experience with data as her/his main challenge. In 2018, 16 out of 22 respondents (73%) indicated lack of time and difficulties balancing their study workload with other aspects of their lives as their main challenge. Other listed challenges included internet connection, need to work and communicate more with other students, not enough R and statistical training in foundations, having to purchase books, understanding various accents of students/instructors. In 2019, 13 out of 30 (43%) indicated that time was their biggest challenge, with approximately 8 additional students indicating that balance between school, work, and family was the biggest challenge. One student stated that there weren't enough courses on R even though most of the courses require a deep understanding of it.

F. Enjoying the program and students' recommendations:

Responses to the open question "What have you been enjoying the most during the program?" for all years.

Responses in 2017 (n=14, number of missing values=0)
- "Getting new information in well structured courses. Thoughtful discussions with the teachers and other students"
- "Diversity of courses and also diversity of topics in each of the course itself. The courses are designed in a way that you can go back to the course (readings and presentations) over and over again and you will find again something new to think about... And of course meeting new people from all over the world that have the same/similar interests like you is always a great pleasure."
- "The study materials since they are relevant to my work"
- "I have learned a lot in many topics or at least I have a clearer sense of its content, biography so I am able to check for what I need"
- "The challenge to cope with the content and workload. To get to know new methods."
- "The content was 100% relevant and well organized/structured. All courses directly benefited my work."
- "Learning new things, interactive mode of undertaking courses, variety of topics covered"
- "learning a lot of new things"
- "The quality of the courses and the professors, the possibility to study at a distance and a convenient time, the international dimension of the program, Connect@IPSDS events."
- "All the fantastic teachers with such vast knowledge and inspiring teaching. They have enabled me to see old knowledge in another light and the new

knowledge they have taught me has been very useful, up to date and inspiring."
- "Lectures"
- "The professors are great and I enjoy that the knowledge that they have is always applied to real life cases."
- "Everything that had to do with calculations and using R or other analytical software"
- "Learning new things"

Responses in 2018 (n=19, number of missing values=2)
- "The great mix of relevant topics, the very engaged and approachable instructors, the fact that most classes have an applied hands-on focus"
- "Probably the assignments, usually fun to work on, great for reinforcing the stuff learned"
- "Communication with professors and participants"
- "Live discussions during the meetings, exchanging of experiences and challenges faced by classmates at work. Also, the sharing of new things, trends that are up to date by the professors"
- "The thing that the courses are well-structured and I learn about stuff what I am interested in."
- "contact to others/professionals with similar interests"
- "Learning practical skills that I can use in my daily work."
- "Interesting material, great highly qualified professors, friendly class atmosphere, flexibility.."
- "In principle everything! The program has found the right formula to be inspiring, useful and interesting! Keep it up!"
- "data vis & ml courses"
- "Professional community, live sessions, video lectures, new friendship."
- "International contacts"
- "I could learn new techniques to use in my work and the comparison with other students"
- "The flexibility we have to perform the activities."
- "I really enjoy the subjects that are offered because they really match with actual work and I think the courses are very interesting. I also enjoy that we are connected to people around the world (professors and students), so we have a really fulfilling experience."
- "The chance to get in contact with knowledge again. I am in my mid 30s, working for more than 10 years now and the program offers me the possibility to refine my knowledge, based on my work experience. The program provides me with topics to enter and learn in order to "reshape" my experience and to refocus or redirect my career"
- "I like the program a lot! I don't really want to highlight a single course."
- "The fact that I can organise my time the way I want and the fact that we have to read."

Responses in 2019 (n=32, number of missing values=6)
- "Learning with great professors"
- "the flexibility of studying whenever suits me"

- "Excellent professors in courses, interaction with other students, topics of some courses very interesting."
- "Being and discussing different topics with great people. I mean on both participants and instructors."
- "The strongest selling point of the IPSDS programme is that is has made me understand and appreciate how important it is to have a solid understanding of theory for anything you want to do and especially especially when it comes to assesing the usefulness of different "hip" techniques/methods (such as ML which is very popular nowadays). A big part of the credit for this should be given to the instructors of the courses of the program. They are in my opinion world class in their respective fields! I also think that the program "managers/coordinators" are doing a fantastic job in making the program interesting and relevant by showing belief in the program and putting energy into it!"
- "The course content"
- "high quality courses with good structure"
- "Life (online) contact, flexibility, good atmosphere, international dimension, teaching quality."
- "learning new stuff and implementing it in my projects"
- "Interesting courses"
- "To learn a lot of new things and put them on practice during my daily work"
- "Learning new things, especially R; have a new work perspective; exchange with others, international focus"
- "Meeting new people, lecturers, official statisticians, discussing things, learning new things"
- "some of the courses (visualization & webscraping)"
- "IPSDS connect"
- "To find at each course a stimulating work environment that allows each participant to develop, even if quickly, a series of new knowledge on the proposed subject"
- "The exchange of experiences – both with other students as well as the instructors, who very often work themselves in other jobs and share a lot of their knowledge gained there!"
- "I had a child so I needed to stop for some time"
- "Reading and doing homework; team work"
- "The course on r data management and web surveys"
- "When we get a closer look on the project/questions/options the instructors face during their own research/work."
- "The staff including professors and TAs"
- "Some of the courses I attended are really well designed, with excellent instructors and were definitely inspiring"
- "Videos, interaction with professors, assignments, the connect event"
- "the way how the courses are organized, convenience of the participation in the courses and also there were several extremely nice professors and topics which I enjoyed a lot"
- "Online meetings and forum discussions"
- "Really enjoy learning new material"
- "I can choose from various great courses"
- "Online meetings; the bibliography provided as an aid for the courses; some of the assignments"

- "Sampling"
- "The work atmosphere and the high Quality of knowledge"
- "all courses"

Responses to open question: "What would you like to say about IPSDS to somebody who is considering joining it in the future?"

Responses in 2017 (n=12, number of missing values=2)
- "I would encourage him/her to apply"
- "If you are interested in surveys and data science IPSDS is the right place to be."
- "I would highly recommend to anyone"
- "I would say that it is really great: you learn a lot from excellent professors, the online experience is really even better than on-site courses. It is harder though to establish a network with other fellow students"
- "I found doing the \"normal\" course load, i.e. two courses per term too challenging next to a full-time-job. However, it is one of IPSDS benefits that you are flexible in putting together your schedule and arranging most of your work flexibly. The courses are well-structured and instructors have been very approachable and engaged."
- "Especially useful for persons working in the field of surveys, and for those who want to become familiar with upcoming issues in the field of statistics (e.g., big data)"
- "It is a high quality program that may significantly broaden or even transform your profile and, most importantly, it may be combined with your current work!"
- "That it is a great program for data science and especially surveys. If I ever get to a high enough position I will be \"sending\" co-workers to the program."
- "It's a good program but you have to invest a lot of time"
- "That is great opportunity to learn interesting things from great professors."
- "It's all about survey science and not about data science."
- "You have to be very organized and interested in the topics to keep pace."

Responses in 2018 (n=19, number of missing values=2)
- "I would recommend that they look at the curriculum closely, as a broad range of topics is covered. Especially for people who are already in their professional life, taking only a part of the classes, rather than covering a whole curriculum might be a good option."
- "If survey methodology or data science is your area of interest, than IPSDS is the right place for you!"
- "It is really useful and applied to real work problems"
- "The program offers a variety of courses that are adjustable to one's needs and preferences. Professors are working on up-to-date areas in the field and can share experiences and provide support for our development at work. Unlike online platforms offering courses (such as coursera) the program involves active participation, engagement (we all know each other)."
- "I would support it"

- "I would highly recommend it to anyone at anytime."
- "Do not hesitate, this is a great opportunity to deepen your knowledge or change/expand your profile!"
- "The program is a must for anyone who would get the chance!"
- "They should have very good time management skills. Participating in the open house (Connect@IPSDS) activities are very useful."
- "The program is well structured, offers a great opportunity for working professionals. I learned A LOT!"
- "The course is challenging and requires a good amount of time but it is definitely worth it for the knowledge that you are guaranteed, for the opportunity to improve your work and for the comparison you have with teachers and other students"
- "It's a powerful program with an incredible team of Data Science professionals who help you with everything we need, and it's amazing. The program is a good opportunity to open your mind to a new (and big) profession and the possibility and flexibility that program gives to us is a very advantageous to person that works all day long (as me)."
- "I will definitively recommend the IPSDS program, I would say that it is unique and allows the students to improve the knowledge in specific areas of survey methodology and data science, while at the same time it have a friendly mode for the persons that are currently working. Is really interesting, professional and it can be adapted to specific needs."
- "Go for it! It's worth the work, it's like painting your flat in bright new colors ;) Having your experience can nobody take away, but to enrich your skills and knowledge offers new possibilities and new ways. A lot of new topics and skills are part of the program, which makes it very up to date"
- "Studying online really works!"
- "Competent staff (for most courses) and supportive. You learn a lot."

Responses in 2019, n=27, number of missing values=11

- "Great opportunity"
- "Consider carefully, what workload you can manage next to your job"
- "Web based environment is very helpful, one can follow its own pace, professors who are dealing with up to date topics"
- "This is unique and great opportunity to expand your knowledge and skills if you are interested in data."
- "If they are passionate abut data science and statistics then joining the IPSDS would be the biggest boost they can get professionally!"
- "Its worthy the efforts."
- "definitely join if you are interested in survey methodology. Regarding data science its also ok but just enough for the really basics"
- "That is a very innovative, flexible and useful program enabling you to improve your skills and gain new ones, while at the same time maintaining your full time job."
- "A great program! Offers both: survey statistics and improve skills in order to work with found data."
- "It is a very nice experience and you will learn a lot of practical tools that can help improve your work"

- "It is the right for you if you want to learn new things about data and Market Research, exchange internationally and are willing to invest your time for studying"
- "I would recommend but I don't know the latest status (payment, exams)"
- "Chose this only if you definitely want to increase your knowledge in both: survey & data science. Picking only one of the fields is not possible."
- "Great faculty! Check if offered courses match your need/interest"
- "The course is extremely intense and takes a lot of time, but will provide you with knowledge and incentives to learn a lot of new things in exchange"
- "Its great but you will have to be strong if you really want to finish it. Its not easy going."
- "Great, it is worth it, but burnout is a real risk. It almost happened to me."
- "A good program, well tailored for people that, like me, have already a job and a family"
- "Have sound basics R data management skills. Otherwise you will waste a lot of time struggling with the basics instead of learning the course topics."
- "It's a very good opportunity to be in contact with a very qualified professors/trainners and to learn A LOT about surveys!"
- "It is worth!"
- "Do it, but be aware that takes a lot of time and efforts. But it is really worthy."
- "I would completely recommend it. It is very interesting, very convenient and very useful"
- "I think it is a very solid program, with experts teaching the courses."
- "Really great programme: excellent teachers and good curriculum. You can really learn a lot from the programme."
- "Hope you have a very flexible job"
- "Take it, don't leave it, finish it!"

G. Summary (focusing on current challenges and approaches to address them)

- The program managed to achieve good results in key outcomes such as self-reported improvement of work performance, receiving a pay raise as well as changing one's position (especially given that during the period 2016-2018 the IPSDS curriculum, accreditation, administration and structure have been under development).

- Students reported high levels of satisfaction with IPSDS support, accept for career development. Lower levels of satisfaction with this area can be explained by the fact that demand for support with career development was not originally planned for (i.e., discovered during the test-phase).

- While most students find the IPSDS curriculum matching their needs to the sufficient extent, the second funding phase of the project (2018-2020) was a time to extend the IPSDS curriculum further to cover more topics in data science including some of the courses suggested by the students. Courses that were developed since 2018 include:
    - Text Mining: Computer Based Content Analysis I (Theoretical) and II (Practical) (first run in Fall/Winter 2018/2019)
    - Generalized Linear Models (first run in Spring 2019)
    - Machine Learning II (first run in Summer 2020)

  Future courses under development include: Sampling II, Official statistics intro, Big Data in Official Statistics, R course.

- The program acknowledges the problem of time management among the working professionals (especially those with family responsibilities). The second phase of the project (2018-2020) focused on supporting students with this challenge and providing better conditions to balance one's work and family life with studying. It is important to note, challenges with life-work balance and finding time to study do not appear to be gender-specific. Students did not report any gender-specific challenges.