

# Swiss National Science Foundation Career Tracker Cohorts (CTC)

Report 2019

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## Summary

The SNSF Career Tracker Cohorts (CTC) study tracks the careers of applicants for the postdoctoral career funding schemes of the Swiss National Science Foundation (SNSF). These include Early Postdoc.Mobility, Postdoc.Mobility, Ambizione, PRIMA, and Eccellenza. The aim of the CTC study is to gain a better understanding of the researchers' career paths and of the career impact that is attributable to the SNSF career funding schemes. The results will also serve as a basis for the future development of career funding policies and schemes at the SNSF.

The CTC project is designed as a panel study with yearly cohorts. Every new cohort starts with a base survey shortly after the application deadline. Subsequently, the participants are invited to take part in a monitoring survey every year, in order to follow-up on their professional and personal life situations.

This report describes the state of the project and presents results from the CTC-18 cohort – the very first cohort of the CTC project. This initial cohort is limited to the applicants for Early Postdoc.Mobility and Postdoc.Mobility of fall 2018. In total, 408 applicants participated in the survey (response rate: 91%). The gender ratio among the participants is 62% male versus 38% female, and the mean age is 32 years.

Some of the main research questions of the CTC are: In what ways do the career paths of SNSF grantees and non-grantees differ and what is the impact of SNSF career funding on careers both in and outside of academia? How large is the gender gap in academic careers, how does it change over time, and what gender-specific challenges are there in the career development of young researchers? How high is the retention rate in academic science and how does it depend on various factors? What are the reasons for leaving academia? However, most of these research questions can only be answered once data from multiple panel waves are available. In the current report, we therefore focus on a brief description of the survey participants' employment situation, funding success, the career aspirations of the survey participants, and their family situations.

Regarding the employment situation of the survey participants, 81% of them were gainfully employed at the time of the base survey (i.e., shortly after their application). Among the employed participants, 97% had a job involving academic research. On average, they spent 81% of their total academic work time on research, 12% on teaching, and 7% on administrative or other duties.

As for funding success, the results show a relation of success to age, employment status, and the distinction of the PhD: younger applicants, those who were gainfully employed at the time of the survey, and those who had won a prize or award for their PhD were more likely to receive a positive funding decision.

The participants' career aspirations reveal significant gender differences when it comes to the professional positions that they aspire to. Thus, men more often aspire to a professorship whereas women more often aspire to another leading research position. In terms of their work values, however, both women and men seem to place more emphasis on intrinsic aspects, such as putting their own ideas into practice, than on extrinsic aspects, such as working at a prestigious institution.

One fifth of the survey participants reported having one or more children. At the time of the survey, half of these children were two years old or younger. Childcare is organized differently by the survey participants. Fifty-seven percent indicated that they share this responsibility equally with their partner. In those cases where mostly or solely one person takes over childcare, however, it is usually the woman. The survey participants reported a rather high satisfaction with their life in general and with their work-life balance, although, as far as the latter is concerned, women were significantly less satisfied than men.

In the future, with more cohorts and more SNSF funding schemes included in the CTC and, in particular, with repeated surveys over time per cohort, the data will allow for the addressing of questions related to career development. Important topics that will be studied, for example, are the impact of SNSF funding schemes, retention rates in academia, and gender differences in career trajectories.

## Zusammenfassung

Die “SNSF Career Tracker Cohorts (CTC)”-Studie verfolgt die Karrieren von Bewerber\_innen für Karriereförderinstrumente des Schweizerischen Nationalfonds (SNF) ab der Postdoc-Stufe. Dazu gehören Early Postdoc.Mobility, Postdoc.Mobility, Ambizione, PRIMA und Eccellenza. Das Ziel der CTC-Studie ist es, die Karrierewege und den Einfluss der SNF-Karriereförderinstrumente auf die Karriere besser zu verstehen. Die Ergebnisse tragen zudem zur Weiterentwicklung der Förderpolitik und der Instrumente des SNF bei.

Die CTC-Studie ist als Panelstudie mit jährlichen Kohorten konzipiert. Jede neue Kohorte beginnt mit einer Base-Umfrage kurz nach Eingabetermin. Danach werden die Teilnehmenden zu jährlichen Monitoring-Umfragen eingeladen, um ihre berufliche und persönliche Situation weiterverfolgen zu können.

Der vorliegende Bericht beschreibt den Stand des Projekts und präsentiert Resultate der CTC-18-Kohorte – die allererste Kohorte des CTC-Projekts. Diese erste Kohorte umfasst nur die Bewerber\_innen für Early Postdoc.Mobility und Postdoc.Mobility vom Herbst 2018. Insgesamt haben 408 Bewerber\_innen an der Umfrage teilgenommen (Rücklaufquote: 91%). Die Geschlechterverteilung unter den Teilnehmenden beläuft sich auf 62% Männer gegenüber 38% Frauen. Das Durchschnittsalter beträgt 32 Jahre.

Wichtige Forschungsfragen der CTC-Studie sind unter anderem: Inwiefern unterscheiden sich die Karrierewege von SNF-Beitragsempfänger\_innen und Nicht-Beitragsempfänger\_innen und welchen Einfluss hat die SNF-Karriereförderung auf Karrieren sowohl innerhalb als auch ausserhalb der Wissenschaft? Wie gross ist der Gender Gap in akademischen Karrieren, wie verändert er sich mit der Zeit und welche genderspezifischen Herausforderungen gibt es in der Karriereentwicklung von jungen Forschenden? Wie hoch ist die Verbleibquote in der akademischen Wissenschaft und inwiefern hängt diese von bestimmten Faktoren ab? Was sind Gründe, die Wissenschaft zu verlassen? Die meisten dieser Fragen können allerdings erst beantwortet werden, wenn Daten von mehreren Panelwellen verfügbar sind. Im vorliegenden Bericht konzentrieren wir uns daher auf einen kurzen Beschrieb der Arbeitssituation der Umfrageteilnehmenden, den Fördererfolg, die Karriereziele der Teilnehmenden und deren Familiensituation.

Bezüglich der Arbeitssituation der Umfrageteilnehmenden zeigen die Ergebnisse, dass zum Zeitpunkt der Base-Umfrage (d.h. kurz nach der Gesuchseinreichung) 81% der Teilnehmenden arbeitstätig waren. Von den arbeitnehmenden Umfrageteilnehmer\_innen hatten 97% einen Job mit akademischer Forschungstätigkeit. Im Durchschnitt verbrachten sie 81% ihrer akademischen Arbeitszeit mit Forschung, 12% mit Lehre und 7% mit administrativen und anderen Aufgaben.

Was den Fördererfolg betrifft, zeigen die Resultate einen Zusammenhang zwischen Erfolg und Alter, Erwerbstatus sowie Doktoratsauszeichnung: Jüngere Bewerber\_innen, jene, die zum Zeitpunkt der Umfrage erwerbstätig waren, und jene, die für ihr Doktorat mit einem Preis ausgezeichnet wurden, erhielten mit grösserer Wahrscheinlichkeit einen positiven Förderentscheid.

Bei den Karrierezielen der Umfrageteilnehmenden zeigen sich signifikante Geschlechterunterschiede bezüglich der angestrebten beruflichen Positionen. Männer streben häufiger nach

einer Professur, während Frauen häufiger eine andere leitende Forschungsstelle anstreben. Was die Arbeitswerte betrifft, so legen sowohl Männer als auch Frauen mehr Wert auf intrinsische Aspekte, wie die Umsetzung eigener Ideen in die Praxis, als auf extrinsische Aspekte, wie für eine prestigeträchtige Organisation zu arbeiten.

Ein Fünftel der Umfrageteilnehmenden gab an, ein oder mehr Kinder zu haben. Zum Zeitpunkt der Umfrage war die Hälfte dieser Kinder zwei Jahre alt oder jünger. Die Umfrageteilnehmenden organisieren die Kinderbetreuung auf unterschiedliche Weise. 57% gaben an, dass sie die Verantwortung für Kinderbetreuung zu gleichen Teilen mit dem Partner oder der Partnerin teilen. In Fällen, in denen hauptsächlich oder ausschliesslich eine Person die Kinderbetreuung übernimmt, ist dies jedoch meistens die Frau. Die Umfrageteilnehmenden gaben eine relativ hohe Zufriedenheit mit ihrem Leben allgemein aber auch mit ihrer Work-Life-Balance an, wobei Frauen mit letzterer signifikant weniger zufrieden waren als Männer.

In Zukunft, wenn weitere Kohorten und SNF-Karriereförderinstrumente in die CTC-Studie aufgenommen worden sind und insbesondere wiederholte Umfragen innerhalb der Kohorten vorliegen, werden die Daten auch die Untersuchung von Fragen zum Karriereverlauf ermöglichen. Wichtige Themen, die dabei erforscht werden sollen, sind beispielsweise der Einfluss der SNF-Karriereförderinstrumente, Verbleibquoten in der Wissenschaft und Geschlechterunterschiede in beruflichen Laufbahnen.

## Résumé

L'étude « Career Tracker Cohorts (CTC) » du Fonds national suisse (FNS) suit la carrière des candidat-e-s aux instruments d'encouragement de carrière du FNS à partir du niveau postdoctoral. Font partie de ces instruments Early Postdoc.Mobility, Postdoc.Mobility, Ambizione, PRIMA et Eccellenza. L'objectif de l'étude CTC est de mieux comprendre les parcours professionnels des chercheuses et chercheurs ainsi que les répercussions des instruments d'encouragement de carrière du FNS sur leur carrière. Par ailleurs, les résultats contribueront au développement à venir de la politique et des instruments d'encouragement de carrière du FNS.

Le projet CTC est conçu comme étude-panel avec des cohortes annuelles. Chaque nouvelle cohorte débute avec une enquête de base peu après la date limite de soumission des requêtes. Par la suite, les participant-e-s sont invités à prendre part chaque année à une enquête de monitoring, afin de suivre leur situation professionnelle et personnelle.

Le présent rapport décrit l'état du projet et présente les résultats de la cohorte CTC-18 – la toute première cohorte du projet CTC. Cette cohorte initiale est limitée aux candidat-e-s au Early Postdoc.Mobility et au Postdoc.Mobility de l'automne 2018. Au total, 408 candidat-e-s ont participé à l'enquête (taux de réponse : 91 %). La répartition des sexes parmi les participant-e-s est de 62 % d'hommes versus 38 % de femmes, et la moyenne d'âge est de 32 ans.

Parmi les questions de recherche importantes de l'étude CTC, citons : de quelle façon les trajectoires professionnelles diffèrent-elles entre les bénéficiaires et les non-bénéficiaires de subsides du FNS et quel est l'impact de l'encouragement de carrière du FNS sur les carrières aussi bien au sein qu'en dehors du milieu universitaire ? Quelle est l'étendue de l'écart entre les sexes dans les carrières académiques, comment celui-ci évolue-t-il avec le temps, et quels défis spécifiques aux genres existe-t-il dans l'évolution de carrière des jeunes scientifiques ? Quel est le taux de prise d'un emploi dans la science académique et dans quelle mesure dépend-il de divers facteurs ? Quelles sont les raisons qui motivent les chercheurs et les chercheuses à quitter le monde académique ? Il est toutefois possible de répondre à la plupart de ces questions de recherche uniquement lorsque les données de multiples vagues du panel sont disponibles. Le présent rapport se concentre sur une brève description de la situation professionnelle des participant-e-s à l'enquête, du succès de financement, des objectifs de carrière des participant-e-s et de leur situation familiale.

En ce qui concerne la situation professionnelle des participant-e-s à l'enquête, 81 % d'entre eux/elles exercent un emploi rémunéré au moment de l'enquête de base (c'est-à-dire peu de temps après leur soumission de requête). Parmi les participant-e-s salariés, 97 % avaient un emploi impliquant une activité de recherche académique. En moyenne, ils/elles ont investi 81 % de leur temps de travail académique total dans la recherche, 12 % dans l'enseignement et 7 % dans des tâches administratives ou autres.

En ce qui concerne le succès de financement, les résultats établissent un lien entre le succès et l'âge, le statut professionnel et la distinction relative au doctorat : les jeunes candidat-e-s, ceux qui exerçaient un emploi rémunéré au moment de l'enquête, et ceux qui ont gagné un prix

ou une récompense pour leur doctorat ont reçu une décision de financement positive avec une plus grande probabilité.

Les objectifs de carrière des participant·e·s révèlent des différences significatives de genre en ce qui concerne les positions professionnelles visées. Ainsi, les hommes visent plus souvent une chaire, alors que les femmes aspirent plus fréquemment à une autre position dirigeante dans la recherche. Toutefois, en ce qui concerne les valeurs de travail, tant les femmes que les hommes semblent mettre davantage l'accent sur les aspects intrinsèques, tels que mettre en œuvre leurs propres idées en pratique, plutôt que sur les aspects extrinsèques, tels que travailler dans une institution prestigieuse.

Un cinquième des participant·e·s à l'enquête ont mentionné être parents d'un ou de plusieurs enfants. Au moment de l'enquête, la moitié de ces enfants étaient âgés de deux ans ou moins. Les participant·e·s à l'enquête ont organisé différemment la garde de leurs enfants. 57 % ont indiqué qu'ils/elles partagent cette responsabilité de manière égale avec leur conjoint·e. Cependant, là où un des deux conjoints prend essentiellement ou exclusivement en charge la garde des enfants, il s'agit habituellement de la femme. Les participant·e·s à l'enquête ont indiqué une satisfaction relativement élevée avec leur vie en général, mais aussi avec leur équilibre entre vie professionnelle et vie privée, bien que, en ce qui concerne ce dernier point, les femmes étaient significativement moins satisfaites que les hommes.

À l'avenir, si d'autres cohortes et d'autres instruments d'encouragement de carrière du FNS sont pris en compte dans l'étude CTC et, notamment, des enquêtes répétées par cohorte, les données permettront également l'analyse de questions relatives au déroulement de carrière. Les thèmes importants qui seront étudiés à cet égard sont, par exemple, l'impact des instruments d'encouragement de la carrière du FNS, les taux de prise d'un emploi dans le monde académique et les différences de genre en matière de parcours professionnels.

## Riassunto

Lo studio “SNSF Career Tracker Cohorts (CTC)” monitora le carriere dei/delle richiedenti di strumenti di promozione postdoc del Fondo nazionale svizzero (FNS). Questi includono Early Postdoc.Mobility, Postdoc.Mobility, Ambizione, PRIMA ed Eccellenza. Lo scopo dello studio CTC è ottenere una migliore comprensione dei percorsi di carriera dei/delle ricercatori/trici e dell’impatto sulla carriera attribuibile agli strumenti di promozione della carriera erogati dal FNS. I risultati serviranno anche come base per il futuro sviluppo di politiche e strumenti di promozione della carriera in seno al FNS.

Il progetto CTC è concepito come studio di un panel con coorti annuali. Ogni nuova coorte inizia con un rilevamento di base poco dopo il termine di presentazione della domanda. In seguito, i/le partecipanti sono invitati/e a prendere parte a un rilevamento di monitoraggio effettuato a cadenza annuale al fine di monitorare le loro situazioni di vita professionale e personale.

La presente relazione descrive lo stato del progetto e presenta i risultati della coorte CTC-18 – la primissima coorte del progetto CTC. Questa coorte iniziale è limitata ai/delle richiedenti degli strumenti Early Postdoc.Mobility e Postdoc.Mobility dell’autunno 2018. In totale, 408 richiedenti hanno partecipato al rilevamento (tasso di risposta: 91%). Il rapporto di genere tra i/le partecipanti è 62% maschi e 38% femmine, con un’età media di 32 anni.

Alcuni dei principali quesiti di ricerca dello studio CTC sono: In che modo differiscono i percorsi di carriera dei beneficiari e non beneficiari di un sussidio FNS e qual è l’impatto della promozione della carriera attraverso il FNS sulle carriere a livello accademico e non? Quanto è ampio il divario di genere nelle carriere accademiche, come cambia nel corso del tempo e quali sono le sfide specifiche di genere che si presentano nell’evoluzione della carriera dei giovani ricercatori e ricercatrici? Quanto è elevato il tasso di fidelizzazione nelle scienze accademiche e in che modo dipende da vari fattori? Quali sono i motivi per cui si abbandona il percorso accademico? Alla maggior parte dei quesiti di ricerca sarà però possibile rispondere soltanto quando saranno disponibili i dati di più ondate di panel. Nella relazione attuale ci concentriamo pertanto su una breve descrizione della situazione occupazionale dei/delle partecipanti all’epoca del rilevamento, sull’efficacia degli strumenti di promozione, sulle aspirazioni di carriera dei/delle partecipanti e sulle loro situazioni familiari.

Per quanto riguarda la situazione occupazionale dei/delle partecipanti al rilevamento, alla data del rilevamento di base (ossia poco dopo la presentazione della domanda) l’81% svolgeva un’attività subordinata retribuita. Tra i/le partecipanti con rapporto di lavoro subordinato, il 97% svolgeva un’attività collegata alla ricerca accademica. In media, il tempo totale riservato all’attività accademica era dedicato per l’81% alla ricerca, per il 12% all’insegnamento e per il 7% a incombenze amministrative o di altro tipo.

Quanto all’efficacia degli strumenti di promozione, i risultati mostrano una relazione tra l’efficacia e l’età, lo stato occupazionale e il conferimento di onorificenze per il dottorato: i/le richiedenti più giovani, che svolgevano un’attività retribuita subordinata alla data del rilevamento e che avevano vinto un premio o un riconoscimento per il loro dottorato avevano maggiori probabilità di ricevere una decisione positiva sulla concessione dello strumento di promozione.

Le aspirazioni di carriera dei/delle partecipanti evidenziano notevoli differenze di genere riguardo alle posizioni professionali a cui ambiscono. Gli uomini, infatti, aspirano maggiormente a un ruolo di professore, mentre le donne puntano più spesso a una diversa posizione di leadership nella ricerca. Per quanto riguarda i valori associati al lavoro, però, sia maschi che femmine sembrano porre maggiormente l'accento su aspetti intrinseci, come per esempio mettere in pratica le loro idee, piuttosto che su aspetti estrinseci come lavorare presso un'istituzione prestigiosa.

Un quinto dei/delle partecipanti al rilevamento ha dichiarato di avere uno o più figli. Alla data del rilevamento, metà di questi aveva al massimo due anni. La cura dei figli è organizzata in vario modo. Il 57% dei/delle partecipanti ha indicato di condividere la responsabilità in egual misura con il partner. Nei casi in cui la cura dei figli è affidata prevalentemente o esclusivamente a una sola persona, questa è solitamente la donna. I/Le partecipanti al rilevamento hanno espresso un grado di soddisfazione piuttosto elevato nei confronti della loro vita in generale e del loro equilibrio tra vita lavorativa e privata; tuttavia, per quanto riguarda questo secondo aspetto, le donne sono risultate decisamente meno soddisfatte degli uomini.

In futuro, grazie all'inclusione di più coorti e più strumenti di promozione del FNS nel CTC e, in particolare, grazie a rilevamenti ripetuti nel tempo e differenziati per coorti, i dati raccolti consentiranno di affrontare questioni legate all'evoluzione della carriera. Tra gli argomenti importanti che saranno oggetto di studio rientrano per esempio l'impatto degli strumenti di promozione del FNS, i tassi di fidelizzazione in ambito accademico e le differenze di genere nei percorsi di carriera.

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# 1 Introduction

Mandated by the Federal Government, the Swiss National Science Foundation (SNSF) supports basic science in all academic disciplines and by means of different funding schemes. A key objective is the improvement of the career prospects of promising young researchers. In fact, the SNSF invests over 20% of its funds in career funding schemes, which target outstanding young 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), tracking the career paths of applicants for SNSF career funding schemes at the postdoctoral level. This includes Early Postdoc.Mobility, Postdoc.Mobility, Ambizione, Eccellenza, and PRIMA. With this panel study, the SNSF intends to gain a better understanding of the careers of postdoctoral researchers and of the impact of the SNSF 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 an independent project team at the University of Bern with the development of the study design and the implementation of the CTC study. The team is comprised of members of the Institute of Sociology and the Interdisciplinary Centre for Gender Studies.

The CTC report informs on the current state of the study and presents selected results every year. The report does not give a full account of all topics investigated in the survey. Rather, it highlights particular themes every year, depending on the status of the study. The current report focuses on the survey participants' employment and personal life situations, and on their career motives (see research questions 1 and 2 in Section 2).

## 2 Aims of the CTC

The main goal of the CTC is to analyze the career paths of young researchers who apply for the postdoctoral SNSF career funding schemes, and to assess the degree to which the SNSF funding schemes have an effect on career development. The career paths of the applicants are mapped with regard to employment status and conditions. Moreover, the study compares grantees with non-grantees in terms of their academic achievement, aspirations, and the continuance of their academic careers. The study also compares the career paths of male and female researchers.

The results of the study serve as a basis for the further development of individual funding schemes and funding policies at the SNSF. Furthermore, the data gained from the CTC are a valuable source for research on working conditions as well as career motives and perspectives of young researchers.

Some of the research questions addressed by the CTC study are as follows:

1. What do the employment situation and the family/personal life situation of young researchers look like and how do they change over time?
2. What are the career motives of young researchers applying for the SNSF funding schemes?

3. In what ways do the career paths of SNSF grantees and non-grantees differ?
4. What is the impact of SNSF career funding on careers both in and outside of academia?
5. How large is the gender gap in academic careers, and how does it change over time?
6. What gender-specific challenges are there in the career development of young researchers?
7. How high is the retention rate in academic science and how does the rate depend on personal characteristics (e.g., gender, age, family status), discipline, type of grant, etc.?
8. What are researchers' reasons for leaving academia?

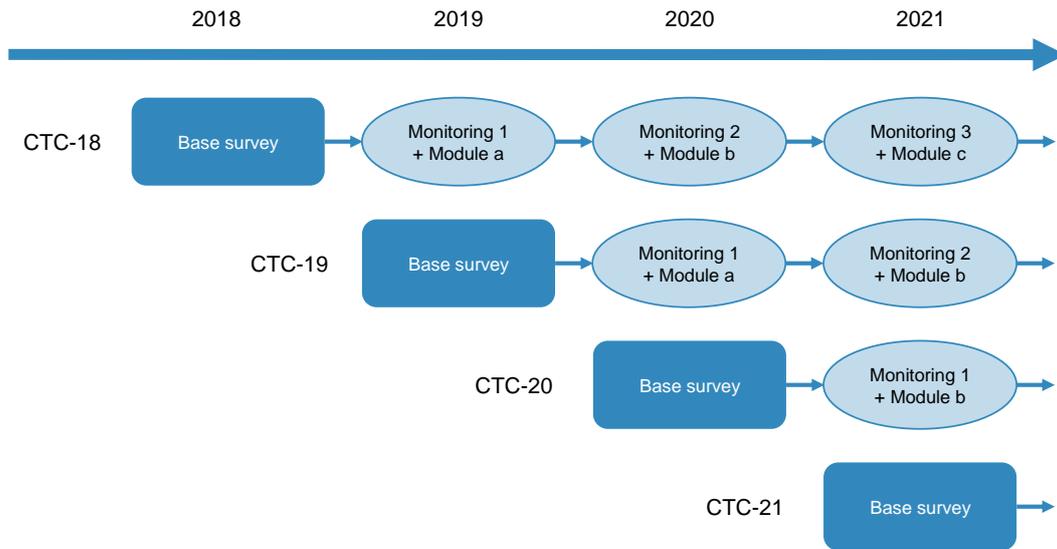
### **3 Method**

The study population of the CTC comprises all applicants for the postdoctoral career funding schemes of the SNSF, namely Early Postdoc.Mobility, Postdoc.Mobility, Ambizione, Eccellenza, and PRIMA. Every year, a new cohort is launched, and every cohort (e.g., CTC-18, CTC-19) includes all the applicants for the postdoctoral funding schemes that are being evaluated in that calendar year. Thus, a cohort comprises the applicants for Ambizione and PRIMA (application deadline: November 1, of preceding year), the applicants for Eccellenza (application deadline: February 1, of current year), for Early Postdoc.Mobility (application deadline: March 1 and September 1, of current year), and for Postdoc.Mobility (application deadline: February 1 and August 1, of current year). In each cohort, all the grantees (i.e., the applicants whose application was successful) as well as all the non-grantees are included in the study. The study started with the CTC-18 cohort in fall 2018. This cohort consists only of applicants who applied for Early Postdoc.Mobility and Postdoc.Mobility in fall 2018.

Every new cohort starts with a base survey (see Figure 1), inquiring about applicant's current and previous (academic) employment situations, the doctorate, career prospects and aspirations, as well as family and personal life situations. This base survey is timed to 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 time between the application deadline and the notification of the funding decision. The evaluation of the applications by the SNSF is completely independent from the CTC study. The SNSF administration and other actors involved in the evaluation process do not have access to CTC data. This ensures that survey participation has no bearing on the funding decision.

Subsequently, the survey participants receive a yearly monitoring survey, following up on their employment situation, their continuance in academia, academic mobility and research productivity, as well as their family and personal life situations. Moreover, every monitoring survey incorporates a thematic module on one specific aspect related to research careers (e.g., mentoring, networking, dual career couples). These modules are administered for all cohorts

Figure 1: Design of the CTC



in the same year, except for the CTC-18 cohort, which serves to test the modules one year in advance.

## 4 State of the project

After the elaboration of the study design and the development of a first draft of the base questionnaire during the planning phase (October 2017 to April 2018), the CTC project officially started in May 2018. As a first step, the base questionnaire was revised and ported to an online survey system. Subsequently, a series of cognitive pretests was conducted to improve the questionnaire. The participants in these pretests were researchers who applied for SNSF career funding in earlier years; they were chosen in a way such that they differed in selected characteristics, such as gender, funding scheme, and discipline. After each round of pretests, the questionnaire was revised to remedy detected shortcomings. Once the pretests and revisions were complete, and before going into the field with the first survey wave of the CTC study in fall 2018, the study design was approved by the ethics committee of the Faculty of Business, Economics and Social Sciences of the University of Bern. A project homepage (<http://careertrackercohorts.ch/>) providing information for CTC participants and other interested people was set up, and invitation and reminder emails for the survey were prepared. During the field phase of the survey, several waves of reminder emails were sent to late respondents, and questions from study participants were handled. After the end of the field phase, the survey responses were cleaned and edited, augmented with data from the administrative records of the SNSF, and formatted for data analyses. At the same time, documentation of the survey and the data was produced. For the base surveys in spring and fall 2019, similar procedures were repeated. Furthermore, substantial efforts were spent on developing and pretesting the

monitoring questionnaire first fielded in fall 2019. An overview of the launched cohorts and the surveys carried out to date is provided in Table 1.

Table 1: Overview of cohorts and surveys hitherto

Cohort	Time point	Type of survey
CTC-18	2018, October	Base
	2019, October	Monitoring 1
CTC-19	2019, March/April	Base
	2019, September/October	Base

Detailed information on the survey preparation and implementation, and on the resulting data for the CTC-18 base survey is provided in Jann et al. (2019). Among other things, the documentation contains a codebook of the data including frequency counts, screenshots of the online questionnaire, and facsimiles of other survey materials. Documentation for the CTC-19 base survey and the first CTC-18 monitoring survey is expected in summer 2020. In spring 2020, a third cohort (CTC-20) will be launched, and the first monitoring surveys will be conducted with the members of the CTC-19.

## 5 Data used for this report

The results presented in this report are based on data from the base survey of the CTC-18 cohort, which was augmented with data from the administrative records of the SNSF. These data are available in anonymized format and documented in Jann et al. (2019). The study population of the CTC-18 cohort covers only applicants for Early Postdoc.Mobility and Postdoc.Mobility at the fall deadline of these schemes. Moreover, it comprises only researchers whose submitted documents passed the formal examination, whose application was not a follow-up submission to an earlier application, who did not withdraw their application before September 22, 2018, and who did not reject the data transfer from the SNSF to the CTC project team (for more information, see Jann et al. 2019). Thus, the cohort does not include all people who initially submitted an application and its composition may differ slightly from administrative figures published by the SNSF. Applicants are included in the study irrespective of whether their applications turned out to be successful or not. Researchers who applied to other career funding schemes are not included in this cohort.

The study population of the CTC-18 cohort comprises 450 applicants, of which 408 (91%) completed the base survey. The survey is considered to be complete if at least 70% of the applicable questions have been answered (for more information on data quality see Jann et al. 2019). For the subsequent analyses concerning the survey participants, we will use only data from respondents who have completed the survey.

For a comparison of the survey participants and the study population see Table 2. The mean age of the survey participants was 32 years, with a range from 25 to 47. The gender ratio among

the survey participants was 62% male versus 38% female. About two thirds (68%) of the survey participants applied for Early Postdoc.Mobility and one third (32%) for Postdoc.Mobility. Forty-one percent of the participants applied in the field of mathematics, natural and engineering sciences, 34% in biology and medicine, and 26% in the humanities and social sciences. At the time of the application, 69% of the participants were employed at a research institution in Switzerland and 26% worked at a foreign research institution.

Table 2: Characteristics of study population and survey participants

		Study population ( <i>N</i> = 450)	Survey participants ( <i>N</i> = 408)
Age	Mean	31.7	31.6
	Minimum	25	25
	Maximum	47	47
Gender	Men	62.2%	62.3%
	Women	37.8%	37.8%
Funding scheme	Early Postdoc.Mobility	68.4%	67.9%
	Postdoc.Mobility	31.6%	32.1%
Research domain	Humanities and social sciences	26.7%	25.5%
	Mathematics, natural and eng. sciences	40.7%	40.7%
	Biology and medicine	32.7%	33.8%
Research institution (time of application)	Swiss	70.4%	69.4%
	Foreign	24.7%	25.7%
	Unknown	4.9%	4.9%

As illustrated in Table 2, there seem only to be very minor differences between the study population and the survey participants, which is not surprising given the high response rate (91%). To further examine potential selectivity of the survey participants, Table 3 displays results from a logistic regression of survey participation on various background characteristics. For all examined characteristics (age, gender, funding scheme, research domain, and place of research institution), no substantial relations can be found. Moreover, the likelihood-ratio test of the model is not significant ( $p = 0.340$ ). Thus, sample selectivity with respect to these characteristics does not seem to be an issue.

Table 3: Logistic regression of survey participation on background characteristics

	Coef.	<i>t</i> value	AME
Age (centered)	-0.247	-1.45	-0.020
Gender (ref.: men)			
Women	0.094	0.27	0.008
Funding scheme (ref.: Early Postdoc.Mobility)			
Postdoc.Mobility	0.100	0.24	0.008
Research domain (ref.: humanities and social sciences)			
Mathematics, natural- and engineering sciences	0.137	0.33	0.013
Biology and medicine	0.622	1.36	0.049
Research institution (time of application, ref.: Swiss)			
Foreign	0.591	1.17	0.044
Unknown	0.371	0.48	0.030
Constant	1.872***	5.40	
McFadden $R^2$	0.028		
LR $\chi^2$ ( <i>p</i> value)	7.918	(0.340)	
<i>N</i>	450		

AME = Average marginal effect. Respondents who broke off the survey are counted as non-participants.

+  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Finally, we analyzed the relation between survey participation and funding success. Applicants who participated in the survey were somewhat more successful in gaining approval from the SNSF than non-participants (55% vs. 43%). Statistically, however, there is no significant relation between survey participation and funding success ( $p = 0.228$ , withdrawn applications excluded).

## 6 Results

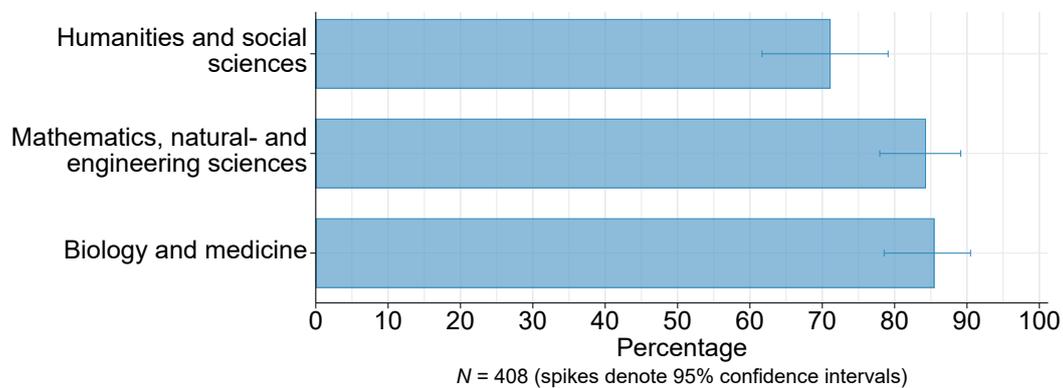
In the following, we present findings on the applicants' situations at the time of the base survey, which coincides with the time just after the application. In particular, we analyze the employment situation, funding status, and career aspirations of the survey participants, as well as their family and personal life situations.

## 6.1 Employment situation in and outside of academia

### 6.1.1 Employment rates

At the time of the application, 81% of the survey participants were engaged in paid employment and 19% were not. Figure 2<sup>1</sup> shows that there are differences in employment rates by research domain. The employment rate among the applicants in biology and medicine (86%) and among applicants in mathematics and the natural and engineering sciences (84%) is significantly higher ( $p = 0.006$  and  $p = 0.010$ ) than the rate among applicants in the humanities and social sciences (71%).

Figure 2: Engagement in paid employment by research domain



Those without paid employment were asked about the main reasons for not being engaged in paid employment. The most frequently mentioned reasons were as follows: 45% indicated that the main reason was unemployment, 29% were not engaged in paid employment because they were transitioning between jobs, and 11% because they were pursuing further education or training.

### 6.1.2 Employment characteristics

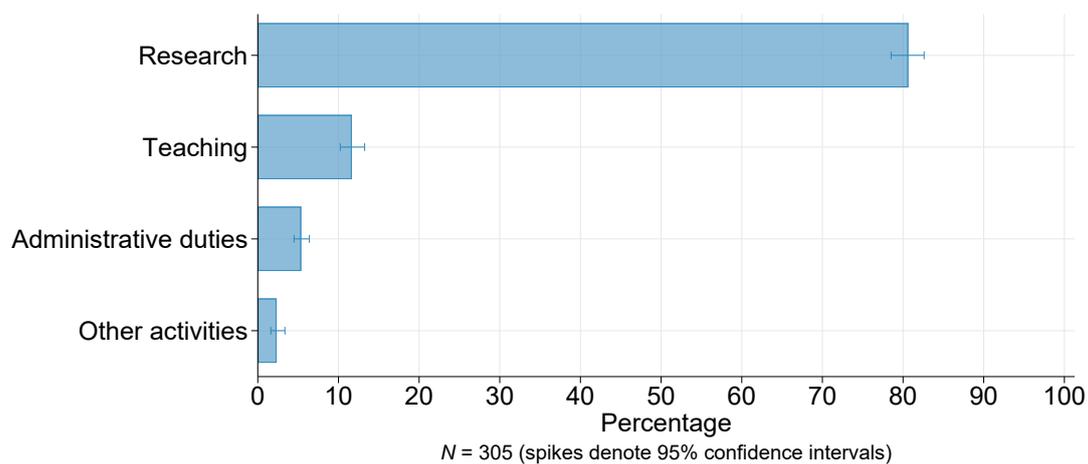
At the time of the base survey, 64% of the participants engaged in paid employment worked in Switzerland and 36% worked in other countries. Furthermore, 95% were employed and 5% were self-employed. The majority of the survey participants who were employees worked in the public sector (88%). Just 11% worked in the private non-profit sector and 1% in the private for-profit sector. Almost all survey participants who were employees at the time of the base survey reported that they had a fixed-term contract with their employer (96%). Accordingly, only 4% had a permanent contract.

<sup>1</sup>In Figure 2 and subsequent figures, the confidence intervals for proportions have been computed using a logit-transformation. This ensures that the limits of the confidence intervals are within 0 and 100 percent in all cases.

### 6.1.3 Employment including academic research

Furthermore, the survey participants were asked about their research activity. Almost all survey participants with paid employment reported that they conducted academic research in the job they had at the time (97%). The remaining 3% did not conduct academic research (or only in a secondary job). The respondents who reported that they conducted academic research further indicated how much time they used for specific activities in their academic jobs at the time of the base survey, that is shortly after the application for an SNSF career funding scheme (see Figure 3). On average, excluding respondents with clinical duties, 81% of work time was spent on research-related activities, which include, for example, conducting research, writing papers and proposals, and attending conferences. Moreover, 12% of the time was used for teaching activities, including preparing and giving courses, as well as supervising students. Administrative duties took 5% of work time, and 2% was used for other activities.

Figure 3: Proportion of work time used for different activities in academic jobs (excluding respondents with clinical duties)



In addition, 15 survey participants also reported clinical activities. On average, these people only used 30% of their time for research and much more time for clinical activities (55%). They further used 5% of their time for teaching, 7% for administrative, and 3% for other activities.

### 6.1.4 Research institutions

More than half of the survey participants who were conducting academic research at the time of the base survey (58%) were employed at a university or (university) hospital. Moreover, 22% worked at ETHZ, EPFL, or at an ETH research institute. The remaining researchers were employed at other public or private research institutes, higher education institutions, research divisions in corporations or NGOs, or other institutions (see Table 4).

Table 4: Type of research institutions of survey participants

	<i>N</i>	Percent
University or (university) hospital	188	58.0
ETHZ, EPFL	70	21.6
ETH research institute (PSI, WSL, Empa, Eawag)	10	3.1
Other higher education institution (e.g., university of applied sciences, university of teacher education)	11	3.4
Other public research institute/organization	24	7.4
Private research institute/organization	15	4.6
Research division in a corporation or NGO	4	1.2
Other	2	0.6
Total	324	100

## 6.2 SNSF funding schemes and grantees

For both Early Postdoc.Mobility and Postdoc.Mobility, more than half of the survey participants received a positive funding decision. Even though the success rate was slightly higher for Postdoc.Mobility, the difference is not significant (57% vs. 54%,  $p = 0.530$ , see Figure 4).

Figure 4: Share of positive funding decisions by funding scheme

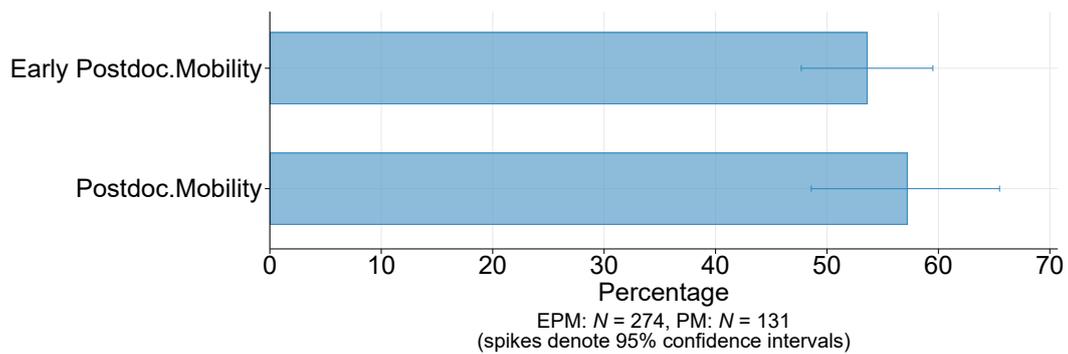


Table 5 shows the results from a logistic regression of funding success on characteristics of the respondent and the application. The coefficients capture conditional differences in success rates in relation to each variable, holding the other variables constant. As the data are non-experimental, the results have a descriptive interpretation and do not necessarily provide evidence of causal mechanisms. The main results are as follows. All other variables being equal, funding success is strongly related to age, with applications from older candidates being less likely to get approval ( $p = 0.002$ ; the average marginal effect is minus 3 percentage

points per age year). Furthermore, approval is strongly related to employment status, with non-employed applicants being 21 percentage points less likely to be funded than those who were employed at the time of the survey ( $p = 0.001$ ). The model also indicates that candidates who had won a prize or award for their PhD were much more likely to be successful in their application ( $p = 0.001$ , plus 25 percentage points).

Table 5: Logistic regression of funding success on characteristics of the respondent and the application

	Coef.	<i>t</i> value	AME
Age	-0.127**	-3.10	-0.027
Gender (ref.: men)			
Women	-0.254	-1.02	-0.040
Has child/children (ref.: no)			
Yes	-0.122	-0.34	0.005
Gender × has child/children			
Women × yes	0.380	0.65	
Aspires to a professorship (ref.: no)			
Yes	0.507 <sup>+</sup>	1.89	0.112
Commitment to science (scale 1-5)	-0.027	-0.54	-0.006
Won a PhD prize (ref.: no)			
Yes	1.225***	3.41	0.245
Currently not employed (ref.: no)			
Yes	-0.936**	-3.19	-0.210
Research institution (time of application, ref.: Swiss)			
Foreign	-0.092	-0.36	-0.020
Unknown	-1.083 <sup>+</sup>	-1.82	-0.233
Application is a resubmission (ref.: no)			
Yes	0.326	1.04	0.069
Constant	4.407**	3.13	
McFadden $R^2$	0.100		
LR $\chi^2$ ( $p$ value)	54.622	(0.000)	
$N$	397		

AME = Average marginal effect.

<sup>+</sup>  $p < 0.1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Aspiring to a professorship is only slightly related to funding success, with candidates aspiring to a professorship being somewhat more likely to receive a positive funding decision ( $p = 0.059$ , plus 11 percentage points). Moreover, there is a weak relation between funding success and the place of the research institution: people for whom the place of the research institution was unknown were somewhat less likely to get approval ( $p = 0.068$ , minus 23 per-

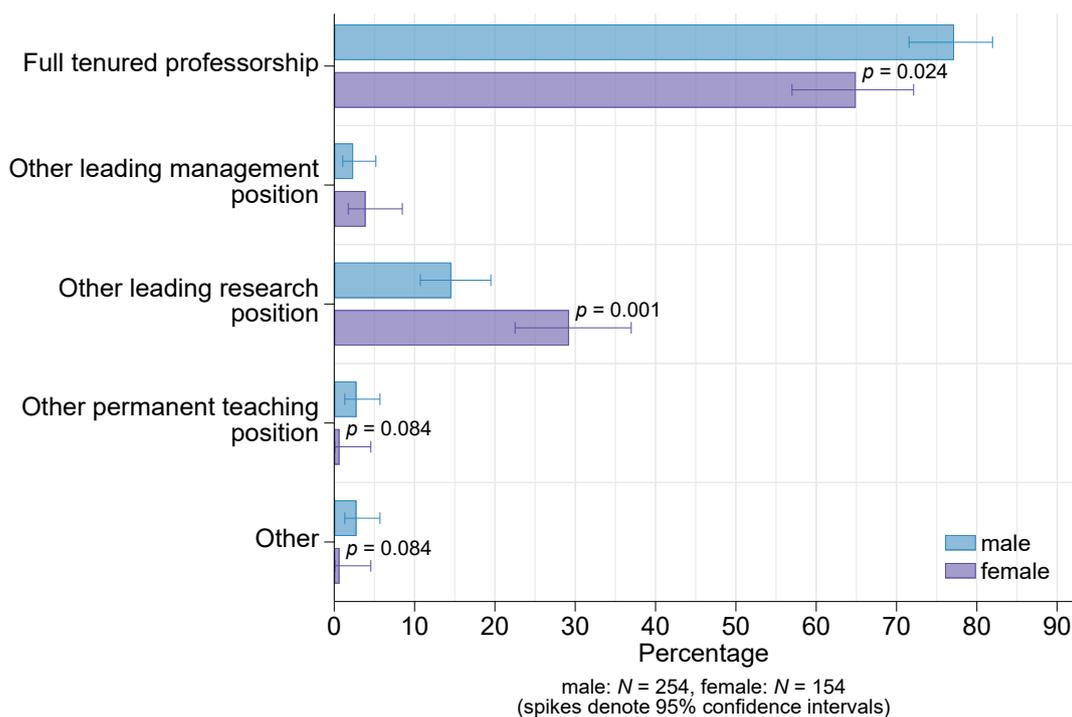
centage points). Neither gender nor having children are related to funding success. Whether candidates demonstrated a devotion to science does not seem to have made a difference. Finally, controlling for the other variables, success rates are not significantly different between original applications and resubmissions.

### 6.3 Career aspirations and work values

#### 6.3.1 Aspired positions

In the survey, the participants were asked what professional position they aspired to most for the future. The data reveal a high proportion of applicants who aspire to a professorship (73%), followed by other leading research positions (20%). Only a few participants aspired to a permanent teaching position (2%) or a leading management position other than a professorship (3%). Figure 5<sup>2</sup> shows gender differences with regard to these aspirations. Men aspire to a professorship significantly more often than women (77% vs. 65%). Women on the other hand more often aspire to another leading research position than men (29% vs. 15%).

Figure 5: Career aspirations by gender



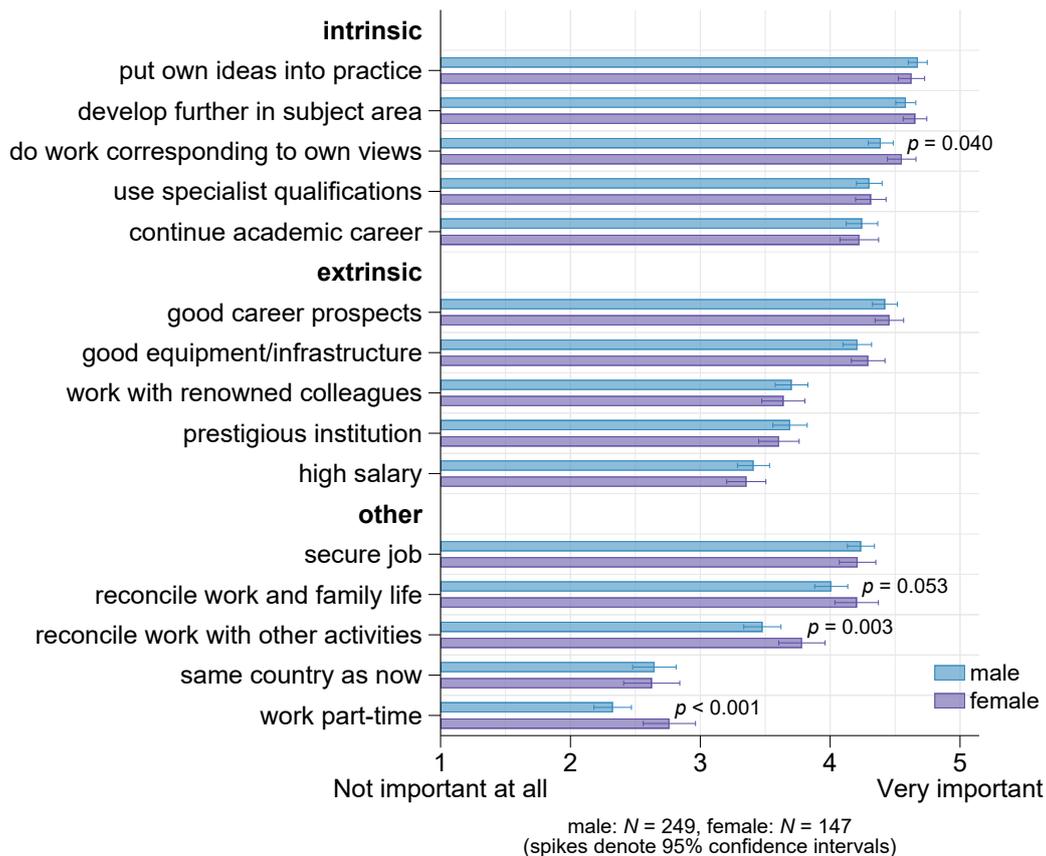
#### 6.3.2 Work values

Moreover, the survey participants were asked about the importance of various aspects with regard to their future professional career. Overall, intrinsic values, such as putting one's own

<sup>2</sup>In Figure 5 and subsequent figures, *p*-values are shown for those gender differences that are significant at the 10% or lower level.

ideas into practice and doing work that corresponds to one’s own views, appear to be more important to the applicants than extrinsic factors, such as the prestige of an institution and high salaries. Difference tests reveal gender differences for specific aspects (see Figure 6). Women place significantly more importance on having work that corresponds to their own views and convictions than men (mean = 4.6 vs. 4.4, on a scale from 1 to 5,  $p = 0.040$ ), on being able to reconcile work with family life (mean = 4.2 vs. 4.0,  $p = 0.053$ ) and other activities (mean = 3.8 vs. 3.5,  $p = 0.003$ ), and on being able to work part-time (mean = 2.8 vs. 2.3,  $p < 0.001$ ).

Figure 6: Importance of different factors for future career by gender



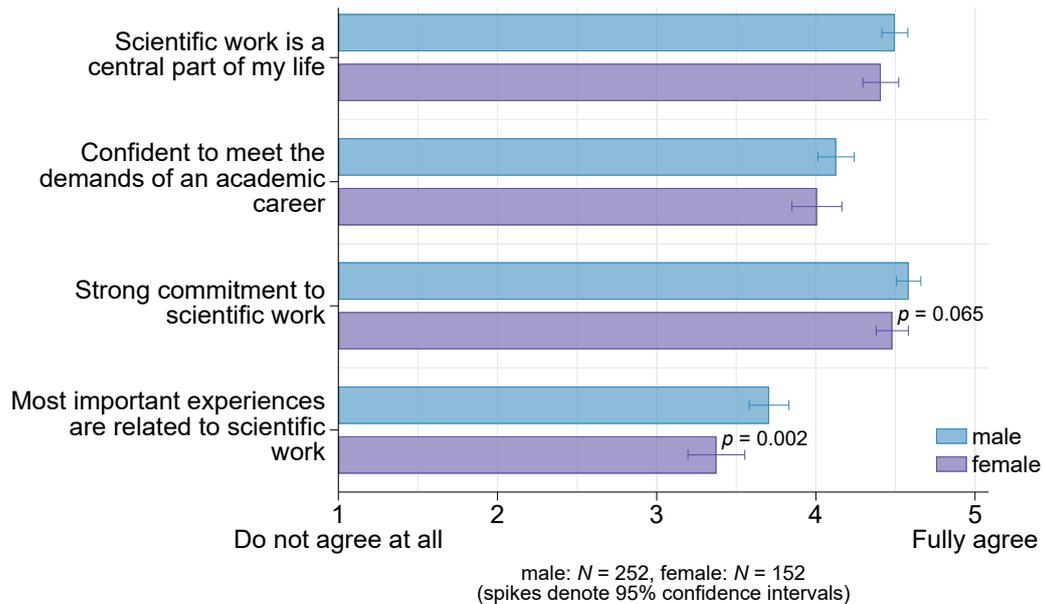
In addition, we tested differences in the importance of these aspects by funding status, based on the decision which the applicants received shortly after the survey (non-grantees:  $N = 174$ , grantees:  $N = 219$ ). Compared to the non-grantees, the grantees put less value on being able to reconcile work and family (mean = 4.0 vs. 4.2,  $p = 0.041$ ). At the same time, the grantees put more value on working with renowned colleagues (mean = 3.8 vs. 3.6,  $p = 0.060$ ). For all the other aspects there were no significant differences.

### 6.3.3 Devotion to science

Four items in the survey assessed the participants’ devotion to science (see Figure 7). On average, the survey participants strongly agree with the statement that scientific work is a central

part of their life (mean = 4.5, on a scale from 1 to 5). The survey participants are also generally confident that they are able to meet the demands of an academic career (mean = 4.1). When it comes to the commitment to scientific work, there is a significant gender difference, with men demonstrating a stronger commitment than women (mean = 4.6 vs. 4.5,  $p = 0.065$ ). Furthermore, compared to women, men agree more strongly with the statement that the most important things they experience are related to scientific work (mean = 3.7 vs. 3.4,  $p = 0.002$ ).

Figure 7: Devotion to science by gender

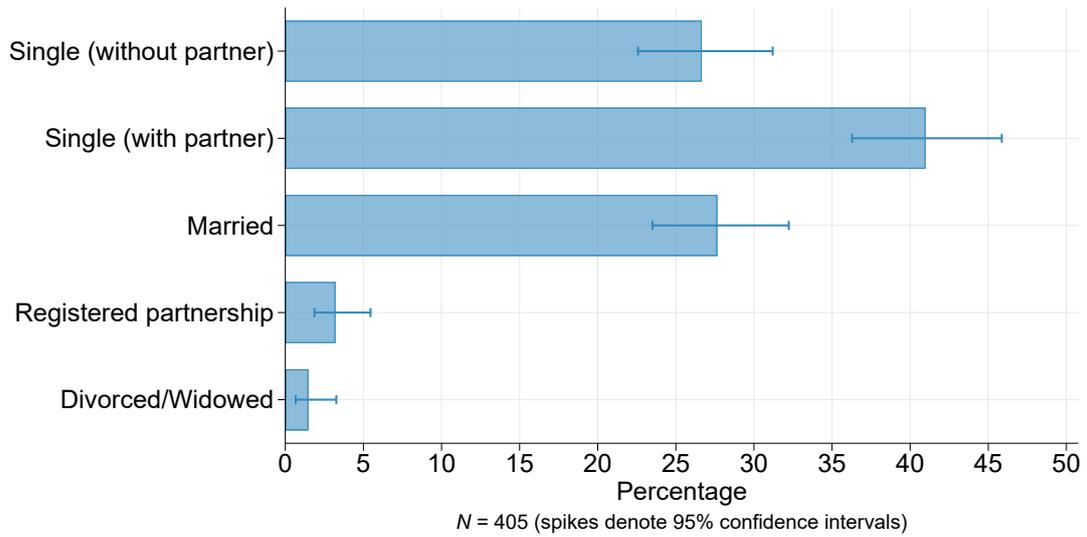


## 6.4 Family and personal life situation

### 6.4.1 Relationship and marital status

Roughly three quarters (73%) of the survey participants reported that they had a partner. Figure 8 shows the marital status of the participants. Out of all the survey participants, 68% were single (27% without a partner and 41% with a partner), 28% were married, 3% were in a registered partnership, and 1% were divorced/widowed.

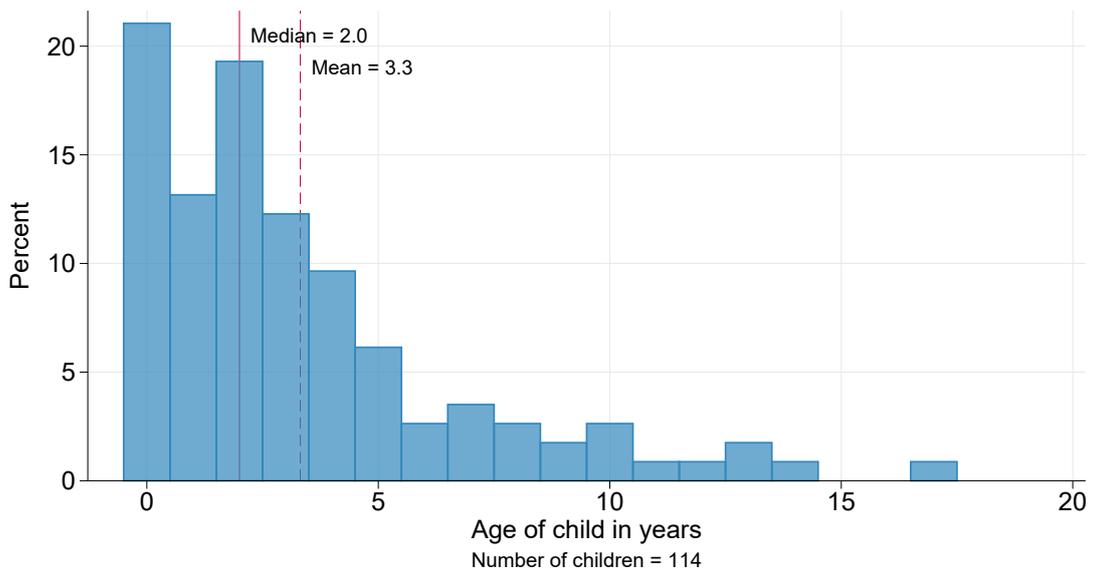
Figure 8: Marital status of the survey participants



### 6.4.2 Children

Moreover, 19% of the participants reported that they had one or more children. The analysis by marital status shows that it was mostly the married participants who had children. Of the married, 47% have one or more children. At the time of the base survey, the children of the respondents were very young (see Figure 9). Half of them were 2 years old or younger. The average age of the children was 3 years.

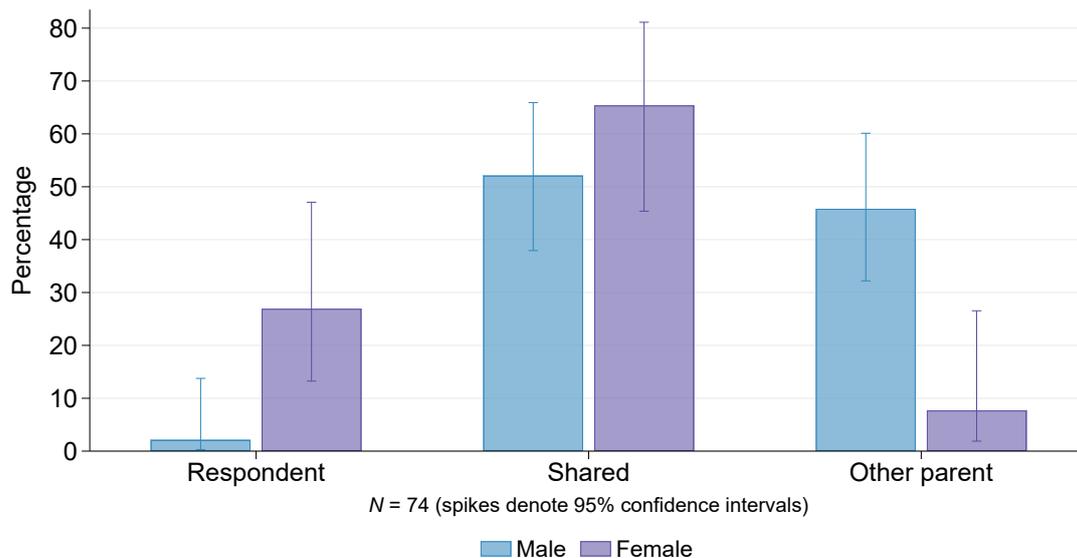
Figure 9: Age distribution of the survey participants' children



### 6.4.3 Childcare responsibility

The survey participants with children were asked how they organize childcare. More than half of the participants with children indicated that they shared the responsibility with the other parent in equal parts (57%, see Figure 10). However, the data show gender differences when one parent was mostly or solely responsible. In these cases, female participants more often reported that they themselves were responsible for childcare (27% vs. 2%) and male participants more often indicated that the other parent was mostly or solely responsible (46% vs. 8%).

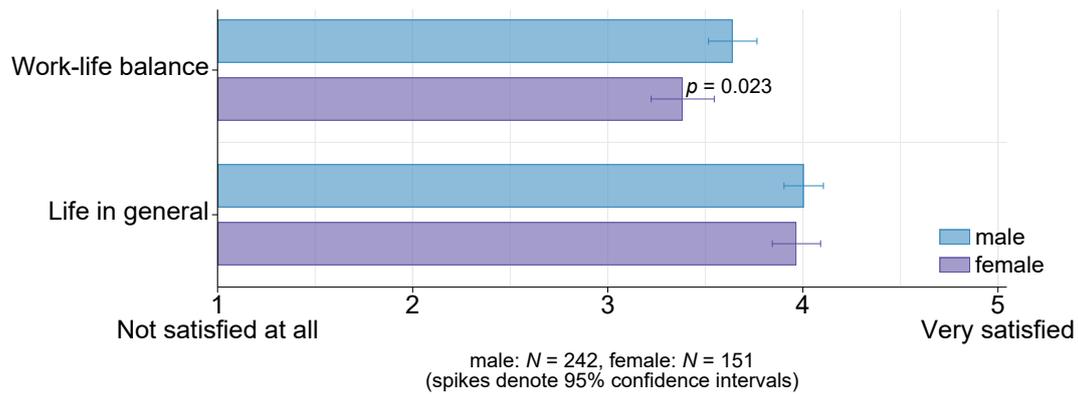
Figure 10: Distribution of childcare responsibility



### 6.4.4 Work-life balance and life satisfaction

The survey also inquired about the participants' satisfaction with their work-life balance and their life in general. The data show that, on average, the participants are somewhat more satisfied with their life in general (mean = 4.0) than with their work-life balance (mean = 3.5). Moreover, as shown in Figure 11, women indicated a significantly lower satisfaction with their work-life balance than men (mean = 3.4 vs. 3.6,  $p = 0.023$ ), while their satisfaction with life in general was about equal.

Figure 11: Satisfaction with work-life balance and life in general



## 7 Conclusion

In this report, we have described the CTC project and given an overview of its current state. The study started in fall 2018 with the base survey for the CTC-18 cohort. We have presented the first findings based on data from said cohort.

Firstly, the results cover the employment situation of the respondents at the time of the base survey. At this time, almost all survey participants were employed and almost all of them had a job involving academic research.

Secondly, the data allow for some first insights into the relation between various characteristics and funding success. In the CTC-18 cohort, younger applicants, those who were gainfully employed at the time of the survey, and those who had won a prize or award for their PhD were more likely to receive a positive funding decision. Due to the observational nature of the data, multiple interpretations of these results are possible. For example, one explanation for the higher success rate of applicants who won a PhD prize is that these applicants are particularly hard-working or talented and write better applications, on average, than others. An alternative explanation might be that having won a PhD prize serves as a signal that is taken into account by the referees in the evaluation process, when trying to identify the most promising candidates. For employment status it might be that both employment status and funding success have a common cause (e.g., talent or effort by the applicant). However, it might also be that being detached from the (academic) labor market makes it harder to write a good proposal (e.g., due to lack of scientific exchange with peers). The relation between funding success and age may be due to a selection effect in the sense that less hard-working or talented applicants need more time for each step in their career (which would lead to a negative correlation between relative age and application quality), but it might also be that young age sends a positive signal about an applicant's potential that is relevant in the evaluation process.

Thirdly, the analysis of the career motivations of the survey participants reveals that a vast majority of the applicants aspire to a professorship, but that there are important gender differences: the desire to become a professor is less pronounced among women than among men.

Finally, we have examined the family and personal life situations of the survey participants in the CTC-18 cohort. The findings show, for example, that, among those who have children, in the majority of cases responsibility for childcare is shared in equal parts by the parents, but that there are still important gender differences, with women taking on the main responsibility much more often than men.

The analyses presented in this report are restricted to base survey data from applicants for Early Postdoc.Mobility and Postdoc.Mobility. The report thus only addresses a small part of the research questions of the CTC. Once data from additional cohorts, including all postdoctoral SNSF funding schemes, as well as data that follow applicants over time, become available, more comprehensive analyses and more in-depth insights with regard to the research questions of the CTC, in particular with regard to career development, will be possible.

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