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EUROPEAN SOCIETIES IN THE TIME OF THE CORONAVIRUS CRISIS

Covid-19, social class and work experience in Germany: inequalities in work-related health and economic risks

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ABSTRACT
The study analyses inequalities in how German employees experience corona-related health and economic risks at the workplace. A social class framework is used to locate both types of risks within the vertically stratified and horizontally differentiated employment structure. A mixed-methods approach is applied based on a workforce survey ($n = 9737$) and qualitative interviews ($n = 27$), from the early stage of the pandemic (April to May 2020). Logistic regressions triangulated with interview analysis reveal striking occupational inequalities in employees' corona experience: The work-life burdens of Covid-19 hit social classes quite unequally. Three findings are particularly noteworthy. First, health and economic risk experiences are primarily located in different horizontal segments of the employment structure. Perceived health risks are highest for the classes based on the interpersonal work logic, whereas the independent classes and the technical classes experience higher economic risks. Second, risk experience among wage earners is vertically stratified. In each horizontal segment, members of the lower classes report significantly higher health and economic risks than the upper classes. Third, although health and economic risks have their centres in different horizontal segments, the risks overlap among production and service workers at the lower end of the employment structure; thus, amplifying pre-existing class inequalities.

1. Introduction

The coronavirus pandemic and the government interventions designed to contain the spread of the virus impact society in unprecedented ways. Our contribution studies occupational inequalities in the effects of Covid-19 on the world of work during the early stage of the pandemic

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in Germany, and it does so from the viewpoint of employees. How do employees in different segments of the employment structure experience the health and economic risks associated with the corona crisis in their daily work-life? The analysis of the workplace effects of Covid-19 focuses on two types of risk central to the pandemic, namely the health risks of contracting a coronavirus infection at work and the economic risks resulting from the lockdown. By scrutinizing occupational inequalities in the experience of work-related economic *and* health risks the paper contributes to both the understanding of the work-life effects of the pandemic and the general discussions on social class and inequality.

Even though Covid-19 is a very recent phenomenon, research points to multiple inequalities in the effects of the pandemic on work-life. Research topics include home office (Fadinger and Schymik 2020), work-care-conflicts (Kohlrausch and Zucco 2020), changes in working hours (Euro-found 2020), economic problems (Hövermann 2020; Adams-Prassl et al. 2020) and health risks (Dragano et al. 2020; ONS 2020). Concerning employees' experience of economic and health risks, it is important to note that previous research has focused on one of the two types of risks; no study has thus far addressed employees' views of both risks concurrently. Nevertheless, a number of findings on individual risk exposure are relevant for our study. On the one hand, the link between socio-economic position and the virus' economic implications is addressed by research in several countries, the majority focusing on classical inequality markers such as income, employment status, education, gender and ethnicity. In Germany, low wage and self-employment are associated with higher likelihoods of income loss and economic worries (Bünning et al. 2020; Hövermann 2020). On the other hand, studies based on public health data, have shown that socio-economic position also impacts corona-related health risks (Bambra et al. 2020). In Germany, unemployment is linked to higher risks for a Covid-19 hospitalization (Dragano et al. 2020). For England and Wales, the office for national statistics reports considerable occupational inequalities in mortality rates (ONS 2020).

The concentration on only economic *or* health risks represents a limitation of the current state of research on the work-life effects of Covid-19. We argue that, in order to understand inequalities in employees' corona experience in a more encompassing way, health and economic risks need be analysed side-by-side. To concentrate on either economic or health implications runs the risk of analytically assigning priority to one of the two domains and to create a lopsided picture of the burdens the pandemic places on employees. Our study contributes to the growing body of

literature on Covid-19 by *systematically integrating economic and health risks in the analysis of occupational inequalities in employees' risk experience.* The simultaneous analysis of both types of risks is realized using Oesch's class analytical framework which complements the classical vertical stratification of the employment structure with the horizontal differentiation of occupations along work logics. The framework allows for responses to the following questions: How are corona-related economic and health risks at work experienced by different classes? Are economic and health risks concentrated in the same segments of the employment structure? Besides mapping occupational inequalities, the class approach allows for an examination of the corona-risk experiences against the background of pre-existing socio-economic inequalities. How do the 'new' corona-related risks interact with the 'old' inequalities in income, job quality and future prospects inscribed in the employment structure?

These questions are addressed by a mix of quantitative and qualitative methods. Data from a workforce survey ($n = 9737$) is used for logistic regressions to assess inequalities between social classes, testing for the impact of general inequality markers. Two measures for each type of risk are used. Health risks are operationalized as (1) perceived infection risks at work, and (2) the assessment of the employer's or client's protective measures. For economic risks we use (3) income loss, and (4) perceived increase in job uncertainty. The results are triangulated using data from the qualitative interviews ($n = 27$) which, in addition, are used to carve out the mechanisms underlying the inequality patterns identified by multivariate analyses.

2. The framework: social class and inequality

Social class, as an analytical concept, has re-gained ground within sociological employment and labour market research. Empirical studies show the position an individual inhabits in the employment structure still has a high influence on her or his life chances in terms of income, job security, occupational status, promotion prospects, quality of work, life satisfaction and/or health (see Groh-Samberg 2009; Therborn 2013; Wright 2015; Lipps and Oesch 2018) as well as on an individual's ability to engage with social, organizational, political and technological change (see Oesch 2006a; Hochschild 2016). Our study of occupational inequalities in the experience of corona-related health and economic risks applies Oesch's class analytical framework which complements the classical vertical axis of stratification between higher and lower rank

occupations with a horizontal axis of differentiation based on the work logic characterizing an occupation (Oesch 2006a, b). Figure 1 summarizes Oesch's collapsed eight-class scheme including three typical occupations for each of the eight classes.

In Oesch's framework the vertical class location of an occupation is determined by the marketability of skills ranging from the academic and semi-academic professions at the upper end to occupations based on vocational training and unskilled jobs at the lower end. While vertical stratification is well established in employment and labour research in general, and in class analysis in particular (Wright 2015), the conceptual inclusion of horizontal differentiation is a distinct feature of Oesch's framework. In order to grasp the tertiarization and feminization of the employment structure since the 1970s as well as the intensively discussed intra-working class cleavages between blue- and white collar workers, the dominant work logic is used to classify the horizontal class location of an occupation. Four work-logics are distinguished: interpersonal, administrative, technical, and independent. Central differences emerge from the 'setting of the work process' (e.g. technical by machines,

EMPLOYED/ SELF-EMPLOYED	WAGE EARNERS			SELF-EMPLOYED
WORK LOGICS	INTERPERSONAL	TECHNICAL	ADMINISTRATIVE	INDEPENDENT
HIGHER MARKETABILITY OF SKILLS	SOCIO-CULTURAL PROFESSIONALS *doctors, teachers, social workers*	TECHNICAL EXPERTS *mechanical engineers, computing experts, electrical technicians*	MANAGERS & ADMINISTRATORS *business administrators, HR managers, office supervisors*	TRADITIONAL BOURGEOISIE *entrepreneurs, lawyers, restaurants*
LOWER MARKETABILITY OF SKILLS	SERVICE WORKERS *care assistance, cooks, sales staff*	PRODUCTION WORKERS *machinery mechanics, logisticians, unskilled production workers*	OFFICE CLERKS *secretaries, call center agents, bank clerks*	SMALL BUSINESS OWNERS (<9 EMPLOYEES) *craft, restaurants, farmers*

Figure 1. The collapsed eight-class scheme by Oesch.

administrative by bureaucratic rules, interpersonal by human interaction, independent by the autonomy of self-employment).

The combination of vertical stratification and horizontal differentiation in Oesch's framework offers a high potential for mapping occupational inequalities in the work-life effects of Covid-19. We expect both dimensions to influence employees' risk experience. Previous research suggests that economic and health risks are both vertically stratified. Low wage and non-standard employment are associated with higher risk exposure in Germany (Bünning et al. 2020, Hövermann 2020). In addition, we expect risk experience to be impacted by horizontal class cleavages between the work logics. Occupations belonging to the two interpersonal classes (socio-cultural professionals, service workers) are based on direct human interactions which contain infections risks and are directly impacted by the politics of social distancing. The independent work logic (traditional bourgeoisie, small business owners) can be expected to be economically directly affected by the lockdown. In addition, we expect more indirect effects among the technical classes (technical experts, production workers) as these occupations are often located in industry which has experienced severe economic turbulences following the lockdown. In contrast, we do not expect the administrative classes (managers & administrators, clerks) to be exposed to above-average risks due to the work logic of the occupations.

3. Project, data and methods

3.1. Project

The analysis is based on data from an online workforce survey and qualitative interviews, conducted within the exploratory project 'Working in the Corona-Crisis' based at the University of Osnabrück, Germany. The survey and interviews cover topics ranging from changes in employment and working conditions, infections risks and protective measures, the organization of child care, to the attitudes towards government interventions.

3.2. Data

Sample. The online survey covers a unique historical point of time unprecedented in post-war Europe. It ran from mid-April to the end of May 2020, thus ending before the German Länder stepwise reopened schools, childcare and the economy in June, and before the federal government started to negotiate an economic stimulus plan.

The online survey provided 9737 viable cases. It is comprised of 90 questions, plus sociodemographic variables. Sampling does not correspond to the standard of random sample selection. Yet, five reasons justify our research design. First, the speed of the pandemic together with its unprecedented impact on work-life called for the fast implementation of an exploratory research design to capture employees' immediate experiences. A retrospective analysis of how employees experienced the pandemic would have to overcome its own methodological challenges. Second, we established multi-way-sampling to limit potential under-coverage of relevant groups. Participants were recruited through (1) networks of university administrations, (2) a German-wide network of university-work-life transfer centres, and (3) a Facebook campaign. Third, a comparison of our sample with the structural composition of the German labour force shows satisfactory results. The size of the sample allows for weighting to adjust for structural deviations. Fourth, we only report strong effects which have proven to be stable for variations in the regression models (inclusion of different variables, regressions with unweighted and weighted data). Concrete frequencies and odds-ratios might be sensitive to the sample structure. Due to the strengths of the effects the patterns of occupational inequalities are robust. Fifth, we use qualitative data to triangulate the results. Interviews support the outcomes of the logistic regressions.

To compare the composition of our sample to the total population of the German labour force, we use the representative ALLBUS survey from 2018 (GESIS 2019). While age and sector composition are very close to the total labour force, women (58.8% in our sample vs. 45.5% in ALLBUS) and academic qualifications (45.2% vs. 31.2%) are moderately overrepresented in our sample. Low wage employees, in contrast, are underrepresented (20.0% vs. 36.7%). In addition, ALLBUS allows for a calibration of the distribution of social classes. Compared to ALLBUS, large employers, small business owners and production workers are underrepresented while socio-cultural professionals are overrepresented (see appendix for sample composition).

Due to sample size, the deviations in the structural composition and the distribution of social classes can be controlled by weighting. We weigh univariate and bivariate values for outcome and predictor variables to limit distortions resulting from the structural composition of the survey. As social classes are not structurally homogeneous weighting reflects the class-specific compositions of age, gender and qualification. In order to avoid distortions in odds-ratios resulting from small cells

within the independent classes we report logistic regressions with unweighted data. However, we tested the logistic regressions with weighted data. The effects were the same with negligible changes in odds-ratios indicating the robustness of our results.

Interviews. In addition to the survey, we conducted 27 semi-structured interviews with employed and self-employed men and women from different occupations and class positions. Interviews lasted between 70 and 80 min, and allowed for an in-depth reconstruction of the diverse health and economic corona-related risk experiences at the workplace. While multivariate analyses are used to illuminate class-based inequality patterns in employees' risk experience, we use qualitative interviews to carve out the mechanisms generating these patterns.

3.3. Methods

Quantitative. We ran a series of logistic regressions to assess inequalities in the experience of health and economic risks at work. Models (1) and (2) address perceived at-work health risks, (3) and (4) deal with economic risks.

Outcome variables. Economic and health risks were measured by single questionnaire items. These items were used as outcome variables for the logistic regressions and recoded where needed to a dummy variable with the indication of a risk set to 1. The health risk questions asked (in brackets the answer options we use as outcome variables): (1) 'I am worried about catching corona at work' (0 … strongly disagree, rather disagree and partly agree; 1 … agree and strongly agree); (2) 'How do you rate the protective measures currently implemented at your workplace?' (0 … sufficient and excessive measures; 1 … no or insufficient measures). Questions for the economic risks were: (3) 'Which of the following changes currently apply to you?' (0 … option not checked; 1 … 'my income has decreased'); and (4) 'My job future has become more uncertain due to corona' (see (1)).

Predictor variables. ISCO codes are used to classify occupations into social classes. We applied a set of classical markers for inequalities including gender, age, migration background, region, firm size and employment status (fixed-term, marginal and part time employment). Note that income, qualification and industry are not included due to their strong ties to the social classes (multicollinearity). As reference groups for the categorical predictor variables we chose the group with the

largest case count and/or lowest reported risks. Descriptive and bivariate statistics are available in the appendix.

Qualitative. Interviews were conducted by telephone or online video, fully recorded, transcribed and coded using text analysis software (MAXQDA).

4. Results

Figure 2 shows the weighted relative frequencies of the outcome variables for the social classes. Experience of economic and health risks vary considerably among classes, both vertically and horizontally. Worries about at-work infections, for example, are highest among the interpersonal classes, while economic risks are significantly more often reported by the independent classes. Moreover, the lower classes in each work logic report tangibly higher health and economic risks. In the following section we use logistic regressions to test the effects of class against
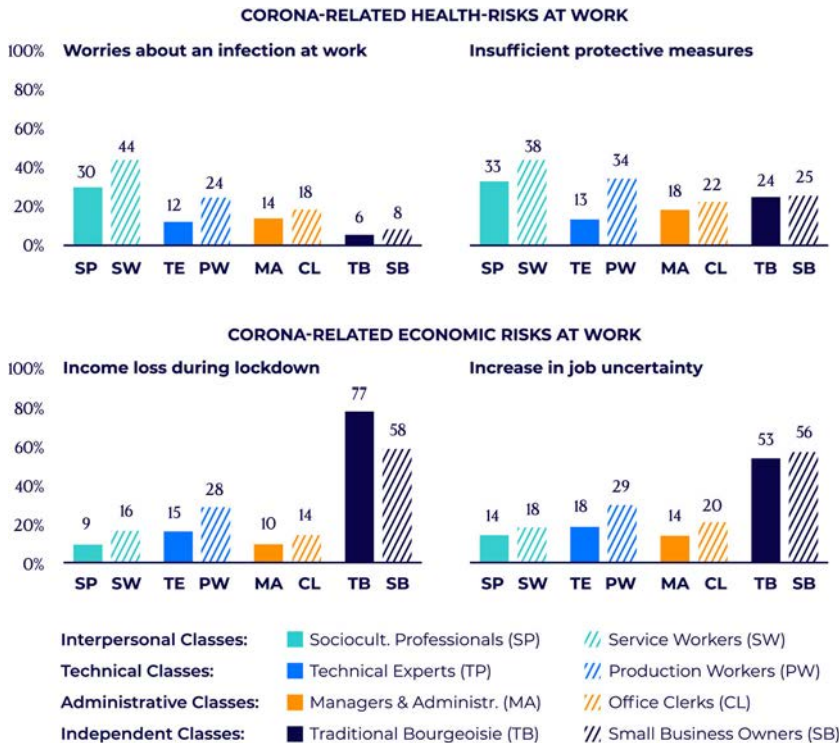

Figure 2. Frequencies of Outcome Variables on Perceived Health and Economic Risks (weighted).

classical inequality markers such as gender, age, income, region and employment-status. Our discussion will focus on the highly significant results ($p \leq 0.001$). For all four models, the goodness-of-fit versus variants without social classes is highly significant revealing the explanatory power of the class approach for employees' experiences of corona-related risks at work.

4.1. Corona-related health risks at the workplace

Logistic Regressions. Models 1 and 2 reveal strong class effects on perceived health risks, both horizontally and vertically (Table 1). It is important to note that the class with the lowest corona-related health risks (managers & administrators) serves as the reference group. The highest likelihood for perceived health risks is located in the two classes of the interpersonal work logic. Lower rank service workers worry about an infection at work at a rate five-times higher than managers & administrators, socio-cultural professionals have a 2.8 times as high risk. Both classes are more likely to assess their employer's protective measures as insufficient (socio-cultural professionals with a likelihood 2.1 times as high as managers & administrators, service workers with a 2.6 times higher likelihood).

In addition to the horizontal dimension, the distribution of infection risks entails a vertical dimension as well. Service workers perceive a significantly higher work-related health risk than the socio-cultural professionals occupying the upper ranks within the interpersonal work logic. Of the other six classes, only one class reports significantly increased health risks: Production workers experience a two-fold risk of both reporting infection worries and assessing the protective measures as insufficient (in comparison to managers & administrators). These risks do not seem to be grounded in the technical classes' work logic as the technical experts do not report higher health risks. The qualitative interviews, presented below, shed light on a plausible interpretation for this pattern.

Besides the strong effect of social class, there are additional factors influencing perceived health risks. First, employees with a migration background report higher infection worries reflecting intra-class stratification of occupational positions. Second, fix-term employment appears to reduce health risks compared to standard employment. Further research is needed to illuminate both effects.

Qualitative Interviews. Interviews detail the experience of high health risks among the interpersonal classes as it is embedded in the very nature

Table 1. Logistic regressions (odds ratios) to predict Covid-19 experience at the workplace.

	At-work health risks		Economic risks	
	(1) worries about an in-fection at work	(2) insufficient protective measures	(3) income loss during lockdown	(4) increase in job uncertainty
Gender				
– male (**ref.**)	–	–	–	–
– female	1.241**	1.213**	0.859*	**0.780*****
Age				
– younger than 30 years	1.150	1.091	0.866	0.756*
– 30–40 years	1.087	1.128	1.037	0.844
– 40–50 years (**ref.**)	–	–	–	–
– 50–60 years	0.903	0.867	0.759**	**0.752*****
– 60 years and older	0.956	0.921	0.702*	**0.429*****
Migration background (0=no, 1=yes)	**1.355***	1.108	1.055	1.105
Region				
– West-Germany (**ref.**)	–	–	–	–
– East-Germany	0.934	0.878	1.008	0.995
– Berlin	0.974	1.345*	0.950	1.045
Firm size				
– small firms	0.918	1.137	**2.255*****	**2.101*****
– medium-sized firms	1.130	**1.240*****	**1.714*****	**1.535*****
– large firms (**ref.**)	–	–	–	–
Employment status				
– fixed-term (0=no, 1=yes)	**0.665*****	0.801*	0.919	**2.419*****
– marginal (0=no, 1=yes)	1.056	0.870	1.737**	**2.270*****
– part time (0=no, 1=yes)	0.906	0.879	1.028	1.042
Social Class				
– Socio-cultural professionals	**2.810*****	**2.059*****	0.699**	0.793*
– Service workers	**5.026*****	**2.616*****	**1.648*****	1.030
– Technical professionals	0.947	**0.687*****	**1.564*****	1.295*
– Production workers	**2.022*****	**2.194*****	**3.189*****	**1.973*****
– Managers & Administr. (**ref.**)	–	–	–	–
– Office clerks	1.335**	1.133	1.453**	**1.501*****
– Traditional bourgeoisie	0.676	1.760*	**11.64*****	**4.385*****
– Small business owners	0.945	1.507*	**8.413*****	**5.184*****
N	7,340	7,285	7,314	7,341
Pseudo-*R*²	0.073	0.042	0.116	0.077

*p < .05, **p < .01, ***p < .001.

of their work logic. Interpersonal work limits employees' abilities to physically distance themselves from patients, clients, customers or pupils. In the words of a 43-year-old female childcare worker:

> I think, everyone working with people is at risk. […] Formally, we have safety and hygienic concepts, but you cannot implement them in the daily routines of a day-care center. I cannot tell the kids to keep distance.

The same interviewee stresses that her occupation also does not provide her with sufficient power resources to demand effective protective measures:

> We are no more than cannon fodder. […]. No one in society talks about that we [lower childcare workers] could get infected. […] At stake is my life – and the lives of my family.

Several lower rank service workers report a sense of powerlessness vis-à-vis the coronavirus at work, rooted in the weak position compared to their employers, and society in general.

The higher health risks of production workers stem from the spatial fixedness of production work. In the words of a chemical industry works council member:

> People who have to be at a certain spot, they have a real problem. […] The more you are dependent, the more your work is spatially fixed, the higher your risk- […] The production workers can try what they want, but at the end of the day, they have to go into the changing room [and into the plant].

Due to the manual and collaborative nature of production work, assembly workers, mechanics, craftsmen and construction workers can hardly control physical distance from their colleagues on the shop floor, in warehouses or on construction sites. Note that in the case of production workers the spatial fixedness is not grounded in the technical work logic itself. Technical experts such as engineers are tied to the shop floor in a much lower degree than lower rank production workers.

4.2. Corona-related economic risks from work

Logistic Regressions. Models 3 and 4 reveal strong effects of horizontal differentiation and vertical stratification in exposure to economic risks (Table 1). Note that managers & administrators serve as the reference group for economic risks as well. Particularly affected by the economic risks are the independent classes. Small business owners have an eight-fold risk of income loss; for the traditional bourgeoisie class (self-employed doctors and lawyers, large business owners) the risk is 12

times as high as for managers & administrators. Both classes of the independent work logic have a four to five times higher risk of experiencing an increase in job uncertainty. Among wage earners, production workers stand out with the highest economic risks, both in regards to income loss (a risk three times as high as managers & administrators) and job uncertainty (two times as high). In general, respondents from lower classes suffered income losses more frequently than the upper classes in the same work logic. Lower rank service workers and office clerks have a 45%–65% increased risk of income loss compared to upper administrative occupations (managers & administrators).

In addition to the strong effects of social class, respondents in more vulnerable employment statuses, like fixed-term or marginal employment, are more affected by job uncertainty. Firm size is also a predictor for economic risks with respondents in small and medium-sized firms being more exposed than those in larger units. Finally, economic risks vary somewhat for gender and age. More research is needed to fully elaborate on these effects.

Qualitative Interviews. The interviews help to carve out the mechanisms underlying the economic inequality patterns identified in the previous section. A freelance music instructor describes how the lockdown interacted with the general vulnerability of her employment status: 'we [the self-employed instructors] were the first to be let go.' Not surprisingly, the economic turbulences affected small businesses more directly as many lacked financial resources to compensate for a temporary loss of income. An agricultural small business owner argues that the pandemic accelerates the ongoing concentration process in her sector:

> It would certainly have gone in the same direction even without corona. Now, the speed of change is much higher. Certain businesses disappear much faster than before. […] I fall through the rescue net. […] The governments emergency aid is not supposed to cover running costs such as earth, water or fertilizer. […] I feel left out in the cold.

According to our interviews, similar problems threaten the economic existence of self-employed and small businesses in many sectors such as hotels, restaurants, culture, arts and retail.

High economic risks are also present in production work. An automotive plant works council stresses the impact of the general economic situation on production workers' employment prospects:

> Corona is an amplifier that just accelerated it [the ongoing transformation of the auto industry] by a factor of ten. Just imagine, you have your full expenses

and not a single euro income. How long do you survive? For our company, it is only about survival. And when you look into the small companies in our region, we are talking layoffs in the production area.

Strikingly, economic risks are much more prevalent among production workers than among technical experts and managers & administrators, although the occupations belonging to both classes are to some degree employed in the same industrial companies. Industrial employers seem to have passed on the economic risks resulting from the lockdown in the early stage of pandemic to the lower rank production workers.

5. Discussion

Our study utilizes a class analytical framework to explore occupational inequalities in German employees' experience of Covid-19-related economic *and* health risks at the workplace. Our data suggests that during the early stage of the pandemic risk experience is distributed highly unequally within the employment structure, both vertically and horizontally. Three findings are particularly noteworthy.

First, employees' risk experience is horizontally differentiated cutting across vertical class divisions. Economic and health risks are primarily concentrated in different zones of the employment structure: economic risks among the independent and the technical classes, and infection risks among the interpersonal classes. From the viewpoint of employees there is no such thing as *one* corona crisis. Members of the independent classes such as business owners, self-employed lawyers and doctors, independent consultants, shop owners and self-employed artists experience the pandemic primarily as a threat to their economic survival. Additionally, an economic view is also dominant among the classes of the technical work logic as they are often are located in industry which is significantly affected by the global economic downturn. In contrast, the female-dominated occupations of the interpersonal work logic perceive the pandemic primarily as a health threat at the workplace. The qualitative interviews identify the mechanisms underlying these inequality patterns. The interactive nature of interpersonal occupations such as teachers, nurses, childcare workers and salespersons limits employees' abilities to keep physical distance from clients, pupils, patients or customers. Of the other six classes, only production workers experience higher health risks. Interviews show that production workers' vulnerability to health risks is grounded in the spatial fix of production work. The

majority of production workers cannot distance themselves from colleagues in factories, storage places or on construction sites.

Second, wage earners' corona-related risk experiences are vertically stratified. In each of the three wage-earning work logics, the lower classes have significantly higher risks of experiencing work-related health and economic risks compared to the academic and semi-academic occupations of the upper classes. Production workers, office clerks and service workers report both higher infection worries and insufficient protective measures compared to technical experts, managers & administrators and soci-cultural professionals. Income losses and increases in job uncertainty are also more widespread among the occupations belonging to the lower classes. Qualitative interviews highlight that organizations tend to pass the pandemic's burdens on to the lower ranks in the occupational hierarchy. In addition, the lower rank production and service workers weak employment position is compounded by the coronavirus, producing a feeling of powerlessness to protect oneself against an infection.

Third, although economic and health risks have their centres in different horizontal segments of the employment structure – economic risks in the independent and technical classes, health risks in the interpersonal classes – both risks overlap to some degree at the lower end of the German employment structure. Two class locations appear to be particularly affected by overlapping economic *and* health risks. First, female-dominated service workers at the lower end of the hierarchy in the interpersonal work logic experience the highest health risks of all social classes plus tangible risks of income loss. Second, male-dominated production workers at the lower end of technical classes face the highest economic risks among wage earners, both in terms of income loss and job uncertainty, and at the same time experience higher infection risks at the workplace.

Taken together, our data suggest that in the early stage of the pandemic, even in a country like Germany with moderate infection numbers and a developed welfare state, the health and economic risks associated with Covid-19 were distributed highly unequally. The asymmetries in employees' experience of corona-related risks at work appear to be particularly problematic when viewed against the background of the pre-existing class inequalities in income, employment insecurity, job quality and power resources. Members of the lower social classes are significantly more affected than the higher classes while they are at the same time, due to their relatively weak position in the employment structure, equipped with less resources to cope with the challenges posed by the pandemic.

Moreover, the results illustrate the usefulness of the study's theoretical and analytical approach. The explanatory power of the logistic regressions using class is higher than for models with classical inequality markers such as qualification, income, gender, age, region and employment status only. Although the effects of gender, income, education and employment status are not completely absorbed by the classes, multiple classical inequality dimensions converge in the class structure. In addition, the differentiation of health and economic risks in different horizontal segments demonstrates the advantages of both Oesch's class framework for mapping occupational inequalities and the side-by-side analysis of economic and health risks. A concentration on one of the two risks would have produced a lopsided picture of the burdens placed on employees by the pandemic.

There are certain methodological limitations to our exploratory study of occupational inequalities in employees' corona-risk experience (see sample and methods section). Yet, we are convinced that the study makes a valuable contribution to the understanding of the work-life dynamics of the pandemic which constitutes an exceptional historical situation. We only report highly significant and robust patterns: The class-based occupational inequalities in the early stage of the coronavirus pandemic are striking. Additional research is needed to understand the long-term effects of the pandemic on the world of work. It is to be expected that persistent inequalities in the corona-risk experience at the workplace could weaken social cohesion and undermine public support for government interventions to contain the pandemic.

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No potential conflict of interest was reported by the author(s).

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Appendix

Table A1. Sample und outcome variables for socio-demographic variables (weighted)

	Sample composition (in brackets share in population*)	At-work health risks		Economic risks	
		(1) worries about an infection at work	(2) insufficient protective measures	(3) income loss during lockdown	(4) increase in job uncertainty
Total	**9,737**	**22.3%**	**27.0%**	**21.2%**	**22.9%**
Gender					
– male	41.2% (54.5%)	18.8%	25.5%	24.5%	26.4%
– female	58.8% (45.5%)	26.6%	28.7%	17.2%	18.8%
Age					
– younger than 30 years	12.4% (14.8%)	24.5%	29.7%	15.3%	19.5%
– 30–40 years	22.6% (20.2%)	24.8%	29.6%	21.6%	22.0%
– 40–50 years	22.7% (24.1%)	22.8%	27.2%	23.8%	27.5%
– 50–60 years	32.6% (29.9%)	20.2%	23.7%	21.1%	23.3%
– 60 years and older	9.6% (10.9%)	19.4%	26.6%	23.3%	18.4%
Migration background (0=no, 1=yes)	13.9% (32.9%)	24.6%	26.1%	21.6%	24.3%
Region					
– West-Germany	83.5% (82.0%)	22.7%	27.1%	20.7%	22.9%
– East-Germany	13.1% (14.8%)	20.4%	25.6%	24.2%	23.3%
– Berlin	3.4% (3.2%)	20.4%	29.4%	22.4%	23.3%
Qualification					
– None / in training	2.7% (7.9%)	28.3%	36.0%	20.0%	26.7%
– Vocational training	52.1% (60.9%)	24.0%	27.7%	23.5%	23.6%
– Academic qualification	45.2% (31.2%)	17.6%	23.4%	16.7%	20.6%
Income (net monthly)					
– Low (<1.500€)	20.0% (36.7%)	27.9%	32.9%	24.6%	26.7%
– Medium (1.500–3.000€)	57.7% (47.0%)	23.9%	28.8%	20.2%	22.1%
– High (>3.000€)	22.3% (16.4%)	14.0%	17.5%	18.7%	20.6%
Firm size					
– small firms	15.6% (24.5%)	15.6%	26.6%	44.0%	40.1%
	25.7% (38.6%)	26.5%	30.5%	20.7%	21.8%

(*Continued*)

Table A1. Continued.

	Sample composition (in brackets share in population*)	At-work health risks		Economic risks	
		(1) worries about an infection at work	(2) insufficient protective measures	(3) income loss during lockdown	(4) increase in job uncertainty
– medium-sized firms					
– large firms	58.7% (36.9%)	22.8%	25.5%	13.0%	16.8%
Employment status					
– fixed-term (0=no, 1=yes)	9.1% (6.1%)	20.4%	32.6%	11.2%	31.1%
– marginal (0=no, 1=yes)	2.4% (5.3%)	27.5%	21.0%	28.4%	34.0%
– part time (0=no, 1=yes)	32.5% (23.2%)	21.0%	27.3%	31.6%	30.2%
Social Class					
– Socio-cultural professionals	19.5% (12.4%)	30.1%	32.5%	9.4%	14.3%
– Service workers	17.8% (16.8%)	43.7%	38.1%	16.4%	17.6%
– Technical professionals	13.7% (11.6%)	12.5%	13.3%	15.3%	18.4%
– Production workers	8.5% (18.9%)	23.8%	34.2%	27.5%	28.9%
– Managers & Administrators	19.4% (19.6%)	13.6%	18.3%	9.5%	13.8%
– Office clerks	16.0% (10.0%)	18.2%	22.0%	14.0%	20.0%
– Traditional bourgeoisie	1.7% (3.9%)	5.7%	24.5%	76.6%	53.0%
– Small business owners	3.5% (6.9%)	8.4%	25.4%	58.2%	55.8%

* Figures for population of the German labour force are taken from ALLBUS (GESIS 2019), except for firm size (Official Statistics by the German Federal Employment Agency, 2019) and employment status (Mikrozensus of the German Federal Statistical Office, 2019).