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cational Research (ICER)**

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**Swiss National Science Foundation Career Tracker Cohorts (CTC)**

**Study Documentation**

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## 1 Introduction

The Swiss National Science Foundation (SNSF) supports basic science in all academic disciplines, through different funding schemes. One key objective is the improvement of the career prospects of promising early-career researchers. The SNSF invests over 20% of its funds in career funding schemes that target outstanding early-career researchers from the PhD level to assistant professorships. In 2017, the SNSF decided to set up a panel study, the SNSF Career Tracker Cohorts (CTC), in order to track and study the career paths of applicants for SNSF career funding schemes at the postdoctoral level. This includes (Early) Postdoc.Mobility, Ambizione, Eccellenza, and PRIMA. The panel study aims at gaining a better understanding of the careers of postdoctoral researchers and of the impact of the SNSF's career funding schemes. At the same time, the results of the panel study serve as a basis for the future development of career funding policies and schemes at the SNSF.

The SNSF has mandated a research team at the University of Bern to develop the CTC study design and implement the study. Formerly, the CTC study was conducted by members of the Institute of Sociology and the Interdisciplinary Centre for Gender Studies (ICFG). The study was led by Prof. Dr. Ben Jann and Prof. Dr. Michèle Amacker until September 30, 2019, and by Michèle Amacker alone until December 31, 2020. Since January 1, 2021, the CTC study has been affiliated with the Interfaculty Centre for Educational Research (ICER) and led by Dr. Andrea Erzinger.

This study documentation gives an overview of the CTC study. It is intended for participants of the CTC study, as well as people with a scientific interest in career trajectories of early-career researchers. This documentation presents the aims and research questions of the study, and describes the study design and questionnaire used to examine the research questions. The documentation further clarifies how data is collected and documented, and where scientific use files can be accessed. Finally, it gives information about the project management and contact information.

## 2 Aim of the CTC study

The main aim of the CTC is to analyze the career paths of early-career researchers who apply for a postdoctoral SNSF career funding scheme, and to assess the degree to which the SNSF funding schemes influence career development. To that purpose, the career paths of the applicants are mapped regarding their employment status, employment conditions, and achievements. The study compares grantees with non-grantees in terms of their academic achievements, aspirations, and the continuance of their academic careers. Moreover, it compares the career paths of male and female researchers. The data collected will allow for evidence-based decisions regarding the development of career funding schemes and funding policies at the SNSF. Furthermore, the CTC data are a valuable source for research on working conditions, as well as on the career motives and perspectives of early-career researchers.

The main objective can be broken down into three operational objectives and specific research questions:

1. Mapping the career paths of SNSF grantees by tracking their employment status, employment conditions, speed of career, and achievements (e.g., scientific output):
  - How high is the retention rate in academic science and how does the rate depend on socio-demographic characteristics (e.g., gender, age, family status), discipline, type of grant, etc.?
  - What are the reasons for leaving academic science?
2. Comparing SNSF grantees with non-grantees in terms of their career paths (see above):
  - In what ways do their career paths differ?
  - What is the impact on a career both in and outside academic science attributable to SNSF funding?
3. Comparing career paths of male and female SNSF grantees:
  - How large is the gender gap in research careers and how does it change over time?
  - What are the gender-specific challenges regarding the career development of early-career researchers?

### **3 Study design**

#### **3.1 Study population and cohort definition**

The study population of the CTC comprises applicants for the postdoctoral career funding schemes of the SNSF: Early Postdoc.Mobility, Postdoc.Mobility, Ambizione, Eccellenza, and PRIMA. The characteristics of these funding schemes are summarized in Table 1.

Applications to Early Postdoc.Mobility and Postdoc.Mobility are evaluated in a one-stage procedure, that is, the applications are evaluated on the sole basis of the submitted documents. However, external reviews may be solicited. Applications to Ambizione, PRIMA, and Eccellenza are evaluated in a two-stage procedure, that is, an initial assessment by the SNSF Evaluation Commission is used to draw up a shortlist of promising candidates, who are then invited for an interview and evaluated in more detail. Moreover, written external reviews are solicited for the second stage.

From 2018 until 2021, a new cohort was launched every year. A cohort (e.g., CTC-18, CTC-19) includes all the applicants for the postdoctoral funding schemes that were being evaluated in the respective calendar year. Thus, a full cohort comprises the applicants for Ambizione or PRIMA of the preceding year, and for Eccellenza, Early Postdoc.Mobility, and Postdoc.Mobility of the current year. Given that the study started in fall 2018, the CTC-18 cohort consists only of applicants who applied for Early Postdoc.Mobility or Postdoc.Mobility in fall 2018. Moreover, the CTC-21 cohort comprises only applicants who applied between November 2020 and February 2021. The Early Postdoc.Mobility scheme was integrated into Postdoc.Mobility as of 2021. Thus, there are no applicants for this scheme in the CTC-21 cohort.

Table 1: Overview of the SNSF career funding schemes included in the CTC

Scheme	Target group	Specification	Duration	Application deadline
Early Post-doc.Mobility (integrated into Post-doc.Mobility; last call in 2020)	Early-career researchers who have completed a doctorate and who wish to complete a study visit abroad and then pursue an academic career in Switzerland	Subsistence costs, travel allowance for the essential outward and return journey, and a possible contribution to research, conference costs, and matriculation fees	18 months	March 1, September 1
Postdoc.Mobility	Early-career researchers who have completed a doctorate and who wish to complete a study visit abroad and then pursue an academic career in Switzerland	Subsistence costs, flat-rate for travel expenses and a possible contribution to research, conference costs, and matriculation fees; additional: return grant, including salary and social security contributions	2 years (grant); additional 3–12 months (returning phase)	February 1, August 1
Ambizione	Early-career researchers from Switzerland and abroad who wish to conduct, manage and lead an independent project at a Swiss higher education institution	Salary of the grantee and project funds	Up to 4 years	November 1
Eccellenza	Highly qualified early-career researchers who aspire to a permanent professorship	SNSF Eccellenza Professorial Fellowships: salary at the local rates applicable to assistant professorships, as well as project funds of up to 1,000,000 Swiss francs; SNSF Eccellenza Grants: project funds of up to 1,500,000 Swiss francs (last call in 2020)	Up to 5 years	February 1
PRIMA	Female researchers from Switzerland and abroad who aspire to a professorship in Switzerland	Salary and project funds, possibility to plan a stay at another host institution and the offer of a mentoring network	Up to 5 years	November 1

Both grantees (i.e., applicants who received a positive funding decision) and non-grantees (i.e., applicants who did not receive a positive funding decision, including applicants who withdrew their applications before the decision date) are included in the study.

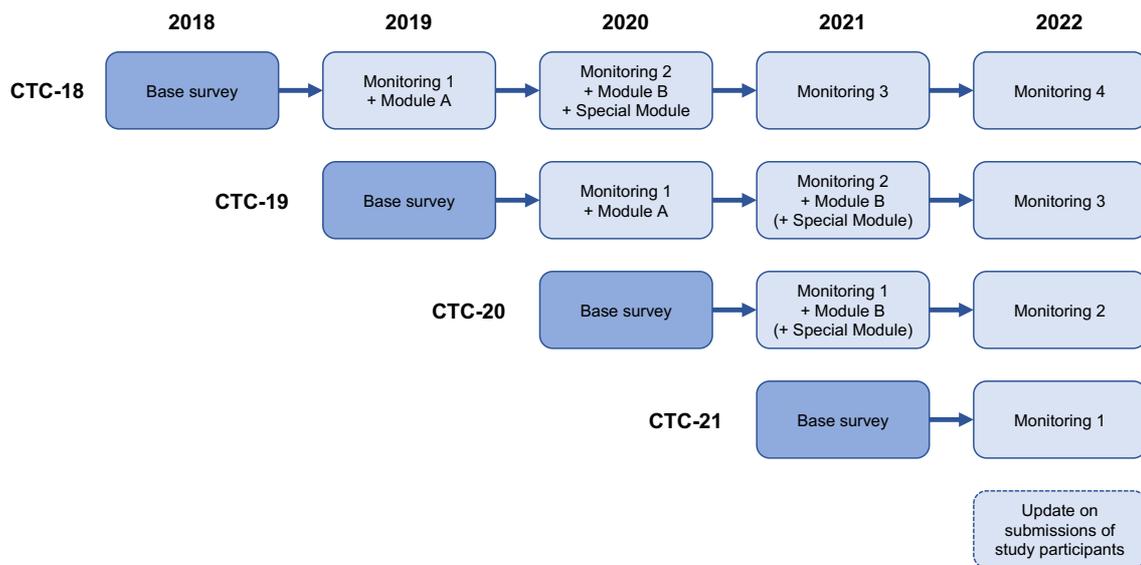
### 3.2 Panel design and survey period

The investigation of the research questions defined above is pursued based on a panel design with yearly surveys (see Figure 1). Every new cohort starts with a base survey, which inquires about applicants' current and previous (academic) employment situations, their doctorate, their career prospects and aspirations, as well as their family and personal life situations. The base

surveys are timed to coincide with the application process. Given the biannual application deadlines of the SNSF, there is one base survey in spring (all funding schemes) and one in fall (Early Postdoc.Mobility and Postdoc.Mobility only). The base surveys are administered in the period between the application deadline and the notification of the funding decision. The evaluation of the applications by the SNSF is completely independent of the CTC study. The SNSF administration and other actors involved in the evaluation process do not have access to CTC data. This ensures that participation in the survey has no bearing on the funding decision.

Subsequently, the survey participants receive a monitoring survey every year. These monitoring surveys are administered to all the participants who completed the respective base survey, irrespective of whether their application was successful or not. The monitoring surveys follow up on the participants' employment situation, their continuance in their academic career, their mobility and research productivity, as well as their family and personal life situations.

Figure 1. Design of the CTC study



Moreover, rotating modules on specific aspects related to research careers are added to the monitoring surveys. These modules are tested with the CTC-18 cohort and implemented with all cohorts (except for CTC-18) in the subsequent years. There have been two modules so far (A: Mentoring and network, B: Dual-career couples). Additionally, given the situation in 2020, a special module on the impact of the COVID-19 measures was added to the surveys in fall 2020 and spring 2021, which dealt with the effect of COVID-19 measures on researchers' lives, work, and careers.

### 3.3 Measures against panel attrition

Several measures are taken to counter panel attrition. First, regular monitoring, short survey duration, and an appealing survey design help preventing people from dropping out of the panel. Second, different communication and information channels are used. For example, we inform participants about the procedures and aims of the project in information emails from the SNSF and survey invitations, and on the project homepage. The biannual newsletter presents the latest results and informs the participants about the status of the study. During the field phase, late respondents are contacted several times through reminder emails and postal letters. Moreover, a randomized control trial has been conducted in 2020 and 2021 to investigate whether lottery incentives increase survey participation. As this proved not to be the case, incentives are no longer offered.

## 4 Questionnaire

The standard questionnaire covers the following topics: current status of and information on SNSF grant; current employment situation, including research activities; retrospective information on the doctorate/PhD and on the occupational history between the previous survey participated in and the start of the current working situation; academic mobility and research productivity; and sociodemographic information and life situation. The two modules added to the monitoring cover mentoring and networks, and dual-career couples. The special module covers the short-term impact of COVID-19 measures. Since fall 2021, the standard questionnaire has also contained questions that have become relevant in the context of the COVID-19 pandemic (e.g., regarding networks, mobility, and support).

The questionnaires were developed in accordance with the research questions formulated in Section 2. The project team orientated on questionnaires of established surveys with similar objectives. For the standard questionnaire, the sources mostly relied on were the following surveys and reports: the Graduate Survey of the Federal Statistical Office (Federal Statistical Office, 2016a,b); the reports for the pilot study and the 2017 career tracking study of doctorate holders by the European Science Foundation (European Science Foundation, 2015, 2017); the questionnaires of MERCI (Monitoring European Research Council's Implementation of Excellence) (Huber et al., 2015); and material from ProFile – Doctoral Candidates Panel (Institute for Research Information and Quality Assurance, 2015; Tesch, 2015). For the module on mentoring and networks, we used material from Iversen et al., 2014, Khan et al., 2018, and the European Science Foundation, 2015, 2017. The main source for the module on dual-career couples is Dubach et al., 2012. In addition to items that were adapted from other surveys, the project team developed and tested its own items. We conducted cognitive and technical pretests on all questionnaires.

To reduce the complexity of the monitoring surveys, as well as to minimize the effort required of the respondents and enhance the data quality, we use administrative data and base survey data. Administrative data is used, for example, to provide information on the application to which the questions refer or for filter definitions. Moreover, we use dependent interviewing, whereby the

respondents are not asked the same questions in every wave again, but are provided with questions based on information from administrative records or previous surveys. This method is used to gather data on the grant situation, the employment situation, and children.

## 5 Data collection and documentation

Data is collected by means of an online survey. The questionnaires are implemented in the online survey software LimeSurvey, an open-source product (see [www.limesurvey.org](http://www.limesurvey.org)). The surveys are hosted on a dedicated server at the University of Bern. Due to the responsive design of the questionnaire, the survey can be completed on a desktop computer or a mobile device. Respondents are invited to complete the survey using personalized links. In addition, the study makes use of the pre-existing administrative data containing personal identification data and data related to the funding the respondent receives, which is provided by the SNSF via encrypted transfer.

The survey data is partially linked with the administrative data of the applicants (gender, year of birth, discipline, etc.). In order to link the data without using personal identifiers, such as names (for reasons of privacy and independence), we use separate password-secured look-up tables, one on the person level and one on the application level.

We provide detailed documentation for each survey, containing information on the development of the questionnaire, the final questionnaire, the survey participants and the field work, the data preparation and data quality, and the final data. Further information on data management can be found in the study's Data Management Plan (see [Data Management Plan](#)).

## 6 Availability of scientific use files

The data collected, together with the plain text dictionaries of variables and labels, documentation, questionnaires, and lists, is made available to the scientific community. The scientific use files are archived on FORSbase in plain text format (CSV) and Stata format. The data sets are anonymous so that they do not contain any personal identifiers. The privacy of the respondents is further protected by the application of anonymization measures to the data (e.g., categorization of country information), as well as by procedural measures concerning access to and use of the data (e.g., data protection contract for researchers willing to use the data).

## 7 Project information and management

The CTC study is financed by the SNSF. The study is carried out by the ICER in cooperation with the ICFG at the University of Bern.

The study is accompanied by a steering group at the SNSF consisting of:

- Prof. Dr. Matthias Egger, President of the National Research Council
- Prof. Dr. Uschi Backes-Gellner, Member of the National Research Council
- Prof. Dr. Stuart Lane, Member of the National Research Council
- Dr. Marcel Kullin, Head of Careers Division
- Dr. Katrin Milzow, Head of Strategy Support
- Dr. Simona Isler, Head of Gender Equality
- Stéphanie Würth MA, Strategy Support
- Rachel Heyard PhD, Data Management and Analysis
- With advisory vote: Prof. Dr. Ben Jann, Member of the National Research Council
- With advisory vote: Prof. Dr. Michèle Amacker, President of the Gender Equality Commission

## 8 Contact

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## 9 Citation suggestion

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