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Covid-19 is not affecting all working people equally

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Abstract:

The corona pandemic and the political measures undertaken to contain it are changing the working conditions of many people in Germany. Based on data from the first tranche of a supplementary survey (SOEP-Cov) to the German Socio-Economic Panel (SOEP), this study analyzes the effects of the corona crisis on Germany's working population in 2019. In this paper, we investigate how severely people have been affected by the pandemic in three dimensions: individual level of education, gross individual earned income in 2019, and equivalent net household income in 2019. The key findings are that just under 20 percent of the working population are working reduced hours (on "short-time work"), and a good third are working partially or completely from home. Reported working hours have fallen by an average of four hours per week compared to the previous year. The extent to which working people have been affected by the corona crisis differs across the three dimensions. It is primarily those with higher incomes and a higher level of education who are using the opportunity to work from home, whereas those with a lower level of education are more likely to be on short-time work. Although most employees are not concerned about their own financial situation, they are concerned about the overall development of the German economy as of spring 2020.

JEL: D19, D39, I39

Keywords: SOEP-CoV, corona, labor market, concerns

The corona pandemic and the political measures undertaken to contain it (Figure 1) are fundamentally changing the working conditions of people in Germany. Many are working from home or are working reduced hours, while others worry about unemployment or have already lost their jobs. Working people with children in need of childcare or family members in need of home healthcare are struggling to cope with the loss of these services—and for essential or frontline workers, these problems are particularly acute. Finally, for self-employed people who are experiencing income losses due to physical distancing restrictions and steep declines in demand, the corona pandemic poses a threat to their financial survival. As these initial observations already clearly show, not everyone is equal before the coronavirus.

Due to the growing economic uncertainties, working people—both the employed as well as the self-employed and entrepreneurs—face differing worries about the overall economic situation, their jobs, the health of their families, and concerns in other areas of life. The burdens created by the corona crisis are not the same for everyone. Disparities arise not only from how different political measures affect different groups, or from differences in people's current living conditions, but also from the differing financial, social, and even psychological resources people were able to build up prior to the crisis and are able to draw on now. Impacts also differ according to the concerns, hopes, and expectations that people had even before the crisis.

It is only possible to understand how life has changed for working people since the beginning of the corona crisis, how severely they are being affected by the current situation, and what individual and societal impacts are likely in the future by also analyzing information about the period before the crisis. This means taking into account the existing unequal distribution of financial and social resources within the population when assessing the differing impacts of the current situation. This is particularly important when it comes to identifying areas where policy measures and political decisions are required: What is most urgently needed to address the corona crisis are targeted measures and support programs that fit the present situation and the circumstances of specific groups.

Against this backdrop, we first ask how the corona pandemic has changed the economic situation of Germany's working population (those employed in 2019). We use various objective indicators (individual earned income, working hours, work from home, etc.) as well as subjective indicators (worries and concerns). We are particularly interested in how much these indicators have changed relative to the situation before the crisis. We draw on data from the longitudinal Socio-Economic Panel (SOEP) survey that has been collected regularly over the past five years, and supplement these data with results from an additional telephone survey of SOEP households that has been running since March 30, 2020.[1] This linkage of the current survey data with information

[1] The SOEP is a representative survey of private households that has been conducted annually since 1984 (see Goebel et al., 2019). The SOEP contains a wealth of information on respondents at both the individual and household level. In addition to sociodemographic characteristics (household composition, place of residence, age and gender of household members, income, etc.), this includes information on employment status (working hours, sector, individual earned income, number of employees in the company, etc.) as well as questions on health, concerns, and life satisfaction. For the description of the situation of employed people during the corona pandemic in April 2020,

collected from the same individuals in previous waves of the SOEP has the key advantage that we do not have to ask the respondents to give their assessments of the situation before the crisis, but can draw on information collected in previous years on respondents' financial situation or concerns and attitudes. This enables us to make a direct comparison between the situation before the crisis and the current situation, and thus to adequately assess the extent of the changes.

Because the working population is affected to different degrees by the current situation, and because it is crucial to consider the unequal distribution of resources both before and during the crisis, we also investigate differences between individual population groups. In our view, two central resources are crucial in this respect: income and education. For both of these "classic" dimensions of inequality, we present results that demonstrate the many different ways in which working people are affected by the pandemic. Our findings show that the inequality structures that existed before the corona crisis are continuing to have an impact during the crisis.

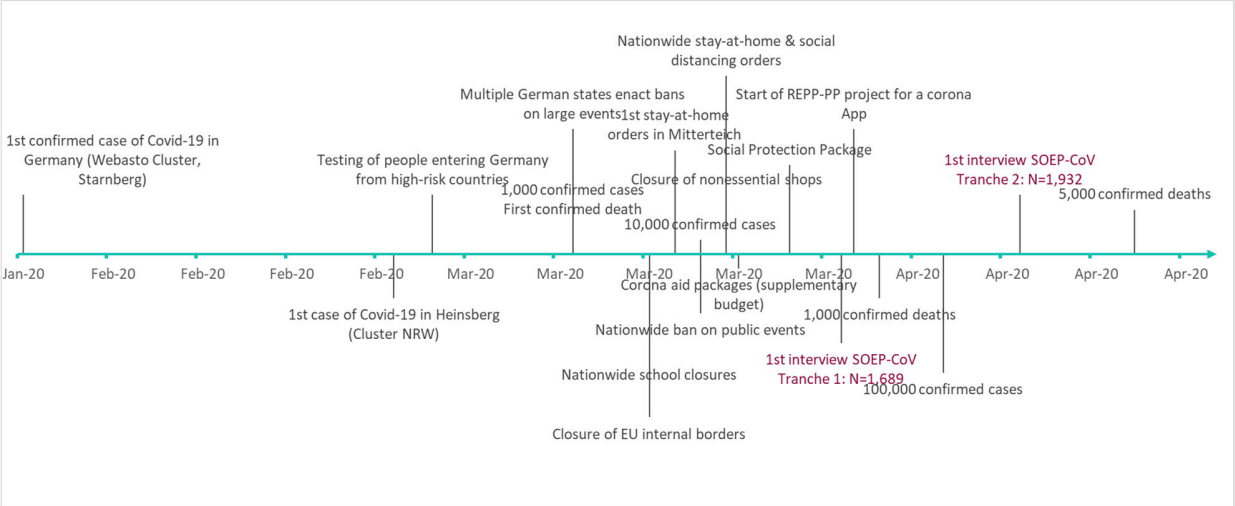


Figure 1: Corona pandemic, political measures, and the SOEP-CoV study up to now[2]

data from the first tranche of the SOEP-CoV study (for further information, see: https://www.soep-cov.de/) were used. This study is based on telephone interviews with SOEP respondents conducted during the corona pandemic (tranche 1 of the survey: April 1 to April 16, 2020).

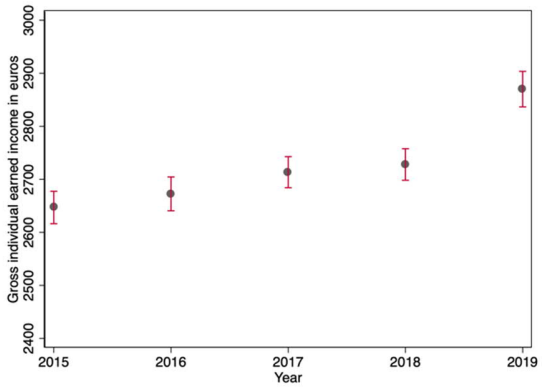
[2] The timeline of events presented here is based on: https://www.bsg.ox.ac.uk/research/research-projects/coronavirus-government-response-tracker.

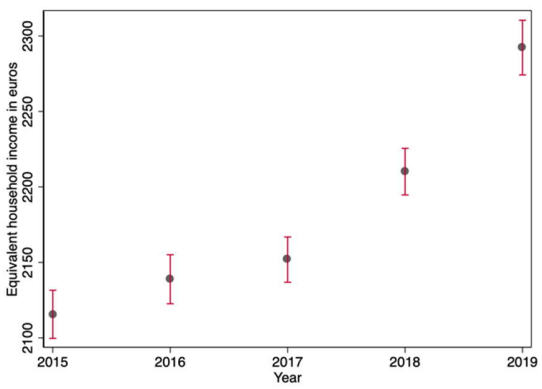
2 The working population before and after the outbreak

2.1 The situation before the crisis

To assess what has changed due to the pandemic and measures taken to contain it, we first look at the situation before the crisis. German labor market growth had been strong over the years leading up to the crisis, despite a slowdown in 2019.[3] This was evident, among other things, in the number of employed people and jobs subject to social insurance contributions, and in the level of wages and salaries. According to the Federal Statistical Office, the number of people in employment rose by more than two million to more than 45 million between 2015 and 2019 alone. Over the same time period, aggregate working hours increased by 3.8 percent among the working population, and as a result, the disposable income of private households also rose by 13.3 percent in nominal terms.[4] There was also slightly more new business creation than closure over the last decade.[5]

SOEP data from the period 2015 to 2019 reflect this stable positive development within the working population (including the self-employed) (Figure 2). Real average gross monthly wages increased from approximately 2,650 euros per employee in 2015 to approximately 2,850 euros in 2019, with almost unchanged average contractual working hours of around 34 hours per week. Real equivalent disposable household income grew from around 2,100 euros in 2015 to around 2,300 euros in 2019. Over the same period, the share of self-employed people fell to around nine percent of the workforce.

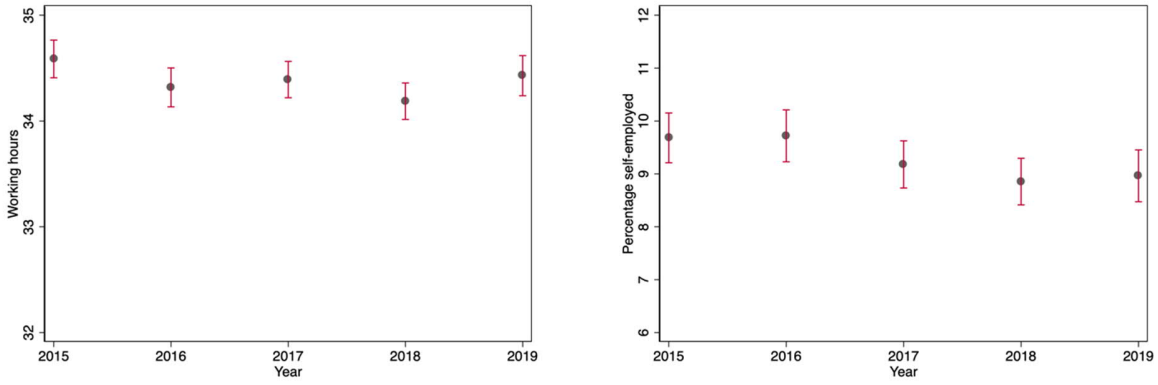




[3] See SVR 2020, Ziffer 100ff.

[4] Figures based on national accounts data from the Federal Statistical Office.

[5] The data are taken from the value-added tax statistics and refer to taxable enterprises with annual sales and services of over 17,500 euros. Cf. the information provided at: https://de.statista.com/statistik/daten/studie/246358/umfrage/anzahl-der-unternehmen-in-deutschland/



Note. SOEPv35 as well as SOEP data from 2019, weighted using individual weighting factors. Dots represent point estimators. Vertical lines denote the 95 percent confidence interval. Income is adjusted in line with the consumer price index using 2015 as the base year. Working hours refer to contractually agreed hours for employed people and actual working hours for the self-employed.

Figure 2. Gross individual earned income, net household income, working hours, and share of self-employed people in the working population, 2015 to 2019

But what was the situation like for the working population in 2019 in detail? A closer look at the 14,272 employed people in the last wave of the SOEP survey from 2019 reveals that almost two thirds of working people were white-collar workers (Table 1). Blue-collar workers made up around 18 percent of the working population, followed by the self-employed at about 9 percent, and civil servants at about 6 percent. Around 4 percent were in apprenticeships or vocational training. The average household size in the working population was 2.5 persons on average. Almost half of these were women, and the average age was 45.

Table 1: Working population in 2019 by occupation and sociodemographic characteristics

	(1)	(2)
	Mean	Standard Deviation
Equivalent disposable household income	2295	1021
Gross individual earned income	2864	1849
Weekly working hours	34.4	11.1
Shares by occupational status:		
Self-employed	0.09	0.29
Blue-collar	0.18	0.39
Civil servant	0.06	0.24
White-collar	0.63	0.48
Apprentice / trainee	0.04	0.18
Other	0.00	0.04
Education:		
Low	0.23	0.42
Medium	0.48	0.50
High	0.28	0.45
Additional characteristics:		
Household size	2.5	1.2
Percentage of female employees	0.47	0.50
Average age in years	45.0	12.9

Note: SOEPv35 and SOEP data from 2019, weighted using individual weighting factors.

To provide an indication of whether the pandemic and measures undertaken to contain it will affect certain groups of the population more or less than others, we classify the working population into three groups by income and education.

We use two different concepts for income: First, we divide the working population into three equal groups (terciles) by individual gross monthly income in 2019: those with low, medium, and high incomes.[6] These groups are therefore defined by how much people are paid for their specific job. Second, we divide the working population into three groups (terciles) by their standard of

[6] The 2019 analysis population is sorted in ascending order according to the relevant income concept and then divided into three equally sized groups using the individual weighting factors of one year. The reported tercile value is calculated as the weighted arithmetic mean in the respective tercile.

living. This is measured using equivalent disposable monthly household income, which, at the household level, includes all types of after-tax and transfer income and also takes differences in household size into consideration through equivalisation.[7]

The differentiation according to the two different income concepts allows us to identify the extent to which the corona pandemic and measures implemented to contain it are impacting workers or households differently depending on the material resources they have at their disposal. We see, for instance, that a loss of income is more likely to reduce the quality of life for a low-income worker than for a high-income worker. Employees with lower levels of material resources are also likely to have fewer opportunities to be able to work undisturbed from home.

The three categories of education (low, medium, high) are defined based on the highest level of education or vocational training completed by respondents according to the Comparative Analysis of Social Mobility in Industrial Nations (CASMIN) classification. The "low" category includes those who did not complete secondary school and those with a lower secondary school-leaving certificate with or without vocational training. The "high" category includes individuals with a degree from a university or a college of applied sciences. The "medium" category comprises the remaining intermediate educational levels.

When grouped by gross individual earned income (middle three columns of Table 2), the average in 2019 was 1,100 euros in the first tercile, 2,650 euros in the second, and just under 5,000 euros in the third. Equivalent disposable household income also rose across the three terciles: Individuals in the highest income group also had greater financial resources available overall at the household level. As expected, the share of women and blue-collar workers in the first tercile was above-average. Clear differences are also evident in working hours.

[7] Disposable household income comprises all types of income at the household level (minus income taxes and social security contributions) including all government transfers. In order to take account of differences in material needs due to household composition, household disposable income is needs-adjusted using the square root equivalence scale: If Y is the disposable household income and h the number of household members, the means-weighted disposable income is calculated as $Y / h^{0,5}$.

Table 2: Characteristics of the working population in 2019 by income terciles and education

	Equivalent disposable household income			Gross individual earned income			Education		
	1st tercile	2nd tercile	3rd tercile	1st tercile	2nd tercile	3rd tercile	Low	Medium	High
Equivalent disposable household income	1341	2121	3425	1786	2150	3038	1925	2150	2874
	(299)	(212)	(882)	(850)	(744)	(1056)	(816)	(866)	(1179)
Gross individual earned income	1781	2726	4102	1103	2654	4985	2191	2532	4082
	(1092)	(1280)	(2165)	(542)	(400)	(1607)	(1380)	(1495)	(2185)
Weekly working hours	32.1	35.0	36.1	26.3	37.6	39.4	33.2	34.3	35.4
	(12.7)	(9.9)	(9.8)	(12.8)	(7.1)	(6.2)	(12.8)	(10.5)	(10.5)
Share by occupational status:									
Self-employed	0.08	0.07	0.11	0.09	0.05	0.10	0.07	0.08	0.13
	(0.27)	(0.26)	(0.31)	(0.29)	(0.22)	(0.30)	(0.26)	(0.27)	(0.34)
Blue-collar	0.28	0.19	0.07	0.23	0.22	0.09	0.41	0.17	0.02
	(0.45)	(0.39)	(0.26)	(0.42)	(0.41)	(0.28)	(0.49)	(0.37)	(0.14)
Civil servant	0.01	0.04	0.13	0.01	0.05	0.12	0.01	0.04	0.14
	(0.11)	(0.20)	(0.33)	(0.09)	(0.23)	(0.32)	(0.12)	(0.19)	(0.35)
White-collar	0.57	0.66	0.67	0.57	0.68	0.69	0.47	0.68	0.70
	(0.49)	(0.47)	(0.47)	(0.50)	(0.47)	(0.46)	(0.50)	(0.47)	(0.46)
Apprentice / trainee	0.06	0.03	0.02	0.10	0.00	0.00	0.03	0.04	0.01
	(0.23)	(0.17)	(0.13)	(0.30)	(0.03)	(0.00)	(0.16)	(0.19)	(0.10)
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.03)	(0.04)	(0.02)	(0.04)	(0.02)	(0.00)	(0.04)	(0.04)	(0.03)
Additional characteristics:									
Household size	2.5	2.6	2.5	2.6	2.5	2.5	2.6	2.5	2.5
	(1.4)	(1.2)	(1.0)	(1.3)	(1.2)	(1.2)	(1.3)	(1.2)	(1.2)
Percentage of female employees	0.50	0.47	0.45	0.66	0.46	0.29	0.40	0.51	0.47
	(0.50)	(0.50)	(0.50)	(0.47)	(0.50)	(0.45)	(0.49)	(0.50)	(0.50)
Average age in years	43.8	44.6	46.7	43.8	43.9	47.2	48.1	44.4	45.6
	(13.4)	(12.5)	(12.5)	(15.1)	(11.9)	(10.7)	(12.9)	(12.7)	(11.7)

Note: SOEPv35 and SOEP data from 2019, weighted using individual weighting factors.

Looking at equivalent disposable household income terciles (left three columns of Table 2), the mean is 1,300 euros per month in the lower, 2,100 euros in the middle, and 3,400 euros in the top tercile. The pattern is similar for the different categories of working people: the share of blue-collar workers decreases significantly and that of civil servants increases significantly across the terciles. Gender and working hours are more evenly distributed across the terciles than individual gross earned income.

A breakdown by educational level shows that, as expected, gross individual earned income and net household income are positively correlated with educational levels. Individuals with a lower level of education also frequently select into the group of blue-collar workers.

2.2 The situation in spring 2020

The measures adopted by the German government in March 2020 to contain the pandemic—from guidelines to reduce social contact to the closure of shops, hotels, and restaurants—have meant that many workers are now working from home.[8] Around 35 percent of the workforce report that they are currently working partly or completely from home (see Table 3).[9] These are primarily employees in the upper third of both the gross individual earned income distribution and the equivalent disposable household income distribution, as well as employees with higher levels of education (see Table 4). These results indicate that individuals with higher gross individual earned income are more likely to have jobs[10] that can be done from home, and that individuals with more material resources at their disposal have more (spatial and technical) possibilities for setting up an office at home. This also means that working people with lower levels of education tend to have reduced chances of being able to avoid the risk of infection at work.

Working from home can affect productivity. As many as 10 percent of employed people working from home report that they are "much more productive" at home than in their normal working environment.[11] It may be that working from home enables some employed people, depending on their living situation, to focus better on their work, and that spending less time commuting leads to higher productivity.[12] It is also possible, however, that these working people have increased their work output to send a positive signal to employers proving their trustworthiness. Around 40

[8] The data for the analyses that follow come from the first tranche of the SOEP-CoV survey: 1,600 SOEP respondents surveyed between April 1 and April 16, 2020. The survey included questions about their current living situation during the corona pandemic. Of the 1,600 respondents in this tranche, 919 (unweighted) were employed and thus included in the following analyses.

[9] See Grunau et al (2020) on the percentage of the workforce working from home before the corona pandemic. According to their data, only one in five employees worked from home occasionally before the pandemic. Alipour et al. (2020) estimate that in Germany, up to 56% of employees could do their job from home.

[10] Von Gaudecker et al. (2020) show a higher rate of working from home among working people who do office work or non-routine tasks.

[11] It should be noted that the number of individuals in the lowest educational category who reported working from home is very small, which limits the interpretation of the results.

[12] On productivity effects working from home, see also Bloom et al. (2015).

percent of of working people say they are less productive working from home.[13] This is likely to be the case especially among parents with small children. Due to a lack of childcare outside the home during the corona crisis, many parents are forced to look after their children at home, which is likely to affect their ability to concentrate. The extent to which this situation will be exacerbated as lockdown continues will have to be analyzed in future studies.

Many employers are reacting to the crisis by cutting their employees' working hours. Around 17 percent of the population that was employed in 2019 was working reduced hours ("short-time work") as of April 2020 (or 18 percent if civil servants are excluded).[14] Although this does not vary systematically across income groups, it does vary across education groups. Compared with the high education group, the low education group has twice the percentage of working people in short-time work, adding to the fact that that their financial resources were already more limited even before the crisis.

Reported weekly working hours have decreased by more than four hours per week on average. The decrease varies depending on the income concept considered. For gross individual earned income, the decline is strongest in the top tercile, at more than six hours per week (over 15 percent), and in the other two terciles, people are working around three hours less than in 2019. For net household income, the decline in working hours is highest in the bottom and top terciles at just under 20 percent, and just under 5 percent in the middle tercile. Looking at the change in working hours by educational levels, the decline is sharpest—at around eight hours—among those with low education, and between three and five hours in the medium and high education groups.

Overall, the changes in working hours can be assumed to vary considerably depending on the sector and type of work: It is possible, for instance, that working hours in essential or frontline fields have increased over the course of the crisis. However, the small number of such cases in the first tranche of the SOEP-CoV survey does not yet permit a more in-depth analysis of such changes.

The federal short-time work allowance does not fully compensate for the loss of earnings due to reduced working hours, since as a rule, it only covers 60 percent of net earnings, or 67 percent if there is a child in the household. For this reason, the Federal Cabinet decided at the end of April within the framework of Social Protection Package II to gradually increase the short-time work allowance by 10 to 20 percent from May 1, 2020, for longer periods of entitlement. Even the state compensation for the self-employed is unlikely to fully compensate for the usual earnings. Accordingly, around 20 per cent of those in employment in 2019 report that their gross individual earned income has fallen in the course of the crisis. However, more than three-quarters also answer that their earned income has remained more or less unchanged. A loss of earned income

[13] It should be noted that the answer options to the questions about productivity are not symmetrical. They are: "much more productive," "just about as productive", and "less productive".

[14] From March 1 to April 26, 2020, the Federal Employment Agency received 751,000 notifications from companies that they had cut employees' working hours, resulting in a total of 10.1 million working people being placed on short-time work.

is reported slightly more frequently by a quarter of those in employment in the lower or upper third compared to the middle third (around 16 percent).

Table 3: Characteristics of the working population in spring 2020

	Mean	Standard deviation
Share reduced working hours	0.17	0.38
Share working from home	0.34	0.47
Productivity working from home by comparison		
Much more productive	0.10	0.31
Just about as productive	0.48	0.50
Less productive	0.41	0.49
Don't know	0.00	0.04
Weekly working hours	29.8	14.6
Changes due to COVID-19 pandemic:		
Income increased	0.01	0.09
Income fell	0.20	0.40
Income approx. the same	0.77	0.42
Don't know	0.02	0.14
Share by occupational status:		
Self-employed	0.08	0.27
Blue-collar	0.12	0.33
Civil servant	0.06	0.24
White-collar	0.68	0.47
Apprentice / trainee	0.01	0.11
Other	0.04	0.21

Note: SOEP-CoV, tranche 1, working population in 2019, weighted using individual weights.

Table 4: Characteristics of the working population in spring 2020

	Equivalent disposable household income			Gross individual earned income			Education		
	1st tercile	2nd tercile	3rd tercile	1st tercile	2nd tercile	3rd tercile	low	medium	high
Share reduced working hours	0.21	0.12	0.21	0.21	0.14	0.19	0.23	0.19	0.13
	(0.41)	(0.33)	(0.41)	(0.41)	(0.34)	(0.39)	(0.42)	(0.39)	(0.34)
Share working from home	0.21	0.42	0.46	0.17	0.29	0.59	0.12	0.29	0.60
	(0.41)	(0.49)	(0.50)	(0.38)	(0.45)	(0.49)	(0.33)	(0.45)	(0.49)
Productivity working from home by comparison									
Much more productive	0.15	0.08	0.09	0.07	0.14	0.06	0.00	0.06	0.10
	(0.36)	(0.27)	(0.29)	(0.26)	(0.35)	(0.23)	(0.06)	(0.23)	(0.30)
Just about as productive	0.48	0.54	0.43	0.48	0.47	0.49	0.32	0.59	0.42
	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)	(0.48)	(0.49)	(0.50)
Less productive	0.37	0.38	0.47	0.44	0.38	0.45	0.66	0.35	0.48
	(0.49)	(0.49)	(0.50)	(0.50)	(0.49)	(0.50)	(0.49)	(0.48)	(0.50)
Don't know	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.00
	(0.00)	(0.00)	(0.07)	(0.04)	(0.08)	(0.00)	(0.15)	(0.00)	(0.02)
Weekly working hours	26.5	33.8	29.2	23.2	34.0	32.8	25.2	31.2	30.6
	(15.9)	(12.5)	(14.7)	(14.8)	(12.1)	(14.2)	(15.5)	(13.9)	(14.6)
Changes due to COVID-19 pandemic:									
Income increased	0.02	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.01
	(0.13)	(0.08)	(0.04)	(0.14)	(0.05)	(0.07)	(0.03)	(0.10)	(0.11)
Income fell	0.23	0.17	0.25	0.24	0.16	0.25	0.22	0.22	0.20
	(0.42)	(0.38)	(0.43)	(0.43)	(0.37)	(0.43)	(0.41)	(0.41)	(0.40)
Income approx. the same	0.73	0.82	0.72	0.72	0.82	0.72	0.75	0.76	0.75
	(0.45)	(0.39)	(0.45)	(0.45)	(0.38)	(0.45)	(0.43)	(0.43)	(0.44)
Don't know	0.03	0.01	0.03	0.01	0.01	0.03	0.03	0.01	0.04
	(0.17)	(0.08)	(0.16)	(0.12)	(0.11)	(0.16)	(0.17)	(0.08)	(0.21)

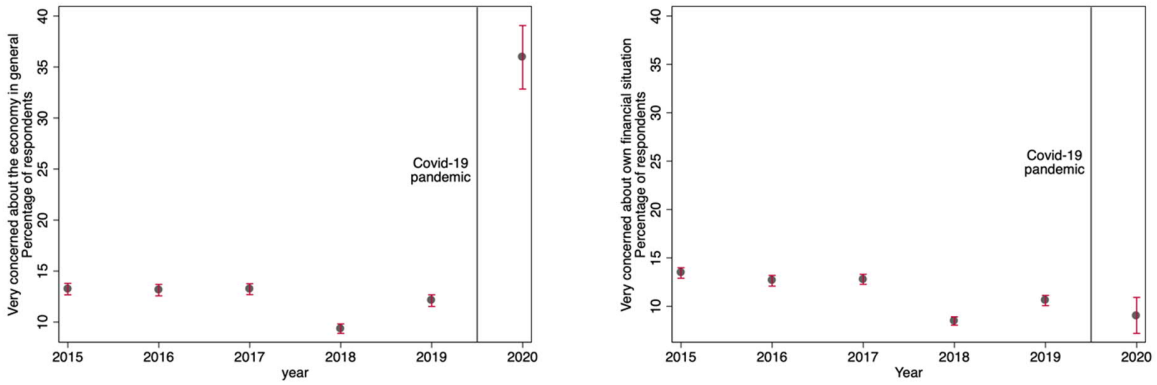
Note: SOEP-CoV, tranche 1, working population in 2019, weighted using individual weights.

The tense overall economic situation is also reflected in the concerns of the working population (see Figure 3). The share of the population that reported being very concerned about the overall economic situation remained stable between 2015 and 2019 at just over 10 percent—a very low

level compared to the preceding years.[15] Following the outbreak of the corona pandemic, however, this share rose to around 35 percent in April 2020. The rise in concerns within the population is also in line with the mood among German companies: The Ifo Business Climate Index fell to a historically low level in April 2020.[16]

It is noteworthy that the increase in concerns about the economy is not (yet) echoed in an increase in people's concerns about their own financial situation. The proportion of those who were very concerned about their own financial situation fluctuated around 10 percent both before and after the pandemic. The same is true across the workforce by terciles of net household income in 2019 (Figure 4). The extensive government financial support packages provided both to the population, through Social Protection Packages I and II, and to stabilize the economy are likely to have had a mitigating effect on these concerns. This assumption is supported by the fact that even during the financial market crisis of 2008/09, people's concerns about the economy rose sharply, while their concerns about their own financial situation barely changed (see Grabka et al., 2019). Then as well, the severe economic recession was cushioned by a comprehensive package of government measures, including flexible regulations on short-time work and economic stimulus packages.

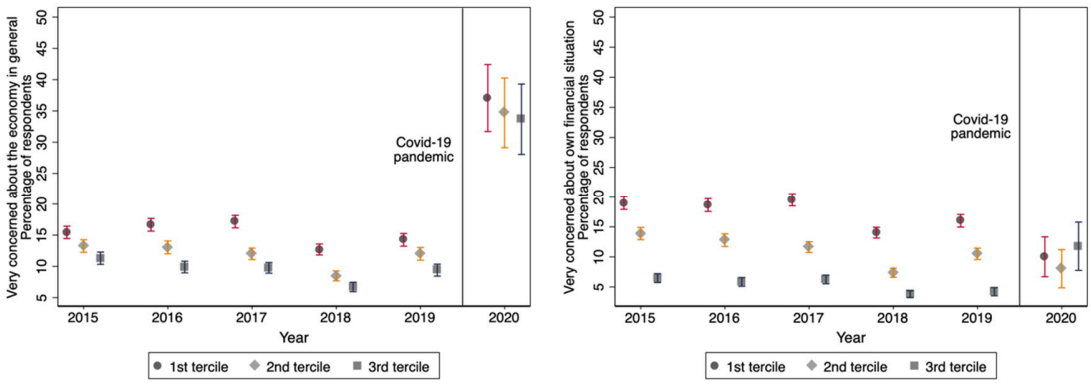
A comparison of the workforce by level of education shows that those with lower levels of education before the corona pandemic were more concerned about both the economy in general and their own financial situation than those with higher levels of education. After the outbreak of the pandemic, there were no longer any systematic differences between the groups.



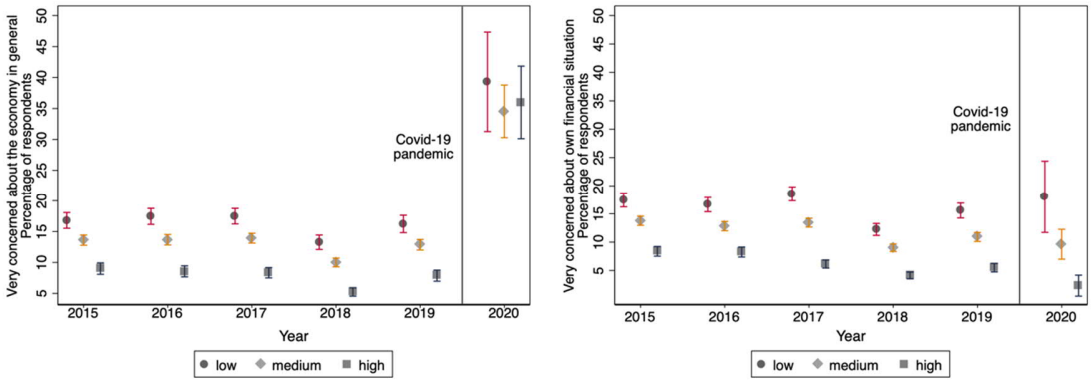
Note: SOEPv35, SOEP data from 2019, and SOEP-CoV, tranche 1, working population in 2019, weighted using individual weights.

Figure 3: Change in people's concerns about the economy and their own financial situation

[15] On changes in concerns as reflected in SOEP data, see Priem et al. (2020).
[16] The ifo Business Climate Index data are from: https://www.ifo.de/node/54705.



by equivalent household net income tercile



by level of education

Note: SOEPv35, SOEP data from 2019 and SOEP-Cov, tranche 1. All values are weighted with individual weighting factors. Terciles based on equivalent monthly household net income.

Figure 4. Change in people's concerns about the economy and their own financial situation, by income and education group

3 Conclusion

There is much to suggest that in 2020, the corona pandemic will plunge Germany into the worst recession since the Federal Republic came into existence. The Federal Ministry for Economic Affairs and Energy forecasts a 6.3 percent decline in gross domestic product relative to the previous year.[17] Evidence of this can already be seen on the labor market: According to the Federal Employment Agency, this was the first April in many years in which there was a rise in unemployment and underemployment. Short-time work has risen to an unprecedented level of

[17] See https://www.bmwi.de/Redaktion/DE/Pressemitteilungen/2020/20200429-altmaier-corona-pandemie-fuehrt-wirtschaft-in-rezession.html.

more than ten million according to current estimates. The demand for labor has collapsed, except in a few sectors of the economy.[18]

This drastic deterioration in the economic situation is also reflected in growing concerns among the employed population. Our results show that people consider the overall economic situation in April 2020 to be much worse than in the previous year, a view that is held fairly equally across the various income and education groups. The pandemic has not led to an increase in people's concerns about their own financial situation. It has led to changes in working environments: As of April 2020, many employed people were working reduced hours, and many were working from home. About half of those working from home reported that this had not changed their productivity, and about 40 percent said that their productivity had fallen. Perhaps surprisingly, around ten percent reported a significant increase in productivity. Around 20 percent reported a drop in income.

However, the changes are not the same for all workers, but vary by educational level and income. Far more individuals with high gross individual earned income or high equivalent disposable household income, as well as individuals with higher levels of education are working from home. As a result, they are better able to reduce contact with coworkers and thus to protect themselves and their families. At the same time, these individuals frequently report that working from home has had a negative impact on their job performance. In the upper third of the population, weekly working hours have decreased significantly in percentage terms, while people in the lowest education group were much more frequently working reduced hours. The fact that individuals in the bottom income tercile report declines in income approximately as frequently as those in the top tercile is particularly worrying from a socio-political point of view, because the former have far more limited resources for dealing with this loss in income.

Despite all these changes, the working population—and in particular the highly educated—continue to hold a relatively positive view of their own financial situation, presumably also because many of them had not yet suffered any income losses as of April 2020. It is unlikely that people will continue to have such a positive assessment over the next few months if unemployment numbers increase and if companies begin to declare bankruptcy.

Various characteristics of the working population that have not been taken into account here could provide a more nuanced picture of the implications of the corona pandemic: the individual's specific occupation, whether employed or self-employed, whether there are small children in the household, and whether individuals are working in an essential field. The possibilities for more nuanced analyses will increase with each tranche of SOEP-CoV, as will the possibilities to investigate changes over the course of the pandemic. It is already apparent that some population groups will get through the crisis relatively unscathed, while others will suffer, and that here as well, cumulative advantages or disadvantages may emerge from "classic" dimensions of inequality such as education and income.

[18] See https://www.arbeitsagentur.de/presse/2020-27-der-arbeitsmarkt-im-april-2020.

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Appendix

A.1 Sampling in SOEP-CoV

The SOEP Covid-19 (SOEP-CoV) sample is a subsample of approximately 12,000 households that have been part of SOEP survey since at least 2018 and that will be contacted for the current wave of the SOEP survey between February and August 2020. In order to be able to map the temporal course of the corona pandemic in Germany, the SOEPCoV sample was divided into nine tranches, which are being surveyed consecutively. The first five tranches are being surveyed by telephone at two-week intervals, and the last four tranches at weekly intervals.

Table A1 summarizes key sample characteristics. The sizes of the tranches in the SOEP-CoV sample decrease continuously over time. They are structured to accurately represent all private households in Germany in terms of key socio-demographic and economic characteristics of household composition, such as regional location, household size, income, age, and gender distribution (within a margin of error of +/- 5 percent). Figure A1 shows the composition of the tranches at the household level in terms of municipality size.

Table A1: Characteristics of the SOEP-CoV sample

Tranche	1	2	3	4	5	6	7	8	9
Fieldwork	April 1-16	April 13-26	April 27-May 10	May 11-24	May 25-31	June 1-7	June 8-14	June 15-21	June 22-28
Sample size (gross)	3,000	3,000	2,000	1,000	600	600	600	600	600

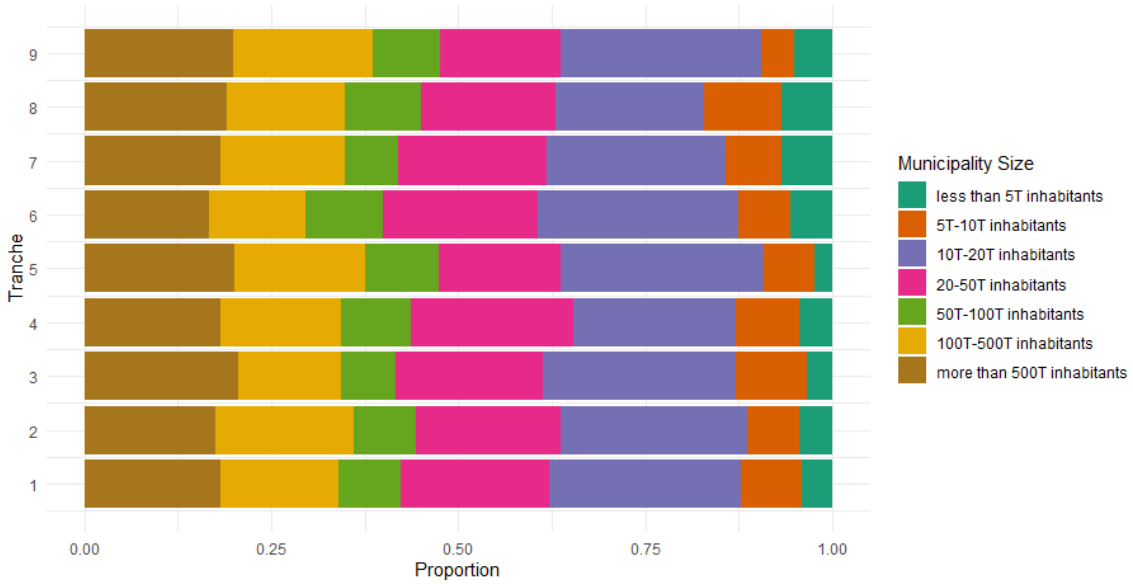

Figure 1: Composition of the nine tranches of the SOEP-CoV sample by size of municipality

A.2 Response rate and weighting

At the time of writing, data are available from the first tranche of SOEP-CoV. Telephone interviews were conducted with 1,689 households from the longitudinal SOEP study. The response rate was approximately 60 percent. On this basis, we estimate that it will be possible to interview 7,200 households in the SOEP-CoV sample over the course of the entire SOEP-CoV survey.

To obtain the sample of households for SOEP-CoV, we eliminated from the total population of households in the 2020 SOEP survey those households that cannot be reached by telephone (because no landline or mobile number was on file) and those that had withdrawn their consent since the last annual SOEP survey. This formed the initial sample for SOEP-CoV. However, not all of these households could be contacted, among other reasons because no one answered the phone at the time of the call. In the first tranche of SOEP-CoV, 20 percent of households could not be reached. Of the approximately 2,200 households that could, 85 percent were willing to take part in the survey. The factors that determine whether there is a valid telephone number on file and that lead to households being contacted and participating in the study are not the same for all households. In order to avoid biases when extrapolating the results to the broader population, these non-random factors must be taken into account in statistical analysis. In the SOEP-CoV study, this is done through weighting in several stages, which traces the drop-out-processes that take place when going form the initial gross household sample to the net sample. In total, three weighting models (cloglog regressions) are calculated (see Figure A2). In all models, a total of more than 300 socio-demographic, regional, and economic household characteristics that are available for the SOEP households are examined for their significance with respect to participation in the SOEP-CoV Study. This large number of weighting variables is included in the SOEP weighting as standard; see Siegers et al. (2020). Thus, the SOEP-CoV weighting conforms to the SOEP standard and makes it possible to conduct joint analyses of SOEP-CoV and SOEP samples. Missing values for the variables used in weighting are represented by corresponding dummy variables. In this way, the fact that a value is missing can be directly incorporated into the weighting model.

Figure A2: Steps in weighting

Whether a household could be contacted in tranche 1 depended on whether they had a landline and/or mobile phone number and on the time of day when they were called. Whether a household member was employed in the public sector or owned a home also had a positive and significant impact on contactability. Increasing numbers of interviews could be carried out with households in which at least one person works in an essential or frontline field, whose members have a general interest in the social and political situation in Germany and who generally have fewer concerns than others. The propensity to participate is also higher in households in which at least one person in the household has died (before or in 2018). Weighting factors for SOEP-CoV- are obtained by inverting the product of the three probabilities predicted on the basis of the three models. The weighting factors are multiplied by the SOEP household cross-sectional weight from

the last SOEP survey, and adjusted to marginal distributions determined in the official statistics (Microcensus) with respect to the federal state, municipality size class, household size, household type, year of moving in to the home, home ownership, and nationality. Weights at the individual level are obtained through marginal adjustments (based on the Microcensus) with regard to gender and age distribution, year of move, migration background, citizenship, and nationality.