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Research note: The COVID-19 pandemic and its effects on scientific work in German sociology

Forschungsnotiz: Die COVID-19 Pandemie und ihre Auswirkungen auf wissenschaftliches Arbeiten in Deutschland

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Abstract: Since the beginning of the COVID-19 pandemic, scientific work is highly affected by the governments' measures taken to reduce the spread of the virus. With closing colleges, universities, and kindergartens, scientists had to adapt to new forms of working procedures. Immediately after the peak of the first COVID-19 wave in Germany, we surveyed in professors and postdoctoral researchers in the field of German sociology in May 2020 to investigate how their work is constrained by these measures. In this research note, we present the results of this survey. They show that the position in the sociological field as well as demographic factors affect the degree to which sociologists feel constrained in their work. Postdoctoral sociologists feel more restricted in their work than professors, and qualitatively working sociologists more restricted than quantitatively working sociologists. Moreover, being a woman and having children under the age of 14 years increases the probability that sociologists expect to research less. Our empirical results shed some light on the effect of COVID-19 measures on working routines and inequality in Higher Education during the pandemic.

Keywords: Higher Education; COVID-19; Social Inequality; Academic Labor Market; Scientific Knowledge Production.

Zusammenfassung: Seit Beginn der COVID-19-Pandemie ist auch das wissenschaftliche Arbeiten stark von den Maßnahmen zur Eindämmung der Virusverbreitung betroffen. Mit der Schließung von Universitäten und Kindergärten mussten Wissenschaftler*innen ihre Arbeitsroutinen anpassen. Direkt nach dem Höchststand der ersten COVID-19-Welle haben wir im Mai 2020 Professor*innen und Postdoktorand*innen der Soziologie in Deutschland befragt, um herauszufinden, wie stark ihre Arbeit durch die COVID-19-Maßnahmen eingeschränkt ist. In dieser Forschungsnotiz präsentieren wir die Ergebnisse unserer Umfrage. Sie zeigen, dass sowohl die Position im soziologischen Feld als auch demographische Merkmale das Ausmaß der wahrgenommenen Einschränkungen beeinflussen. Postdoktorand*innen fühlen sich stärker eingeschränkt als Professor*innen und qualitativ forschende Soziolog*innen stärker als quantitativ forschende Soziolog*innen. Darüber hinaus erwarten insbesondere Soziologinnen und Soziolog*innen mit Kindern, dass sie weniger forschen werden.

Schlüsselwörter: Wissenschaft; COVID-19; Soziale Ungleichheit; wissenschaftlicher Arbeitsmarkt; Wissensproduktion.

1 COVID-19 crisis and academia[1]

In December 2019, COVID-19 started spreading and evolved into a worldwide pandemic. Measures were put into force, which limited social contact. Scientific discussions about the right measures to be taken dominated the news for some time (Müller-Spitzer et al. 2020). In the social sciences, debates about the implications of COVID-19 measures for social issues became popular, resulting in several research projects and papers focusing on COVID-19.[2]

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2 One example is the small grant research funding of Volkswagen-Stiftung's "Corona Crisis and Beyond". According to Dr. Georg Schütte (general secretary at Volkswagen Stiftung), 1.105 project pro-

Despite a large number of publications on the impact of the pandemic, little attention has been paid to the question of how the pandemic affects the social sciences. Considering rising infection rates in Germany, the federal government, together with the states, issued a decree on March 16, 2020, to largely restrict contact. This came into force on March 22nd and had two direct consequences for higher education. First, the regulation led to a relocation of work from the office to the home office for most scientists, and second, it resulted in the relatively short-term conversion from face-to-face to digital teaching in the summer semester of 2020. Hence, scientists had to adapt quickly to new forms of knowledge production and transmission as e. g., field research, physical lectures, and seminars were not possible. Especially this first lockdown resulted in problems of scientific work as previous work routines were suddenly no longer working (see Beck 2020: 452 f.; Reichertz 2021).

To capture the perceived struggles of this first 'shock', we conducted an online survey among sociologists at German universities and research institutions in May 2020, in which we focused on three main research questions:

- To what degree do sociologists in Germany perceive that their work is constrained by the COVID-19 pandemic?
- To what degree do the structural position in the field and demographic factors affect the perceived constraints in work?
- What strategies of adapting to the situation are applied?

The survey was sent out to professors and postdoctoral researchers in the field of sociology at universities and research centers in Germany. The focus on postdocs and professors resulted from the pragmatic reason that we had collected their contact details for another survey that was originally planned but could not be conducted because of the COVID-19 pandemic at that time.

In the following, we are presenting the results of our survey in the form of a research note, which gives empirical insights into the situation faced by sociologists in Germany at the very beginning of the COVID-19 pandemic in May 2020. Here, we aim to make an empirical contribution to the question of how the COVID-19 pandemic has affected inequalities and ways of working in the social sciences. In addition, our results provide a picture of the early transition phase to digital research and teaching and evidence for further studies dedicated to the question of to what extent the situation has improved over time.

In the next chapter, we will briefly contextualize our research question before elaborating on the survey in chapter 3. In chapter 4, we present the results of our survey and we discuss our findings in chapter 5.

2 The COVID-19 pandemic and its effects on productivity in academia

The pandemic hit all branches, but some sectors of the labor market and some groups were particularly affected. Studies on the short-term effects of the economic shock on social inequalities partly come to diverging results. While some authors conclude that traditional inequality structures along gender and ethnicity were reinforced (e. g., Kim et al. 2021; Kristal & Yaish 2020), Witteveen (2020) concludes for the UK that especially men and people without a migration background had a higher probability of losing their job, as they are less likely to be employed in essential occupations. The argument of increasing gender inequalities due to the COVID-19 pandemic derives primarily from unequal distributions in childcare. Kohlrausch and Zucco (2020) show that women in Germany spend much more work on family work than men and Speck (2020) shows that even if partners used to divide family work equally before the COVID-19 pandemic, it is now women who spend more time on childcare. However, having children can also prevent economic hardships during the pandemic: a study by Dias and colleagues (2020) on dismissals in the US shows that mothers are more likely of being dismissed than fathers but less likely than men without children.

The question of how the COVID-19 pandemic affects scientific knowledge production has been the subject of numerous publications internationally. Looking at the scientific output measured by paper submissions, studies suggest that these have either remained unchanged (Fox & Meyer 2020) or that the number of submissions to journals and publication of pre-prints has even increased (Bell & Fong 2020; Else 2020; Squazzoni et al. 2020). One explanation for this increase is found by Aubry and colleagues (2020) in the tendency of scientists to devote themselves to writing up previous research in light of closed laboratories.

Analyzing the average duration of peer review processes, Fox and Meyer (2020) conclude that peer reviews

posals were received by Volkswagen Stiftung and 102 projects were funded.

have been submitted quicker since COVID-19 began. Focusing on medicine, Else (2020) notes that the acceleration of review processes does not apply to all papers, but that especially those articles dealing with COVID-19 have been published faster, while the publication times for other topics have become longer. In addition, Fraser and colleagues (2021) note that there has been a particular increase in the number of non-peer reviewed preprints. Preprints allow for faster publication of results but are not subject to the typical scientific quality control of the peer review process, thus opening the question of whether the increase in the number of publications during COVID-19 was accompanied by a decline in the quality of publications (see Bauchner et al. 2020).

As for social inequalities within the academic labor market, numerous studies are devoted to the question of whether COVID-19 influenced gender inequalities (e. g., Squazzoni et al. 2020). Even before the pandemic, research has shown that women are less likely to hold tenured positions (Murgia & Poggio 2019), that they publish fewer articles on average (European Commission 2018), have fewer peer-reviewed articles in particular (Schneijderberg & Götze 2020: 25) and tend to be cited less often (Lariviere et al. 2013).[3] Analyzing submissions to the *American Journal of Political Science* (AJPS), Dolan and Lawless (2020) in contrast find no negative effect of the COVID-19 pandemic on gender inequalities. While women were (co)authors of approximately 25 % of all articles submitted during the period from January 2017 to October 2019, the proportion increased to approximately 33 % during the early COVID-19 period from March 2020 to April 2020. It is unclear, however, to what extent this increase is limited to the early COVID-19 period, as other studies suggest that later in the pandemic, women reduced their work hours more than men due to childcare (Collins et al. 2020; Myers et al. 2020). Even before the pandemic, female scientists spent more time on average on childcare and household work than male scientists did (Adams-Prassl et al. 2020; Deryugina et al. 2021; Fuchs et al. 2001; Gassmann 2018: 424), which explains much of the uneven scientific productivity by gender (Long 1990). Collins and colleagues (2020) show that in heterosexual relationships with two parents who have children up to the age of 12, women already worked on average 4.8 hours less than men in February 2020. This gender gap increased by April 2020 to 6.3 hours less as women reduced their working hours more than men. Deryugiana and colleagues (2021) show that particularly female scientists reduced their time spent on research and increased their time spent on childcare as well as teaching (see also Minello et al. 2021). In Germany, where most academic positions are based on the unity of research and teaching (Kleimann 2019; Philipps & Johannsen 2020), lecturers of all status groups have increasingly invested more time in research and less time in teaching in recent years (Jacob & Teichler 2011; Schneijderberg & Götze 2020). The sudden digitization of teaching in the wake of the COVID-19 pandemic meant that lecturers abruptly had to spend more time on teaching again to convert lectures and seminars to a digital format, resulting in a "profound professional and personal disruption" (Watermeyer et al. 2021: 637, see also Keil & Sawert 2021). In contrast to Dolan and Lawless (2020), numerous other studies conclude that the COVID-19 pandemic has led to a widening of gender disparities in scientific output as the number of articles submitted particularly by men has increased, while the increase in submissions by women as (co)authors has been smaller (Bell & Fong 2020; Else 2020; Kibbe 2020; King & Frederickson 2021; for Germany: Bünning et al. 2020). Results from Amano-Patiño and colleagues (2020) suggest that this gender effect in publication output is mainly because male scientists more often shifted their work to COVID-19 related topics, which got published quickly (see above), while female scientists continued to work on their original projects. Accordingly, the expectation could be formulated that the short-term intensification of gender inequalities will be balanced out again in the medium term, or possibly even reversed.

Our research note aims to provide an empirical contribution to the debate on the impact of the COVID-19 pandemic on scientific work, the effect on existing inequalities in academia and possible adaptation strategies. In our view, we are making three contributions here. First, previous research on this topic has not taken a deeper look at sociology as a discipline. A disciplinary focus is of theoretical relevance as (German) sociology is not a homogeneous field, but one in which researchers and lecturers hold different epistemic positions (Schmitz et al. 2020), which are associated with different work routines and challenges during the COVID-19 pandemic. As COVID-19 measures in Germany included the restriction of personal contact, conducting face-to-face interviews became difficult and sometimes impossible, leading to reflections on remote and online interview formats as a possible alternative (Gruber et al. 2021). As quantitatively working social scientists more often rely on analyzing secondary data,

3 The main reasons for lower scientific productivity are seen in smaller networks, lower scientific integration, and less support (e. g., Long 1990) as well as in nepotism (Wennerås & Wold 1997), an androcentric notion of excellence (Van den Brink & Benschop 2011), and unequal distribution of childcare responsibilities (e. g., Fuchs et al. 2001).

one could expect that their work has been less negatively affected in the short term, but discussions on data quality during the pandemic are important in this field as well (e. g. Schaurer & Weiß 2020, see also Special Issue of SRM on Research During the COVID-19 Crisis by Kohler 2020). Second, the results presented below are not based on an analysis of objective publication numbers but focus on subjective perceptions of challenges and adaptation strategies, which is lacking in the research on the influence of the pandemic on academia. Moreover, we combine closed and open-ended questions in our survey, thus allowing respondents to set their own topics. Third, we map perceived challenges at a very early stage of the COVID-19 pandemic. We assume that the challenges we found were particularly articulated at this early stage as adjustments to the new situation can be expected over time. However, without an empirical mapping of the situation in the early phase of the pandemic, an assessment of successful adaptation later in the pandemic is not possible, as a diagnosis of adaptation must be considered relative to when adaptation was low.

In the following section, we present our data and methods before presenting our results in section four. In the results section, we first present the extent to which sociologists perceive that their work has been constrained by COVID-19 measures and the reasons they give for these constraints (section 4.1). In section 4.2, we analyze the extent to which gender, having children, age and self-perceived belonging to the COVID-19 risk group influence perceptions of negative effects on scientific productivity. In section 4.3, we explore the extent to which sociologists of different epistemic orientations face different challenges and in section 4.4 we present the strategies that sociologists use to adapt to these perceived challenges.

3 Data and methods

To study the effects of the COVID-19 pandemic on sociological research, we conducted an online survey between May 6th and 18th, 2020. At most German universities, the lecture period started as planned on April 20th, 2020. Because of the COVID-19 measures, all teaching was held online. Concerning research, most universities and research centers decided to restrict access to offices either completely or partly by the mid of March 2020. Hence, the survey took place six weeks after the COVID-19 measures came into effect.

The invitation to take part in the survey was sent to 1027 professors and postdoctoral researchers in the field of sociology in Germany whose email addresses we had collected for another survey. Consequently, doctoral students are not included in our data. Since doctoral students typically must achieve qualification goals in short periods, we expect our results to be biased towards underestimating the overall negative effect of the COVID-19 measures for sociologists. Of those invited, 260 completed the survey without item-nonresponse on the variables presented in the results. More information on case numbers is reported in table A1 in the online appendix. Since the respondents self-selected to participate in the survey, the descriptive results in section 4.1 are subject to high uncertainty.[4] The estimates of the (causal) effects in sections 4.2 and 4.3 can be considered more reliable as outlined by Kohler and colleagues (2019). Please note that we are aware that measuring causal effects is challenging. However, as we interpret the relationships in the analysis as e. g., working with specific methods on perceiving restrictions, we would like to make it explicit that we follow the counterfactual conception of causality here.

The survey comprises 24 closed and six open-ended questions covering three areas: research, teaching, and socio-demographics. The answers to the open-ended questions were coded into more general categories. We included three variables measuring the subjective expectation that the COVID-19 measures affect research productivity.[5] With the first question, we measure the extent to which the then-current COVID-19 measures constrain sociologists' work, and with the second question, we capture what constraints are expected if the measures remain in place for three more months. Finally, we measure the extent to which sociologists think the COVID-19 measures will affect their research output in 2020. The three variables are highly correlated with correlations between 0.7 and 0.8.

In section 4.1, we will present descriptive results for all three dependent variables (table 1). For the analyses, we dichotomized the variables and distinguish only between people who perceive (very) severe restrictions and those who perceive only moderate or no restrictions at all. Additionally, we differentiate between eight areas that might cause work restrictions: (1) increased teaching effort, (2) increased administrative work, (3) increased childcare

4 To estimate the extent of potential bias, we compared the proportion of male professors in our sample (54 %) with the proportion of male professors in sociology according to the Federal Statistical Office (57 %; 2020). However, we cannot rule out the possibility that unobserved characteristics influenced participation in the survey.

5 See the online appendix for exact formulations and univariate distributions of these items.

effort, (4) communication problems with colleagues, (5) working from home, (6) restricted literature access, (7) restricted travel opportunities, and (8) restricted data collection. All variables were measured on a 5-point scale and dichotomized for the analysis. Descriptive results for this variable will be presented in section 4.1 in table 2. Regarding restrictions in research, we included two open-ended questions: First, we asked what restrictions respondents experience, and second, we asked what strategies they apply to solve the perceived problems.

To analyze whether restrictions affected all sociologists equally, we included questions on the position in the sociological field and questions about demographic characteristics (gender, age, having children, self-perceived belonging to the COVID-19 risk group). To operationalize the epistemic position in the field, we asked the participants whether they work theoretically or empirically. If respondents indicated that they work empirically, they were asked whether they work qualitatively, quantitatively, or with both methods, whether they work primarily with primary or secondary data, and finally, whether they had planned to collect data during the last weeks. Finally, we measured the institutional position of the respondents by asking whether they had teaching responsibilities in the summer semester of 2020 and whether they were employed as a senior professor (W3/W2-contract), junior professor (W1), postdoc, or in other employment.

In tables 3 and 4 in sections 4.2 and 4.3, we present estimates of the effect of demographic characteristics and the position in the sociological field on the expectation that respondents will conduct less research in 2020. We focus on the expectation of lower research productivity, because research output is the variable typically used as an indication of the effects of the COVID-19 measures in the research presented above. The associations presented in table 3 and table 4 are estimates of the total (causal) effect. We limit ourselves to direct effects in this research note, because our goal is to present differences in affectedness, not to provide a theoretically grounded explanation of these differences. We deviate from this strategy at one point. In table 3, we present the effect of gender on the dependent variable with and without controlling for own children. We do so because unequal investment in childcare is a standard argument to explain gender inequality in the literature presented in section 2. In section 4.4 the general strategies to adapt to the current situation will be presented.

4 Results: COVID-19 pandemic and scientific work in German sociology

4.1 Perceived affectedness by COVID-19 measures among sociologists

Table 1 provides an overview of the perceived impact of COVID-19 measures on scientific productivity. Half of all respondents state that they perceive severe restrictions in their research, 56 % expect that these restrictions will prolong as COVID-19 measures continue. Hence, sociologists do not expect to adapt quickly to the new working situation: 65 % agree that they will probably research less in 2020.

Table 1: Descriptive results of the perceived impact of COVID-19 measures on research among sociologists in Germany (N=260)

Item	%
COVID-19 measures are restricting my research (very) severely	50.8
If COVID-19 measures prevail the next three months, this will restrict my research (very) severely	55.8
I will research less this year because of COVID-19 measures (% agree & strongly agree)	65.0

Table 2: Reasons for restrictions in research because of COVID-19 measures (N=260)

Item	Restricting work „(very) severely“ (in %)
Working from home	43.9
Increased teaching workload (All respondents)	42.3
– *Only persons with teaching duties*	*53.1*
Increased efforts for childcare (All respondents)	33.1
– *Only persons with children*	*70.5*
Restricted data collection	32.3
Restricted travel opportunities	29.6
Increased administrative workload	26.1
Communication problems with colleagues	23.0
Restricted access to literature	22.4

Table 2 provides an overview of eight different influencing factors due to which COVID-19 measures can have a negative impact on scientific productivity. Most often, respondents agree that working from home has limited their

productivity. Although working from home is not uncommon among academics, for most of them this is more of a short-term option in general (Dobele & Veer 2019). An increased teaching load is mentioned second most often (42 %) as having a negative impact on research productivity. However, not all respondents had teaching duties in the summer term of 2020. If we restrict the analysis to sociologists with teaching responsibilities, the proportion of respondents experiencing restrictions is around 10 percentage points higher (53 %). In the answers to the open-ended questions, digital teaching was often mentioned as more time-consuming than standard teaching: not only because it is a new format, but also because the preparation for seminars and lectures is perceived to be more time consuming, which limits the research activity:

> "I have put a lot of time and effort into teaching, and I have put a very large research project on hold; I can only manage my teaching with a lot of overtime – there are no time resources left for research publications."

Furthermore, about one-third of all respondents perceive severe restrictions in data collection. In the open-ended questions, particularly ethnographic research is described as having come to a complete and sudden stop and sociologists working ethnographically are less optimistic that digitalization can solve the problem, as "*absolutely no ethnographic field research is possible*":

> "I cannot carry out the planned field trip. An ethnographic and video survey of families at home is planned. These data cannot be easily replaced by digital technologies or workarounds."

However, sociologists who work with other qualitative methods or with quantitative methods also name problems: e. g., as laboratories for conducting experiments are closed "*because [the] university has no hygiene concept for the execution and payment of the test persons*". Even if sociologists can collect their primary data, they are concerned that the data quality will be rather poor. For qualitative interviews, one frequently mentioned problem is the necessity of building trust in the interview situation to overcome strangeness and to secure the reliability of the conducted data:

> "Also, interviews are only possible by telephone, and this is problematic with unknown persons, as this leads to different and less profound results."

Sociologists who planned or conducted a quantitative survey are also concerned about data quality, especially since COVID-19 measures made a shift to an online-only mode necessary, resulting in a bias along age, for example. Additionally, interviewers can be trained less and pretest possibilities are restricted by COVID-19 measures, leading to a poorer overall quality of collected data. Finally, sociologists express concerns about whether the data collected in this specific situation is at all generalizable to topics that do not specifically have COVID-19 at their core.

> "At the moment it is hardly possible to research any other topic than Corona because Corona is overly dominant and has changed everything. Therefore, there is a minimal transferability to normal situations."

All in all, sociologists see themselves confronted with various restrictions that are especially severe if research projects have upcoming deadlines or funding schemes, or contracts expire:

> "Focus groups, face-to-face interviews, or open space workshops, which were planned [...] for the period from March to November 2020, cannot be carried out. I cannot travel to the field and exchange information with my colleagues at the other project locations in the usual way [...]. Full-time childcare and part-time working from home mean shorter nights and more stress spread throughout the day. At the same time, the project is running out of time and it is not yet decided whether my employer will extend my contract to allow me to complete the project. So more and more, I am facing that the work of the last few years will not come to a satisfactory conclusion unless I do it pro bono after my contract ends."

Other challenges that affect scientific work are restricted travel opportunities (30 %), increased administrative workload (26 %), communication problems with colleagues (23 %), and restricted access to literature (22 %). Moreover, 71 % of all respondents with children say that increased childcare efforts have a negative impact on their work productivity.

4.2 The effect of demographic factors on expected research productivity

Table 3 shows the effects of demographic factors on perceived restrictions in research. Looking at the total effect of gender on the expectation to research less in 2020, we find that female sociologists are more affected by restrictions than male sociologists: women have a 31 percentage points higher probability to expect to research less in 2020, the effect is significant at $p<0.05$. The results for other gender cannot be interpreted meaningfully as only four persons in the sample reported to have another gender. The gender effect is in line with the literature pre-

sented in section 2. To test whether increased efforts for childcare are the explanation behind the gender effect, we additionally estimated the direct effect of gender controlling for children living in the household. Our data does not support the argument that the effect of gender is explained by differences in childcare: The effect only decreases slightly to 27 percentage points when conditioning for children in the household and is still substantial and significant. This is an interesting finding as it indicates that there are additional reasons for the gender effect in productivity (cf. Jaksztat 2017). However, we would like to highlight that our dependent variable is not the realized research output, but the expected research output. While it is possible that women overestimate the negative impact on their research productivity, another explanation lies in the findings of Minello and colleagues (2021), according to which women have reduced working hours for research in favor of teaching to a greater extent than men.

Table 3: Effect of demographic variables on affectedness by COVID-19 measures (coefficients are b-coefficients of bivariate LPM, robust standard errors in brackets, N=260)

Item	Total effect	Direct effect
Gender (Reference: Men)		
– Woman	0.31* (0.06)	0.27* (0.06)
– Other	0.50* (0.04)	0.46* (0.08)
Children (Reference: No children in the household)		Controlled
– Children under 7 years in hh	0.30* (0.06)	
– Children between 7 and 14 years in hh	0.29* (0.07)	
– Children older than 14 years in hh	-0.03 (0.11)	
Age (metric)	0.00 (0.03)	
COVID-19 risk group (Reference: no)		
– Yes	-0.03 (0.08)	

* Significant at p<0.05 (two-sided test)

The effect of children living in the household varies greatly by the age of the children: Whereas sociologists with children under the age of 7 and with children between 7 and 14 years expect to be negatively affected by COVID-19 measures, having children older than 14 years does not negatively affect the expected research productivity. We do not find substantial effects for age and self-perceived belonging to the COVID-19 risk group.

4.3 The effect of the position in the German sociological field on expected research productivity

As the results in table 4 show, the degree to which restrictions in scientific production are expected depends on the position in the sociological field. Looking first at the effect of the applied research methods, we find that sociologists using quantitative methods (reference group) have the lowest probability to expect reduced research productivity, followed by theoretically working sociologists (+ 4 percentage points) and those using mixed methods (+ 5 percentage points). Qualitatively researching sociologists have a 24 percentage points higher probability of expecting a decreased research productivity in 2020 and this effect is significant at p<0.05. These differences can possibly be explained by the fact that the different methods can only be digitized to different degrees. Switching to online surveys and re-analyzing secondary data might allow quantitatively researching sociologists to adapt quickly to the new situation, whereas the analysis of secondary data is less common in qualitative research. Additionally, as outlined in section 4.2, some qualitative methods are less easy to adapt to a digital research environment (e. g., ethnographic research). Having a data collection scheduled while the COVID-19 measures were taking effect in April/May 2020, substantially and significantly increases the probability of expecting to research less in 2020 (+18 percentage points, p<0,05). Although increased teaching workload was one of the most articulated factors causing restrictions on research (table 2), respondents with teaching obligations in the summer term of 2020 do not differ in their probability of experiencing restrictions in their research in 2020. Finally, the probability of expecting to research less in 2020 differs among status groups in the sociological field: the most affected group are postdoctoral researchers (+18 percentage points, p<0.05). Junior professors also have a higher probability of expecting to research less in 2020 than full professors (+ 10 percentage points). However, the effect is not significant.

Table 4: Effect of structural position in German sociology on affectedness by COVID-19 measures (coefficients are b-coefficients of bivariate LPM, robust standard errors in brackets, N=260)

Item	dV: Will research less this year
Epistemic orientation (Reference: quantitative)	
– Empirical: mixed	0.05 (0.11)
– Empirical: qualitative	0.24* (0.06)
– Non-empirical / theoretical	0.04 (0.15)
Primary database (Reference: secondary data)	
– Primary data	0.06 (0.06)
Data collection was planned (Reference: no)	
– Yes	0.18* (0.06)
Teaching in summer term ´20 (Reference: no)	
– Yes	0.03 (0.07)
Status (Reference: Junior professor (W1) / research group leader full professor (W3/W2))	
– junior professor (W1); research group leader	0.10 (0.13)
– Postdoctoral researcher	0.18* (0.06)
– Other	0.02 (0.12)

* Significant at p<0.05 (two-sided test)

4.4 Strategies of adaptation

Besides the struggles with COVID-19 measures, sociologists show great efforts to adapt to the new situation. Asked specifically about adaptation strategies, 160 out of 260 (62%) respondents provided an answer. The results can be clustered into three major strategies: (a) digitalization of working routines, (b) restructuring working routines and research foci and, (c) keeping calm and hoping.

(a) Digitalization of working routines: „After years in which nothing happened, Corona has finally led to comprehensive digitization."

Even if sociologists are overall confronted with digital adaptation and new forms of teaching and researching, the extent to which digitization is seen as a challenge varies. The digitalization of previous routines describes a strategy that means to continue with established working routines and to adapt them to the digital world as far as possible. This includes the establishment of digital meetings, and the organization of and participation in digital conferences; own data collections are realized using online tools and by changing the survey mode. Respondents often mention that an adaptation of working routines to the digital world is time-consuming and work-intensive and that familiarity with online tools is helpful. Nevertheless, this group does not only feel less restricted by the COVID-19 measures than respondents adapting the two other strategies do. Also, these sociologists overall welcome the current boost in digitization which is often described as overdue.

(b) Restructuring working routines and research foci: "In the current situation, I cannot work on my research focus. Therefore, I had to find a completely new topic."

If the working routine cannot be maintained (completely) with digital methods, some respondents see the need to restructure not only their working routines, but also their research focus. These sociologists perceive on average more restrictions than sociologists who draw on the digital adaptation strategy. Restructuring working routines includes in the first place the reorganization of the current and planned tasks. Usually, this refers to switching from field trips and primary data collections to work on publications, resulting in a short-term increase of paper submissions, as shown in section 2. In some cases, sociologists decide to analyze secondary data or do a re-analysis of previously collected data instead of collecting primary data. In some other cases, sociologists make use of available databases, which they analyze for the first time, e. g., social media. If the chosen research question cannot at all be studied under the current circumstances, sociologists even go as far and re-focus their research interest. Regarding the compatibility of family and work, for some sociologists, the family now becomes the priority. Having children at home leads to an adaptation of the working rhythm, mostly associated with evening and night shifts and work on weekends.

(c) Keeping calm and hoping: "It's a lot of improvisation and lowering expectations."

Keeping up work and even inventing new research designs and research questions in a crisis is not possible or practicable for everyone. Not only may the overall situation affect the capability of productive research, but for many respondents waiting and hoping that the current situation will not last too long seems the only way to manage the situation. Especially sociologists with children living in their households state that the closing of schools and kindergartens overwhelmed them. Rather than coming up with solutions, these sociologists adapt pragmatically, often associated

with putting fewer resources into teaching, lowering their expectations, and burdening their partner with childcare.

5 Discussion

In this research note, we presented the results of a survey in the field of German sociology that we conducted early in the COVID-19 pandemic in May 2020. At that time, the peak of the first COVID-19 wave in Germany was about a month ago and strict measures were in place to limit social contact. For scientists, this meant that offices were closed in many places and scientists had to work from home. Face-2-face data collection was restricted, access to resources, e. g., literature, was temporarily limited, children had to be cared for at home due to closed kindergartens, and teaching had to be changed to a digital-only mode. The goal of the survey was to map the extent to which sociologists subjectively experienced constraints and challenges during that time and to which the distribution of burdens is uneven across demographic and field-specific factors. Especially by looking at intradisciplinary differences, e. g., the epistemic orientation, our results allow a deeper insight into the unequal distribution of challenges and adaptation strategies at the beginning of the pandemic. Now, more than a year later, it can be assumed that sociologists have largely adapted to the new situation and that the digitization of work routines has progressed further. It is precisely here that our findings provide a reference point for assessing progress: certainly, there are still challenges and problems today, but results from subsequent studies can draw on our findings to put current challenges into perspective.

Adding to existing literature, our findings suggest several issues that should be subject to critical empirical scrutiny: the finding that women are substantially more likely to be concerned about their research productivity, even after controlling for children living in the household, suggests that early studies on paper submissions should be complemented by further research. The second adaptation strategy that we presented in section 4.4 implies that current publication projects were brought forward during the early weeks of the pandemic, because planned research could not be conducted. If women were more likely to have suffered greater constraints in medium-term publication projects due to structural factors, e. g., more time spent on childcare, then this would only become visible in the medium term. The same applies to qualitatively researching sociologists and junior researchers. As postdocs, research group leaders, and junior professors are still qualifying for a full professorship and need to reach evaluation objectives, research restrictions due to the COVID-19 pandemic may have negative effects especially on career prospects for younger sociologists. In contrast to the relevance of gender, however, it must be considered here that the respective groups primarily compete with each other for positions: there may be exceptions, but in most cases, a person with a quantitative orientation will not be appointed for a professorship with a qualitative profile. Hence, the pandemic might have produced an overall disadvantage, but this should not necessarily translate into unequal opportunities in relative terms.

For the discipline in general, however, it may well be that the limitations produced by COVID-19 have medium-term effects: theoretical approaches often correspond to specific methodological perspectives. If some methods are more constrained by COVID-19, then this may have implications for theoretical advances in some subfields. The same applies to publication culture: as the literature review shows, COVID-19 has led to at least a short-term change in publication culture in other sciences, for example, pre-prints without peer review have gained popularity in the medical sciences. In addition, our data indicate that scientists themselves are very concerned about the quality of data collected during the pandemic. As the pandemic has been ongoing for more than a year, it is questionable to what extent primary data meets qualitative standards, and it is unclear to what extent the data collected are transferable to non-COVID-19 contexts.

Besides these insights, there are some limitations of our research. First and most importantly, our results only focus on the effect of COVID-19 measures on expected productivity at the very beginning of the pandemic in May 2020. Consequently, complementary research is needed that looks at perceived challenges at later time points to analyze which adaptation strategies proved successful and which did not. Second, our data does not include the status group for which we expect the strongest negative effects: doctoral students. Third, our results are based on a non-probability sample. Consequently, particularly the descriptive results should be interpreted with caution. However, since they are in line with previous findings and the implicit knowledge in the community, we are optimistic that the results nevertheless represent an adequate picture of the situation in German sociology. Most importantly, our research results offer a basis for policy-related as well as epistemic discussions within the community that go beyond anecdotal knowledge.

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