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Germany's Labour Market in Coronavirus Distress – New Challenges to Safeguarding Employment

12 May 2021

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We analyse measures of internal flexibility taken to safeguard employment during the Coronavirus Crisis in comparison to the Great Recession. Cyclical working-time reductions are again a major factor in safeguarding employment. Whereas during the Great Recession all working-time instruments contributed to the reduction in working time, short-time work (STW) now accounts for almost all of the working-time reduction. STW was more rapidly extended, more generous, and for the first time a stronger focus was put on securing household income on a broad basis. Still, the current crisis is more severe and affects additional sectors of the economy where low-wage earners are affected more frequently by STW and suffered on average relatively greater earnings losses. A hypothetical average short-time worker had a relative income loss in April 2020 that was more than twice as large as that in May 2009. Furthermore, marginal employment is affected strongly but not protected by STW.

JEL classification: E24, E32, J08, J20

Keywords: Internal Flexibility Short-Time Work, Business Cycles, Great Recession, Coronavirus Crisis

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I. Introduction

Since the beginning of the twenty-first century, Germany has experienced three major economic slumps with strikingly different labour market outcomes: the long-lasting economic stagnation following the economic downturn after the bursting of the dot-com bubble and the first Gulf war (Herzog-Stein, Lindner, and Zwiener 2013), the Great Recession as a consequence of the global financial and economic crisis (Herzog-Stein, Lindner, and Sturn 2018), and now the Coronavirus Crisis as a result of the Covid-19 pandemic. Whereas the long-lasting economic stagnation was a near disaster for the German labour market and unemployment reached record levels¹, the employment performance in the Great Recession some years later is seen as a great success story in terms of safeguarding employment.

A crucial factor behind the success in safeguarding employment during the Great Recession was massive working-time reductions via internal flexibility. It refers to the internal adjustment of the amount of labour input used in an establishment's production process along the intensive margin with the help of various working-time arrangements. Overall, strong working-time reductions were responsible for nearly 1.3 million safeguarded jobs or around half of all safeguarded employment in that crisis (Herzog-Stein, Lindner, and Sturn 2018, Tables 3 and 4). The major instruments used for temporary working-time reductions were short-time work (STW), working-time accounts (WTA), reduced hours of overtime work, and collectively agreed temporary reductions in regular working hours.

Among all the various instruments of internal flexibility, STW gained most attention in the economic literature in the context of the Great Recession. While there is no doubt that STW was an important and effective tool of safeguarding

¹ According to the business-cycle dating of Herzog-Stein, Lindner, and Zwiener (2013) in the long stagnation after the peak in the first quarter 2001 until the trough in the second quarter 2005 the unemployment rate increased by 2.6 percentage points. Even if we take into account that part of the increase is of a statistical nature due to the so-called Hartz-Reforms. However, at least half of this increase cannot be attributed to this statistical effect. During the same time period employment decreased by nearly 700 000 persons.

employment during the Great Recession in Germany *per se* (Boeri and Bruecker 2011; Cahuc and Carcillo 2011; Hijzen and Venn 2011; Hijzen and Martin 2013), a more recent strand of literature distinguishes between the effectiveness of the rule-based and the discretionary component of STW (Balleer et al. 2016; Gehrke and Hochmuth 2021). The former refers to the pre-existing legal regulations regarding STW and its function as an automatic stabilizer during economic slumps. The latter refers to the common practice of discretionary crisis-induced, temporary legislative changes especially with respect to the eligibility criteria or the financial arrangements of the short-time-work scheme (Bogedan 2010). Whereas Balleer et al. (2016) argue that firms' hiring and firing decisions are mainly determined by long-run expectations which can only be affected by permanent rules, Gehrke and Hochmuth (2021) state that discretionary measures work as an incentive for further labour hoarding and prevent hysteresis effects. Empirically, their estimates regarding the effectiveness of both components are inconclusive. However, the German experience with the extraordinarily pronounced cyclical working-time reductions during the Great Recession (Herzog-Stein, Lindner, and Sturn 2018) suggests that both the rule-based as well as the discretionary component of STW played an important role in safeguarding employment.²

Apart from STW, working-time accounts mark the only other instrument of internal flexibility that is addressed explicitly in the literature. The use of WTA is common in Germany. According to Ellguth, Gerner, and Zapf (2018), in 2016 nearly 60 per cent of all employees in Germany had a working-time account, compared to only 35 per cent in 1999. WTA are not explicitly there to safeguard employment in an economic crisis. Rather, their main aim is to help establishments to organise work in a more flexible way. Consistent with this view, the direct empirical evidence regarding safeguarding employment by

² This conclusion also seems to be consistent with the reading of the results by the authors of the two studies. In a recent joint publication, they interpret their findings in such a way that the rule-based and the discretionary component of STW together safeguarded up to 850 000 jobs in the Great Recession (Balleer et al. 2019, p. 257).

WTA in the Great Recession is rather weak (Bellmann and Gerner 2011; Boeri and Bruecker 2011; Bohachova, Boockmann, and Buch 2011; Bellmann, Gerner, and Upward 2012; Balleer, Gehrke, and Merkl 2017). Still, as far as WTA are used to smooth the use of labour as factor of production over the business cycle, they might help to safeguard employment.

Due to the necessity of a partial lockdown of economic and social activity to limit the spreading of the virus in March 2020 it was obvious that the economic shock and hence the labour market impact of the Covid-19 pandemic would be severe. The German government signalled to all economic agents early on that its aim was to safeguard employment, but this time on an even larger, previously unprecedented scale. Therefore, it reacted quickly to facilitate the access to STW in a similar fashion as in the Great Recession.

Since the challenges in the Coronavirus Crisis are even greater, we analyse the measures taken to safeguard employment - especially in comparison to the Great Recession. More specifically, we pursue the question whether the lessons learned from the Great Recession provided a current blueprint for the selected policies. Due to intensive use of short-time work and the pronounced differences how the crises affected employees, we also investigate the distributional income aspects of the crisis.

Our analysis shows that - similar to the Great Recession - cyclical working-time reductions were a major factor in successfully safeguarding employment during the Coronavirus Crisis. However, in the Coronavirus Crisis its relative importance in safeguarding employment is much higher. Labour hoarding via a procyclical reduction in hourly labour productivity is of similar absolute magnitude like in the Great Recession, but its relative importance is much smaller. Whereas during the Great Recession all instruments of internal flexibility contributed to the reduction in working time, STW now accounts for almost all of the working-time reduction. This time STW was more rapidly extended, more generous, and for the first time a stronger focus was put on securing household income on a broad basis. The current crisis is more severe

and affects almost all sectors of the economy. Low-wage earners are not only more frequently in STW but also suffered on average relatively greater earnings losses. A hypothetical average short-time worker had a relative income loss in April 2020 that was more than twice as large as that in May 2009. Furthermore, marginal employment is affected strongly but not protected by STW.

The remainder is structured as follows: Section II summarises how the German labour market is affected by the Coronavirus Crisis. Section III presents a comparative business-cycle analysis of the Coronavirus Recession and the Great Recession and has a closer look at the working-time instruments chosen in the Coronavirus Crisis. Section IV investigates blind spots of the chosen policies to safeguard employment, like its distributional consequences and its effectiveness for different types of dependent employment. Section V concludes.

II. The German Labour Market during the Covid-19 Pandemic

The outbreak of the global Covid-19 pandemic and its economic impact on the world economy caused a major economic crisis. The German economy started to be severely affected by the pandemic at the end of the first quarter 2020 and went into a partial lockdown from mid-March to May 2020. The result was an economic slump of historic proportions. In the second quarter 2020, real GDP contracted by 9.7 per cent, after it fell already by 2.0 per cent in the first quarter 2020 (Figure 1). In total from 2019q4 to 2020q2 real GDP fell by 11.5 per cent seasonally and calendar adjusted. In comparison, in the Great Recession real GDP fell by 7.0 per cent from 2008q1 to 2009q1.

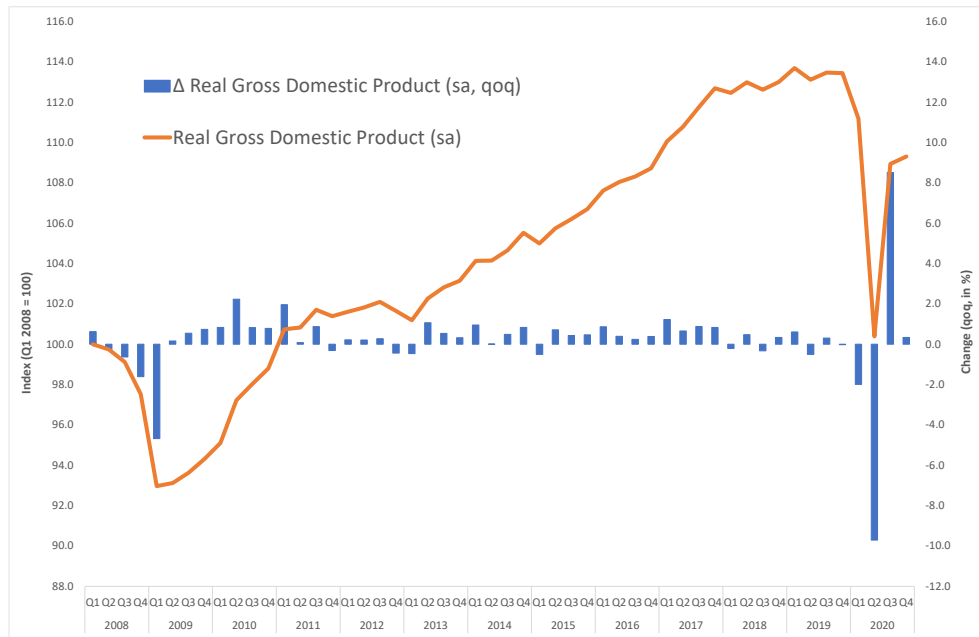


FIGURE 1. REAL GROSS DOMESTIC PRODUCT IN GERMANY FROM 2008 TO 2020

Notes: Level (line, left scale) and change (columns, right scale) of real GDP; level presented as index (2008q1=100) and seasonally and calendar adjusted quarterly change measured in per cent (qoq).

Source: Federal Statistical Office (Destatis), own presentation.

The Coronavirus Crisis had a marked impact on labour market performance in Germany. Employment decreased by 1.8 per cent in the months from March to June 2020 (see Figure 2). Both employed workers as well as self-employed lost their jobs. Quarterly data from the national accounts³ indicate that the seasonally adjusted decline in self-employment in the second quarter 2020 (-1.2 per cent qoq) was similar to the seasonally adjusted reduction in the number of employed workers (-1.4 per cent qoq).

Compared to the development in the Great Recession the drop in employment was much more severe during the first wave of the Coronavirus Crisis. The decline in employment was now about four times as high. However, in relation to the magnitude of the negative economic impact of the Covid-19 pandemic - similar to the experience in the Great Recession - employment losses were relatively moderate. This is also true for the rise in unemployment.

³ Unfortunately, no monthly statistics about people in self-employment do exist for Germany.

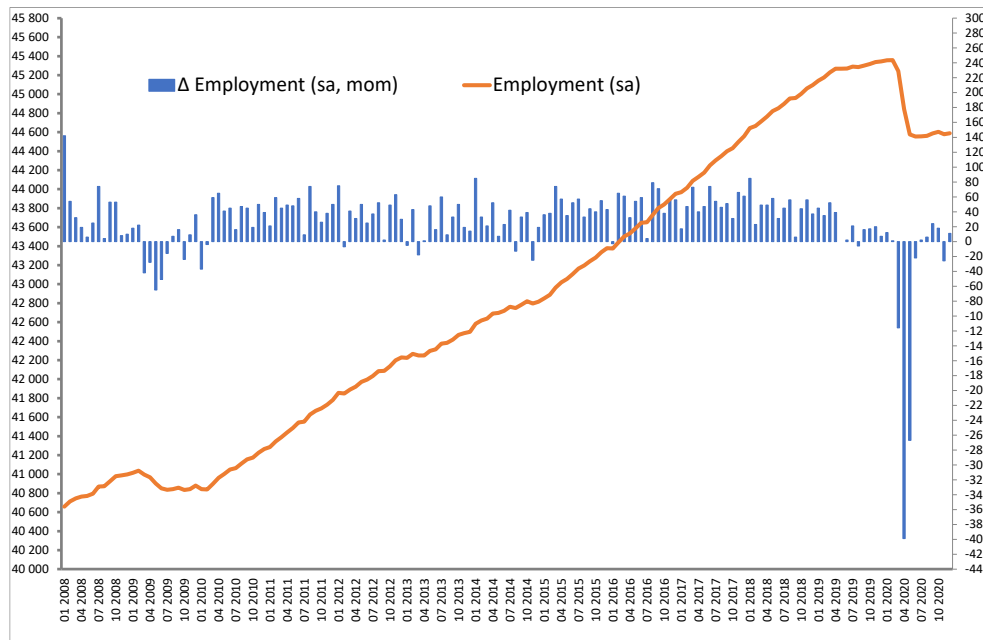


FIGURE 2. EMPLOYMENT IN GERMANY FROM 2008 TO 2020

Note: Level (line, left scale) and change (columns, right scale) of employment measured in 1000 persons.

Source: Federal Statistical Office (Destatis), own presentation.

In a mirror image to the decline in employment, registered unemployment increased by 1.4 percentage points from April to June 2020 (see Figure 3). However, the loss of jobs was more pronounced than the increase in unemployment. This could partly be due to the fact that not only people in employment subject to social security contributions but also workers in marginal employment (i.e. in so-called Minijobs) and people in self-employment lost their jobs. However, for these groups it is less attractive to register as unemployed since they are neither entitled to receive unemployment benefits nor to participate in the STW scheme (see Subsection IVB). Hence, they might have become inactive and left the labour force (temporarily).

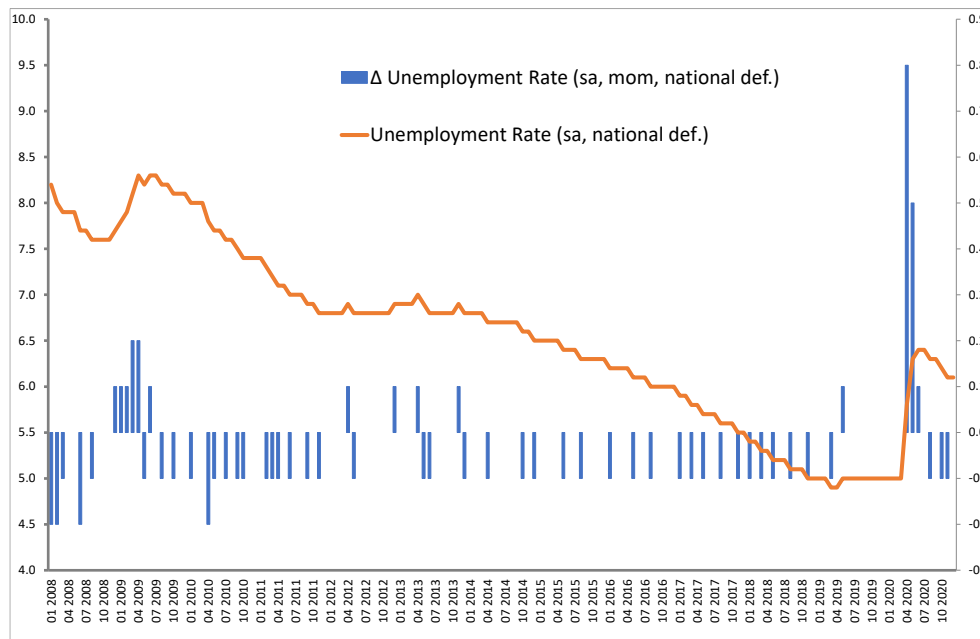


FIGURE 3. UNEMPLOYMENT RATE (NATIONAL DEFINITION) IN GERMANY FROM 2008 TO 2020

Note: Unemployment rate (line, left scale) measured in per cent and its change (columns, right scale) measured in percentage points.

Source: Federal Employment Agency, own presentation.

According to Fuchs, Weber, and Weber (2020), the statistically ascertainable labour force potential, i.e. the sum of active people and number of people participating in active labour-market policy measures, decreased by around half a million people from May to June 2020. They identified four reasons for this decline: the reduction in the number of people exclusively in marginal employment (Minijobs), the fall in the number of people participating in active labour-market policy measures, the early withdrawal of older workers from the labour force, and a smaller number of people migrating to Germany due to the temporary closure of the country's borders in response to the spreading of the Covid-19 pandemic. Overall, Fuchs, Weber, and Weber (2020) estimate that around four fifth of the reduction in the statistically ascertainable labour force potential is a result of the Coronavirus Crisis and the remainder is a consequence of the aging population in Germany. How much of this decline in the labour

force potential is permanent remains to be seen and might in the end also depend on the length of the Coronavirus Crisis.

In total, the rise in unemployment was much faster and more pronounced than in the Great Recession, when unemployment started to rise only from December 2008 onwards (see Figure 3). Overall, the increase in unemployment in these three months was more than twice as large as the total increase in the Great Recession. However, compared to the massive decline in economic activity the rise in unemployment was relatively moderate, too.

III. Internal Flexibility in the Covid-19 Pandemic

A. Internal Flexibility at Work: A Business Cycle Analysis

Even though the immediate impacts of the Coronavirus Crisis were more severe than those of the Great Recession, employment was again successfully safeguarded on an even larger scale throughout the pandemic. To improve our understanding of this, in the following we closer examine the current use of internal flexibility with the help of a business-cycle analysis comparing the Coronavirus Crisis with the Great Recession. We focus on the comparison of the economic dynamics during the Great Recession and the economic slump related to the Covid-19 pandemic, with a particular interest in the relative importance of working-time instruments (overtime, regular working time, WTA, and STW) in safeguarding employment.

For a business-cycle analysis of the cyclical variations in economic activity, employment, productivity, and working hours, we have to first determine the peak and trough of the Great Recession and the latest recession in Germany. For this, we use the development of the cyclical output gap to determine the peak and troughs with the help of the Hodrick-Prescott Filter (HP-Filter). Pragmatically, we follow a recent strand of macroeconomic research in labour economics focusing on business-cycle issues originating with Shimer (2005)

and use a HP-Filter with a smoothing parameter λ equal to 100 000 to detrend the quarterly time series from 1991 to 2020.⁴

Based on this approach the economic downturn of the Great Recession started after the first quarter of 2008 (peak) and ended in the second quarter 2009 (trough). Furthermore, in between the Great Recession and the Coronavirus Crisis there was a short economic slump due to the so-called Euro Crisis from 2011q3 (peak) to 2013q1 (trough).

The determination of the latest economic downturn including the Coronavirus Crisis is more surprising. The German economy peaked already in the fourth quarter 2017 and its economic trough is in the second quarter 2020. Hence, in our business cycle analysis comparing the Great Recession and the Coronavirus Crisis, we have to take into account that the German economy was already in an economic slump before the outbreak of the Covid-19 pandemic caused the Coronavirus Crisis in March 2020.

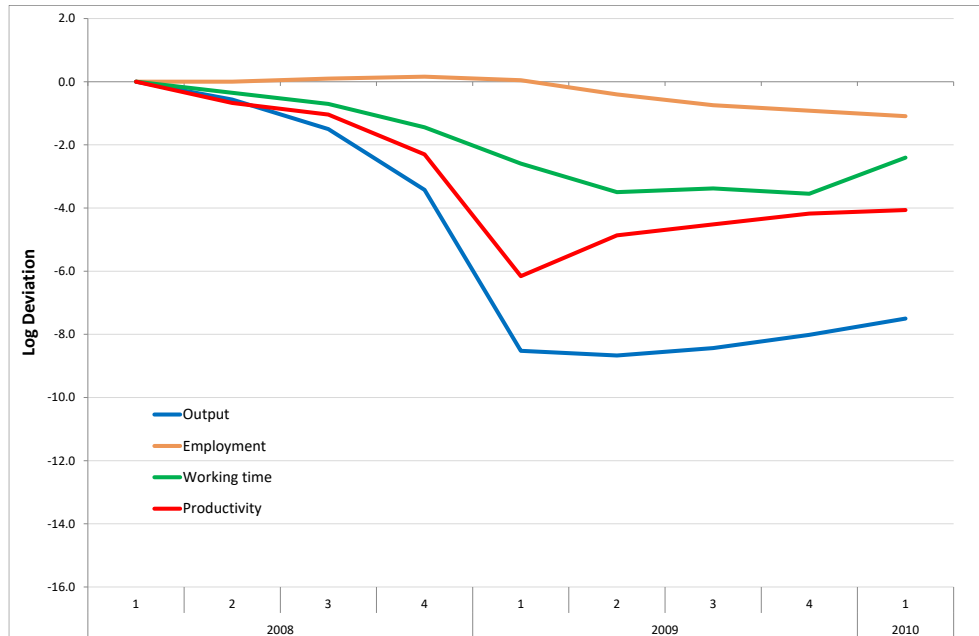
Driver of the closing output gap after the peak at the end of 2017 and the economic downturn was an economic recession in German manufacturing. This interpretation is also supported by the business-cycle indicator of the Macroeconomic Policy Institute (IMK) which is based on industry production.⁵

Therefore, to be consistent in our analysis we have to take into account that the German economy was already in an economic downturn well before the outbreak of the Covid-19 pandemic. But the pandemic transformed the economic slump into the most severe economic crisis since the end of the second world war. For analytical clarity, we refer to the economic downturn from 2017q4 (peak) to 2020q2 (trough) as the Coronavirus Recession and the

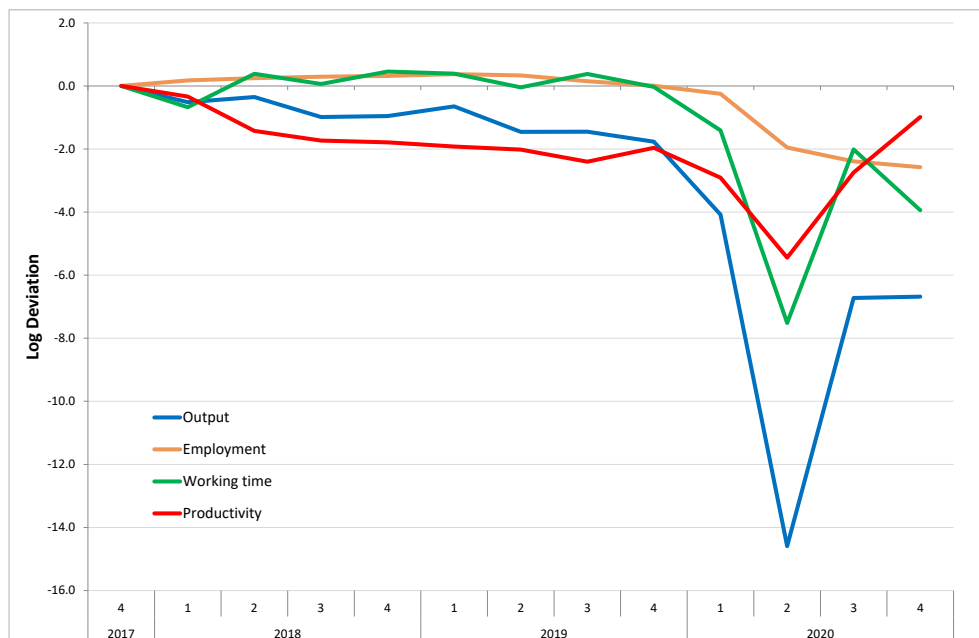
⁴ According to Shimer (2012, Footnote 10) the use of a smaller value for the smoothing parameter like e.g. the common value for quarterly time series of λ equal to 1600 cuts off some of the cyclical variation of the labour market variables. Since we are writing while the Covid-19 pandemic is still present, and we are interested in the cyclical variations at the end of our sample, using a HP-Filter with a larger smoothing parameter has the further advantage that the end-of-sample problem is of smaller importance.

⁵ For details on the business-cycle indicator of the IMK see Proaño and Theobald (2014). The peaks and troughs presented in their Figure 1 support our dating of the peak and trough with respect to the Great Recession.

economic crisis resulting from the Covid-19 pandemic starting in March 2020 as the Coronavirus Crisis.



(A) GREAT RECESSION



(B) CORONAVIRUS RECESSION

FIGURE 4. GREAT RECESSION VS. CORONAVIRUS RECESSION

Note: Log Deviation from peak quarter (Panel A: 2008q1; Panel B: 2017q4) measured in log points.

Source: Federal Statistical Office (Destatis); own calculations.

Figure 4 examines the economic dynamics of the cyclical components of GDP, employment, productivity and working time during the Great Recession (Panel A) and the Coronavirus Recession (Panel B). Both figures are normalized to the respective beginning of the economic downturn in 2008q1 and 2017q4. Due to the economic shock caused by the Covid-19 pandemic, the Coronavirus Recession was much more severe. From peak to trough cyclical GDP contracted by 14.6 per cent – 12.8 percentage points happened from 2019q4 to 2020q2 as a direct consequence of the Covid-19 pandemic. The corresponding cyclical decline in output from peak to trough was 8.7 per cent in the Great Recession.

As in the Great Recession, most of the economic shock has been absorbed by internal flexibility in the labour market via a temporary working-time reduction and labour hoarding in the form of a procyclical decline in labour productivity. However, this time the relative contribution of internal flexibility is even larger than in the Great Recession. From peak to trough, cyclical working time decreased twice as much as in the Great Recession (-7.5 vs. -3.5 per cent). Productivity reacted in a similar way in both crises (-5.4 vs. -4.9 per cent). Even though speed and intensity of job losses were more pronounced in the Coronavirus Crisis, in both economic recessions cyclical employment continued to decline well after the trough of the business cycle. Overall, from 2008q1 to 2010q1 employment declined by 1.1 per cent. Thereafter, cyclical employment started to recover. In the Coronavirus Recession cyclical employment declined by 2.6 per cent until 2020q4.

Figure 5 shows the development of cyclical working time and its components regular working time, paid and unpaid overtime, STW, as well as WTA, again detrended with the HP-filter ($\lambda = 100\,000$) if the component has a trend. Over the period from the beginning of 2005 to the end of 2020, working time and all its components follow a clear cyclical pattern. However, while all these components contributed to the safeguarding of employment during the financial

crisis (Herzog-Stein, Lindner, and Sturn 2018), this is no longer the case in the Coronavirus Recession and also not in the Coronavirus Crisis.

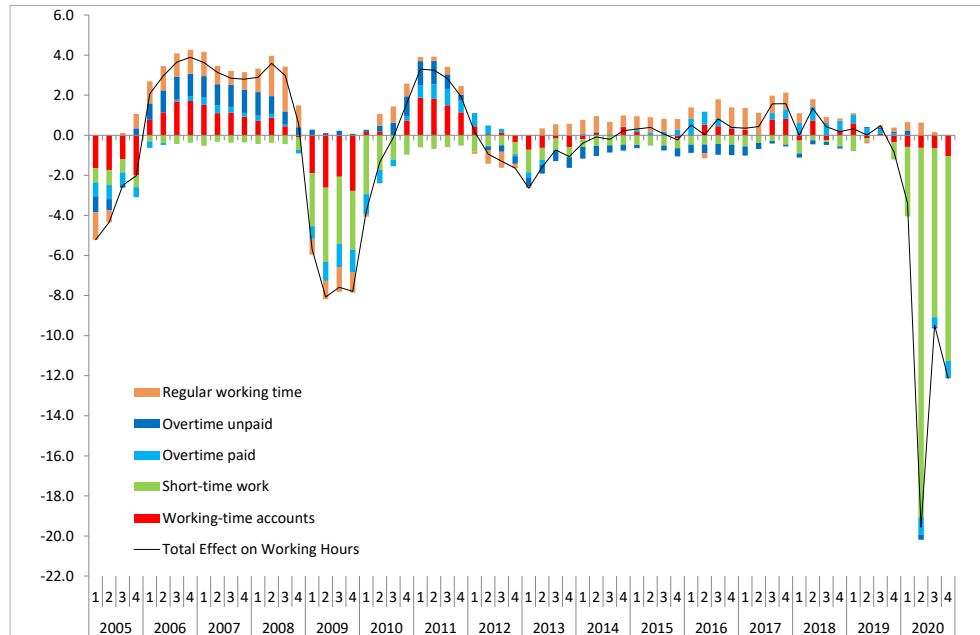


FIGURE 5. COMPONENTS OF CYCLICAL CHANGES IN WORKING HOURS PER EMPLOYEE PER QUARTER, 2005Q1–2020Q4

Note: The term ‘cyclical’ refers to the difference of actual and trend changes for each working-time instrument (if the series shows a trend). STW and WTA show no trend. The trend is constructed applying the Hodrick-Prescott filter with $\lambda = 100\,000$. All components are measured in working hours per employee per quarter.

Source: Institute for Employment Research (IAB) working time calculations; own calculations.

Overtime. — In general, cyclical overtime paid and unpaid varies between ± 1 hour over the business cycle. Unpaid overtime was most important at the beginning of the considered period (Figure 5). After the minor slump related to the so-called Euro Crisis from 2011q3 to 2013q1 it lost its relevance for cyclical fluctuations. Interestingly, different from unpaid overtime the cyclical variation of paid overtime continues after the Great Recession and is still observable in the Covid-19 pandemic.

In the Coronavirus Recession the cyclical reduction in paid overtime reduced the average working time per employee by 0.1 hours per quarter from peak to trough, compared to 0.2 hours per quarter in the Great Recession. However, its contribution to the cyclical reduction in working time in the Coronavirus Crisis

from 2019q4 to 2020q2 is similar to its contribution in the last two quarters of the Great Recession, i.e. from 2008q4 to 2009q2 (-0.5 hours vs -0.4 hours per quarter), but accounting only for 5 per cent of the total working-time reduction during that time period in contrast to nearly 9 per cent in the last two quarters of the Great Recession.

Regular working time. — Different from the Great Recession, there is not really a cyclical response in regular working time to reduce working hours in the Coronavirus Recession. In the Coronavirus Crisis the cyclical component of regular working time even slightly increased average working hours per worker by on average 0.2 hours per quarter from 2019q4 to 2020q2. Over the whole Coronavirus Recession, the cyclical reduction of regular working hours decreased average working time per worker by a meagre 0.2 hours from peak to trough. Overall, this observation might be explained by the dominance of STW, which made further adjustments to working time unnecessary.

Working-time accounts (WTA). — They were the second most important instrument of internal flexibility during the Great Recession, reducing the average working time per employee by 3.3 hours in total or 0.7 hours per quarter from peak to trough and in the first two quarters of 2009 by even 1.3 hours per quarter. As for overtime, the importance of WTA is much smaller in the Coronavirus Crisis than in the Great Recession. From peak to trough WTA contributed on average 0.1 hours per quarter in the latest downturn. Also, in the Coronavirus Crisis from 2019q4 to 2020q2 WTA played no bigger role than in the whole downturn (-0.1 hours per quarter).

At first glance, this is unexpected since WTA became more common over time and 56 per cent of all employees had WTA in 2016 (Ellguth, Gerner, and Zapf 2018). However, one possible explanation could be the respective economic dynamics in the boom periods before the two recessions.

In the upswing before the Great Recession WTA were filled, providing firms with a considerable working-time-account buffer for the following downturn.

In contrast, in the long boom period before the Coronavirus Recession working time was closer to its long run trend with smaller cyclical variations. As a result, opportunities to increase the balances in the WTA were more limited than in the boom period before the Great Recession. Therefore, the working-time reductions due to WTA account only for 7 per cent of total working-time reduction in the latest recession from peak to trough and only for 1.5 per cent of the reduction from 2019q4 to 2020q2.

Short-time work (STW). — Finally, comparing the development of STW in both recessions, two aspects stand out particularly. First, policy makers reacted fast and made the use of STW more attractive for establishments immediately at the outbreak of the Covid-19 pandemic at the end of the first quarter 2020. As a result, STW was introduced on a uniquely large scale. Hence, there was a rapid cyclical reduction in average working time of 2.6 hours already in 2020q1 (relative to 2019q4) alone. This is comparable in its magnitude to the cyclical working-time reduction induced by the use of STW from peak to trough in the whole Great Recession of 3.3 hours per worker – of which 3.1 hours were reduced in the first two quarters of 2009 relative to last quarter in 2008.

Second, while already the immediate response in STW was comparable to the Great Recession, at the trough of the Coronavirus Recession in the second quarter 2020, relative to 2019q4, STW reduced the average working time per worker by 17.6 hours. This is more than five times the working-time reduction due to the use of STW in the Great Recession. On average, STW is accounting for around 94 per cent of the total reduction in hours worked per worker from 2019q4 to 2020q2 and for around 85 per cent of the cyclical working-time reduction in the Coronavirus Recession.

In conclusion, although instruments of internal flexibility played a crucial role in the safeguarding of employment in the Great Recession as well as in the Coronavirus Crisis, a closer look at various working-time components shows marked differences between the two recessions.

Unlike the Great Recession, in which all working-time instruments affected working time in a significant way, this is not the case in the Coronavirus Recession (Figure 6).

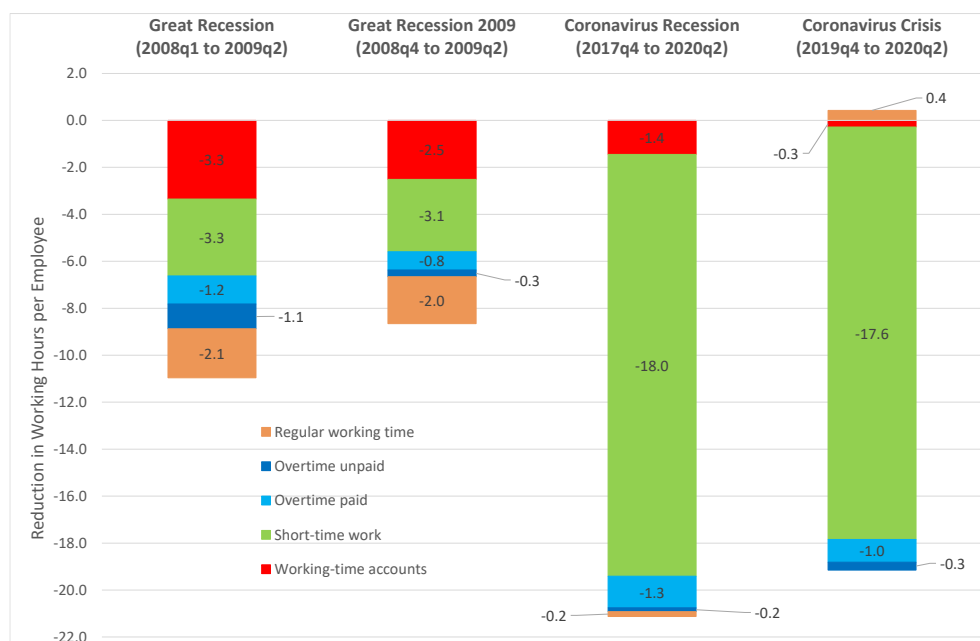


FIGURE 6. CONTRIBUTIONS TO THE CYCLICAL WORKING-TIME REDUCTIONS IN THE GREAT RECESSION AND THE CORONAVIRUS RECESSION

Note: The term ‘cyclical’ refers to the difference of actual and trend changes for each working-time instrument (if the series shows a trend). STW and WTA show no trend. The trend is constructed applying the Hodrick-Prescott filter with $\lambda = 100\,000$. All components are measured in working hours per employee.

Source: Institute for Employment Research (IAB) working time calculations; own calculations.

In the Great Recession from peak to trough STW and WTA contributed equally to the cyclical reduction in working time (-3.3 hours each). Paid and unpaid overtime and a temporary reduction in regular working hours both reduced cyclical working time by another two hours each. In contrast, while most instruments responded in the expected way in the latest downturn, in absolute and in relative terms, STW was the main driver to safeguard employment in the Coronavirus Recession (-18 hours). WTA and paid overtime reduce average working hours by another 1.4 respectively 1.3 hours. The cyclical contributions of unpaid overtime and reductions in regular working time are negligible.

A closer direct look at the first two quarters 2020, to better understand the immediate impact of the Coronavirus Crisis, provides a similar picture. The dominance of STW is even more pronounced, and it also differs markedly from the developments in the first two quarters of 2009, confirming the differences in the use of instruments of internal flexibility between the Great Recession and the Coronavirus Crisis.

B. Short-time Work Policy Changes: Great Recession vs Covid-19 Pandemic

Since STW is by far the most important measure of internal flexibility in safeguarding employment in the Coronavirus Crisis, the legislative changes made during this crisis regarding the use of the STW scheme are of particular interest. Table 1 contrasts the discretionary measures taken in the Coronavirus Crisis with those in the Great Recession. Although the two crises are different with respect to a lot of aspects like e.g. crisis origin, impact and transmission channels, at first glance there are a number of similarities in the labour market policies chosen to safeguard employment, especially with respect to the use of STW.

In contrast to the Great Recession, this time the STW scheme was more rapidly extended and adjusted. During the Great Recession, it was not until January 2009 that the government made the use of STW more attractive for establishments via discretionary measures. Although gross domestic product had already declined for the last three quarters of 2008 (see Figure 1). This time with the outbreak of the Covid-19 pandemic in Germany in March 2020 the government reacted immediately. The targeted and facilitated access to STW made its use more attractive. This was especially important for the services sectors that are particularly affected by the Covid-19 pandemic, because STW was there used much less frequently in the past than in manufacturing.

Crucial for the success of the discretionary component of STW and for the success of STW in general was the extension of the eligibility period of STW in January 2009 and the simplified eligibility criteria with respect to the scope of STW (both in terms of number of firms and types of workers) in February 2009 and again in March 2020. However, in contrast to the previous crisis, now immediately a full reimbursement of social security contributions for hours affected by STW was introduced to reduce residual costs of companies when using STW. Thus, strong incentives for companies to use STW were created.

Given the severity of the Coronavirus Crisis, a clear focus was put on securing household income on a broad basis. Therefore, the German government decided to expand the possibilities of additional income opportunities during STW. In addition, further changes were made in the second quarter 2020 beyond what was done during the Great Recession. In order to support employees particularly affected by STW, e.g. by a loss of working hours due to STW of at least 50 per cent, a temporary increase of the replacement rates to 70 to 87 per cent was introduced.

Another common feature was the extension of the simplified eligibility criteria as the crises persisted (fourth quarter 2010 and first quarter 2021). After the Great Recession, it was possible to premature end the simplified eligibility criteria by the end of 2011. Given the uncertainty about the duration and severity of the impact of the Covid-19 pandemic, at present it is hard to predict whether it will be possible to reduce the attractiveness of the discretionary component of STW prematurely in 2021 or whether further extensions of the chosen labour market policies will be necessary.

TABLE 1—COMPARISON OF DISCRETIONARY MEASURES REGARDING STW DURING GREAT RECESSION AND CORONAVIRUS CRISIS

DISCRETIONARY MEASURES DURING THE GREAT RECESSION	DISCRETIONARY MEASURES DURING THE CORONA CRISIS (DIFFERENCES HIGHLIGHTED)
2009Q1	2020Q1
[Jan] Extension of maximum eligibility period of STW to 18 months [Feb] Simplified eligibility criteria: - Proportion of workforce affected by a considerable income loss reduced from 1/3 to 10% - No negative balances on working time accounts required - STW-eligibility of temporary work agencies 50% / 100% reimbursement of social insurance contributions for hours affected by STW (if firms provide no training / provide training)	[Mar] Simplified eligibility criteria: - Proportion of workforce affected by a considerable income loss reduced from 1/3 to 10% - No negative balances on working time accounts required - STW-eligibility of temporary work agencies 100% reimbursement of social insurance contributions for hours affected by STW Expansion of additional income opportunities during STW
2009Q2	2020Q2
[May] Further Extension of maximum eligibility period to 24 months	[Apr] Extension of maximum eligibility period to 21 months or until 31.12.2020 (if eligible until 31.12.2019) [May] Temporary increase in replacement rates until end of 2020 (calculated from march on): provided the loss of working-hours due to STW is at least 50% From 4th month of STW to 70/77% of net earnings From 7th month of STW to 80/87% of net earnings
2009Q3	2020Q3
[Jul] Full reimbursement of social insurance contributions after 7th month of STW for hours affected by STW (starting on 1.1.2009)	
2009Q4	2020Q4
2010Q1	2021Q1
[Jan] Reduction of maximum eligibility period to 18 months	[Jan] Extension of the following measures until 31.12.2021 (for STW introduced before 31.03.2021): - Higher replacement rates - Expansion of additional income opportunities during STW - Simplified eligibility criteria Further incentives for on-the-job training during STW Reimbursement of social insurance contributions for hours affected by STW (100% during 1.1.2021 – 30.6.2021 and 50% during 1.7.2021-31.12.2021) Continued Extension of maximum eligibility period to 24 months or until 31.12.2021 (for workers in STW before the 31.12.2020)
2010Q2	
2010Q3	
2010Q4	
[Oct] Extension of simplified eligibility criteria until March 2012	
2011Q1	
[Jan] Reduction of maximum eligibility period to 12 months	
2011Q2	
2011Q3	
2011Q4	
[Dec] Premature end of simplified eligibility criteria by the end of 2011	

Sources: Bundesanzeiger, Bundesgesetzblätter, Federal Ministry of Labour and Social Affairs, Steffen (2020), Will (2011, Table 1), Gehrke and Hochmuth (2021, Table A1).

In conclusion the similarity of the crisis response with respect to the use of STW in the Coronavirus Crisis and the Great Recession is striking. However, in response to the Covid-19 pandemic the government adjusted and extended the STW scheme much faster than in the Great Recession but in a similar fashion. All these are indications that the successful use of STW to safeguard employment in the Great Recession is a blueprint for the attempt to secure employment on an even larger scale in the Coronavirus Crisis. Moreover, since the decline in GDP was even stronger and the discretionary changes even more favourable for employers and employees, the discretionary component is expected to be even more effective than in the Great Recession. Efforts to improve the income situation of employees in STW have been a new element used during the Coronavirus Crisis.

C. Short-time Work Use in the Coronavirus Crisis

The discretionary changes regarding the STW scheme made the use of STW to safeguard employment much more attractive for establishments. With respect to safeguarding jobs STW has two important dimensions: firstly, the number of workers in STW, and, secondly, the intensity of STW, i.e. the number of reduced working hours per short-time worker due to STW.

Therefore, Figure 7 shows not only the development of the STW use over time, but also the intensity with which it was used. Comparing the two crises and particularly the respective months with the highest incidence of STW reveals the severity of the Coronavirus Crisis. In May 2009 about 1.4 million or 5.2 per cent of all employees subject to social security contributions were in STW.⁶ The corresponding share of employment equivalents was about 1.4 per cent. Hence, the average loss of working time due to STW was about 25 per cent. In April 2020, almost 6 million or 17.9 per cent of all employees subject

⁶ Since STW is an active-labour-market-policy measure, it can only be used for employees subject to social security contributions.

to social security contributions were in STW. In addition, the average loss of working time was twice as high during the Coronavirus Crisis. In employment equivalents this corresponded to 8.7 per cent of all employees subject to social security contributions.

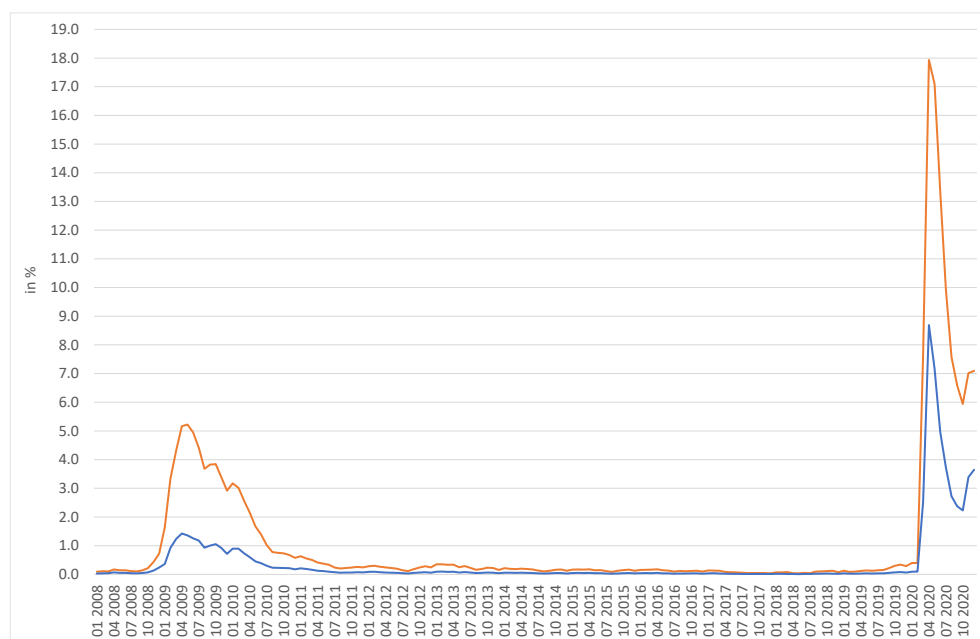


FIGURE 7. REALISED SHORT-TIME WORK AND EMPLOYMENT EQUIVALENTS (2008-2020)

Notes: Proportion of short-time workers (realised numbers or employment equivalents) in total employment subject to social security contributions; orange: realised short-time work, blue: employment equivalents.

Source: Federal Employment Agency, own presentation.

Although the number of employees in STW declined steadily after April 2020, there were still more employees in STW in October 2020 than at the peak of the Great Recession. As a result of the second wave of the Covid-19 pandemic the number of workers in STW rose again beginning in November.

With respect to employment subject to social security contributions the employment structure of the German economy has changed only moderately since the Great Recession. The employment share in manufacturing (section C) has decreased from 23.3 to 20.8 per cent. In turn, the employment share in the services sector (sections G-N) has risen.

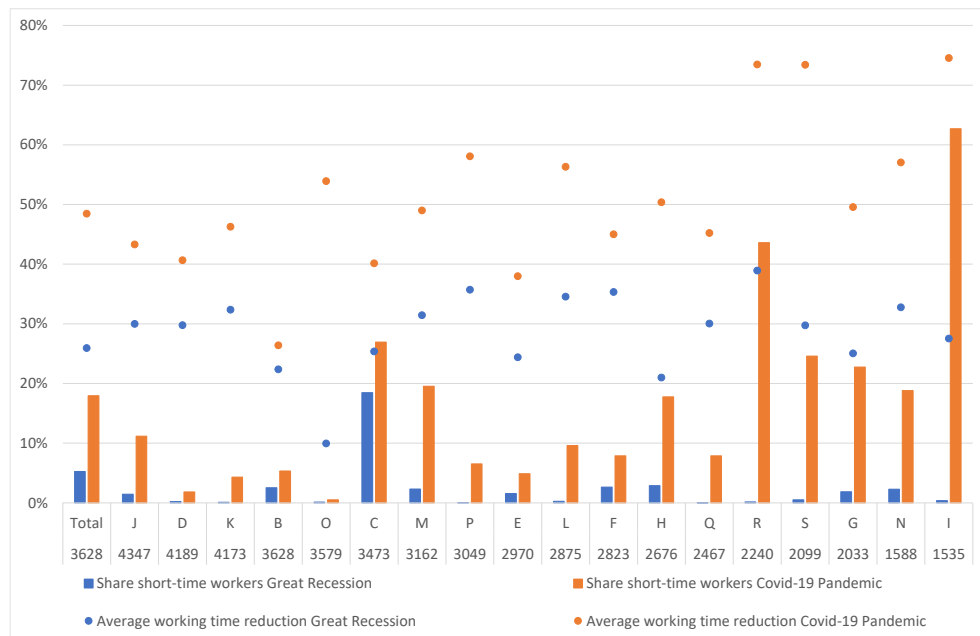


FIGURE 8. REALISED SHORT-TIME WORK AND EMPLOYMENT EQUIVALENTS (2008-2020)

Notes: B: Mining and quarrying; C: Manufacturing; D: Electricity, gas, steam and air conditioning supply; E: Water supply; sewerage, waste management and remediation activities; F: Construction; G: Wholesale and retail trade; repair of motor vehicles and motorcycles; H: Transportation and storage; I: Accommodation and food service activities; J: Information and communication; K: Financial and insurance activities; L: Real estate activities; M: Professional, scientific and technical activities; N: Administrative and support service activities; O: Public administration and defence; compulsory social security; P: Education; Q: Human health and social work activities; R: Arts, entertainment and recreation; S: Other service activities.

Share of short-time workers in employment subject to social security contributions (columns). Intensity of STW is measured by the average working-time reduction (in per cent) due to STW (dots). Economic sections have been ranked in descending order of average earnings, calculated using the latest available SOEP data (v35) referring to the average gross monthly earnings of each economic section in 2018.

Sources: Federal Employment Agency, SOEP, own calculations.

In contrast, the distribution of short-time workers among the various sectors is completely different in the two crisis periods. While more than 80 per cent of short-time workers were employed in manufacturing during the Great Recession, it was only about 31 per cent during the Coronavirus Crisis. Instead, the services sector was disproportionately affected. The share of short-time workers is particularly high in economic section G (wholesale and retail trade; repair of motor vehicles and motorcycles) and section I (accommodation and food service activities).

In contrast to the Great Recession, in the Coronavirus Crisis employees subject to social security contributions are affected differently by STW in the individual economic sections (Figure 8). Not only is the number of short-time

workers significantly higher this time. In addition, in the entire economy STW is used more extensively (columns in Figure 8).

In the Coronavirus Crisis STW is also used more intensively across all economic sections. On average, the use of STW has reduced the number of hours normally worked by almost half (dots in Figure 8). The intensity with which STW is used is particularly high in the services sector.

The use of STW is distributed very unevenly across the individual economic sections, both during the Great Recession and during the Covid-19 pandemic. However, the crises differ significantly from a distributional perspective. At the peak of the Great Recession, with the exception of manufacturing, most economic sections were not heavily affected by STW. When STW was used, the average number of hours lost ranged between 20 and 40 per cent of hours worked in all but one economic section.

Overall, in the Covid-19 pandemic, employees in economic sectors with lower average earnings are not only significantly more often in STW, but also STW is used with greater intensity. In the current crisis, there is both a negative correlation between average earnings in an economic section and the share of short-time workers in employment subject to social security contributions as well as a negative correlation between earnings and the share of hours lost due to STW. The resulting distributional consequences and income effects are discussed in more detail in the next section.

IV. Blind Spots of the Chosen Strategy of Safeguarding Employment

A. Distributional Effects of the Covid-19 Pandemic

The widespread use of STW not only safeguarded employment during the two crises, but also secured part of household income for households whose members were affected by STW. At the same time, the use of STW on a larger scale affects the income distribution. In the following we shed some light on the

income effects of STW and illustrate the different income effects of the two crises.

The average short-time worker in the Coronavirus Crisis is very different from the average short-time worker in the Great Recession. This is the direct result of its successful use in this recession. The massive use of STW in other economic sections than manufacturing as well as the more intensive use of STW in general during the Coronavirus Crisis have immediate income effects.

This can be easily illustrated using information on the number of short-time workers and on the intensity of the use of STW measured in hours not worked in economic sections in May 2009 and in April 2020, the two months with the highest incidence of STW in each of the two crises. To be able to compare the different income levels they are calculated with information on STW and average monthly gross earnings for each economic sector in 2018, the latest available data from the Socio-Economic Panel (SOEP).⁷ Hence, all income information of these hypothetical average short-time workers are expressed in Euros based on the year 2018. For simplicity and comparability, it is assumed that the average short-time worker is single without children in the tax bracket 1, who receives 60 per cent of the net wage as STW remuneration for hours not worked.⁸

With this information we can calculate the hypothetical regular monthly net earnings of the average short-time worker with and without STW in these two economic crises (Table 2).

⁷ Unfortunately, comparable earnings information for the various economic sections in 2009 do not exist, since at that time in the SOEP data, still the old statistical classification of economic activities (NACE Rev. 1.1) was used. Furthermore, no information from the SOEP for 2020 are available, yet. Therefore, the earnings information from the SOEP in 2018 are used as base in this thought experiment.

⁸ The actual impact on income would be much too complex to determine. The actual net monthly earnings depend on the tax bracket resulting from the family context. In addition, the amount of short-time allowance depends on the presence of depending children. However, the different income effects can be well illustrated even under these simplified assumptions.

TABLE 2—HYPOTHETICAL EARNINGS AND INCOME LOSS OF AN
AVERAGE MODEL SHORT-TIME WORKER

Earnings	May 2009	April 2020
Based on the earnings in 2018, the regular wage of an average short-time worker would have been (in Euros)	2125	1677
On the basis of those affected by short-time work, the average income during short-time work (in Euros)	1942	1369
Income loss due to short-time working (in Euros)	183	308
Income loss due to short-time working (in %)	8,6	18,4

Sources: Federal Employment Agency, SOEP, Kurzarbeiterrechner (<https://www.nettolohn.de/rechner/kurzarbeitergeld.html>); own calculations.

This comparison reveals some interesting features. The average short-time worker in 2009 predominately worked in manufacturing and faced a loss of about a quarter of hours worked. In 2020 STW takes place in all economic sections and the average short-time worker faced a loss of about half of his hours worked regularly. Therefore, the average regular earnings of short-time workers in May 2009 (in 2018 earnings) were 2125 Euros. It was nearly 27 per cent higher than the average regular earnings of 1677 Euros in April 2020 (in 2018 earnings) (Table 2). Furthermore, the overall income loss due to STW was much higher in April 2020 than in May 2009. While the average short-time worker faced a hypothetical income loss of more than 18 per cent during the Covid-19 pandemic, it was less than 9 per cent during the Great Recession.⁹ Around 9 percentage points of the total income loss of 18.4 per cent can be explained by the higher intensity of STW in the Coronavirus Crisis than in the Great Recession. In Figure 9 the average income losses due to STW in each economic section are plotted. Interestingly, whereas in the Great Recession there was no

⁹ Any additional supplements to the STW allowances from the employer were not considered in this analysis. Given that the probability of supplements is higher in well-paid jobs, the inclusion of supplements would have made the difference in income losses in the two crises even more pronounced.

clear negative correlation between the level of earnings and the percentage earnings loss due to STW (blue dots), the situation during the Coronavirus Crisis is completely different. We observe a clear negative correlation with a correlation coefficient of -0.7 (orange dots). The lower the average earnings are in an economic section the higher is the percentage income loss due to STW. The difference is likely to be even more pronounced when we would consider additional supplements of the short-time work allowance due to the employer which is more often paid in jobs with higher earnings (Pusch and Seifert 2020, Table 3).

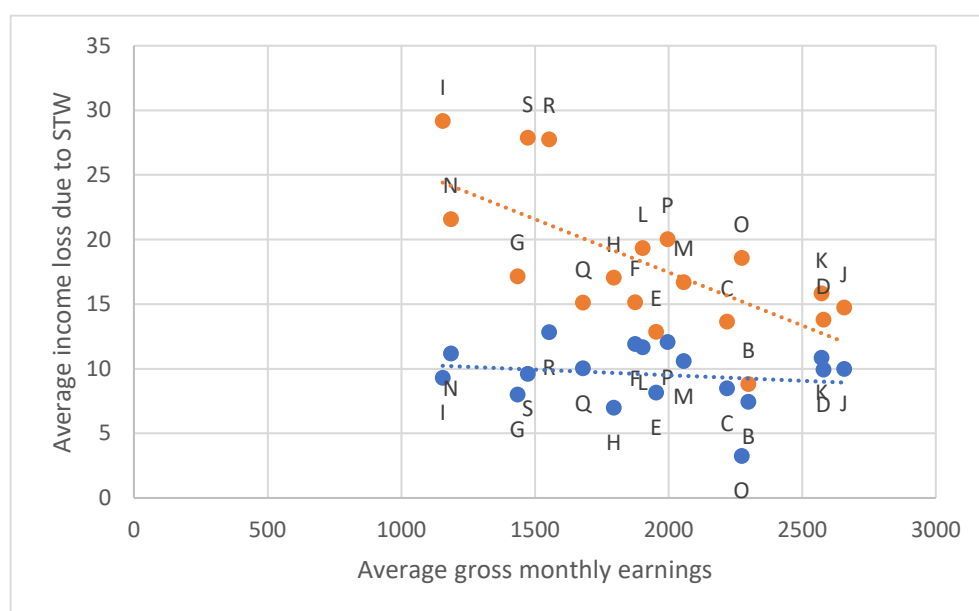


FIGURE 9. EARNINGS LOSS DUE TO SHORT-TIME WORK BY ECONOMIC SECTIONS

Notes: Blue (orange) dots indicate average income losses in the Great Recession (Coronavirus Crisis) in per cent. For the comparison we use the information about the average amount of working time lost due to STW in the two crises which is provided by the Federal Employment Agency (Employment equivalent / number of short-time workers). Given that STW is paid on the basis of net earnings losses we calculate the impact of short time work on average gross monthly earnings (SOEP) in Euro by using the Kurzarbeiterrechner on the assumption that the short-time worker is single, in tax class 1, without children.

Sources: Federal Employment Agency, SOEP, Kurzarbeiterrechner (<https://www.nettolohn.de/rechner/kurzarbeitergeld.html>), own calculations.

This result is also supported by other micro data. Hövermann (2020, Figure 5, p. 11) shows in the first wave of the employment survey of the Hans-Boeckler-Foundation (HBS_S) in April 2020 an almost linear negative correlation

between the level of household income and the proportion of employees reported being already affected by a loss of income due to the Covid-19 pandemic. In the second wave of the HBS_S additional information on individual earnings is available. In the total population, one in four employees suffered losses in individual earnings due to the Covid-19 pandemic. Among those with net earnings of less than 1700 Euros per month, one in three or more suffered a loss of earnings. Above this earnings threshold, it was one in four to one in five.

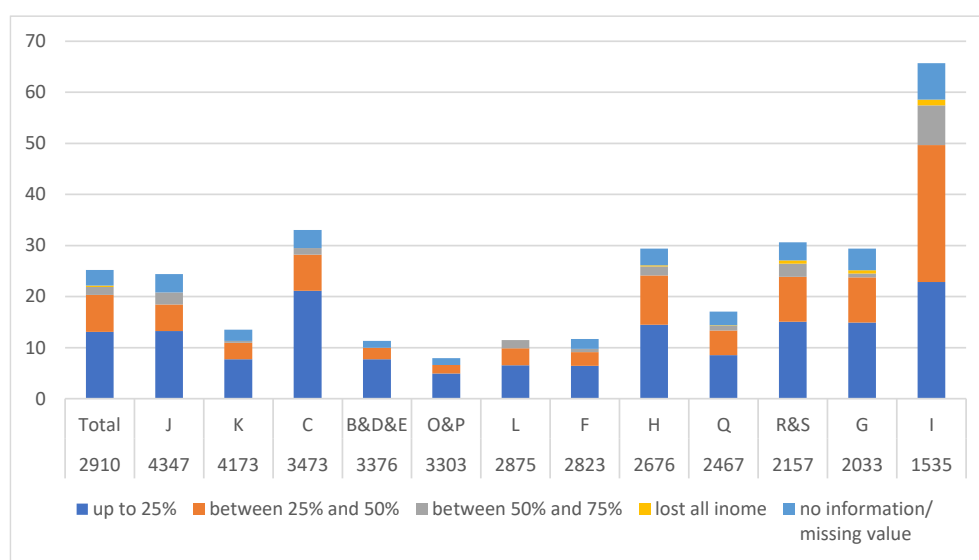


FIGURE 10. THE IMPACT OF THE COVID-19 PANDEMIC ON INDIVIDUAL EARNINGS AND HOUSEHOLD INCOME

Notes: Share of people in per cent who reported that they suffered from earnings losses due to the Covid-19 pandemic and the effect on household income.

B: Mining and quarrying; C: Manufacturing; D: Electricity, gas, steam and air conditioning supply; E: Water supply; sewerage, waste management and remediation activities; F: Construction; G: Wholesale and retail trade; repair of motor vehicles and motorcycles; H: Transportation and storage; I: Accommodation and food service activities; J: Information and communication; K: Financial and insurance activities; L: Real estate activities; M: Professional, scientific and technical activities; N: Administrative and support service activities; O: Public administration and defence; compulsory social security; P: Education; Q: Human health and social work activities; R: Arts, entertainment and recreation; S: Other service activities.

Sources: Survey of Employees conducted by the Hans-Böckler-Foundation (HBS_S); SOEP; own calculations.

Using data from the HBS_S allows a more detailed analysis of the intensity of earnings losses in economic sections (Figure 10).¹⁰ The height of the columns

¹⁰ For a detailed description of the HBS_S see Emmeler and Kohlrausch (2021).

shows the proportion of employees affected by individual earnings losses in each economic section, sorted from left to right in decreasing order of the level of average individual earnings. There is a visible negative correlation, as indicated earlier (with a correlation coefficient of -0.6). The lower the average earnings in an economic section, the more likely it is that an employee has suffered a loss of earnings in the pandemic up to June.

Since no information on the scale of the individual earnings losses in the Coronavirus Crisis is available in the HBS_S, available information in the HBS_S on the magnitude of losses in household income – which is strongly correlated with the scale of individual earnings losses – is used instead to get an idea about the related income losses and presented in Figure 10 by five different column sections. Each column section indicates a different intensity of household income loss.

Overall, Figure 10 highlights that employees in economic sections with lower average earnings were not only affected proportionally more often by losses of individual earnings and household income than employees in economic sectors with higher average earnings, but they also had a higher intensity of income losses.

One possible explanation is likely to be the existence of collectively agreed regulations on topping up STW allowance. Pusch and Seifert (2020, Table 3) present the share of employees who receive a supplement to STW allowance. There is a positive correlation: The higher the average earnings in an economic sector, the higher the share of employees who receive a supplementary STW allowance from their employers.

The differences between the two crises highlighted above will also have consequences for the income distribution in Germany in general. After the Great Recession there was no sharp increase in income inequality but rather a slow marked increase in the subsequent years. However, at the same time real wages have also risen for large parts of the population in the subsequent upswing making many people better off (Grabka, Goebel, and Liebig 2019).

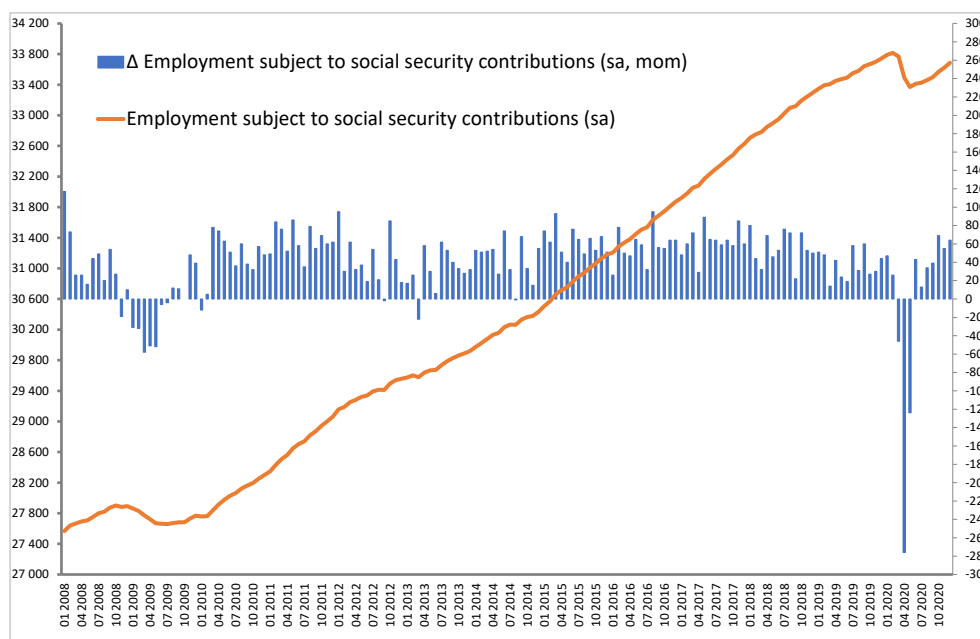


FIGURE 11. EMPLOYMENT SUBJECT TO SOCIAL SECURITY CONTRIBUTIONS FROM 2008 TO 2020

Note: Level (line, left scale) and change (columns, right scale) of employment subject to social security contributions measured in 1000 persons.

Sources: Federal Employment Agency, Bundesbank, own presentation.

The current crisis is different in many ways and therefore its impact on income inequality is expected to be very different, too. As income losses were spread across the entire population, the impact of the Covid-19 pandemic on income inequality needs to be taken very seriously. As discussed in the next section, not only short-time workers suffered income losses due to the loss of work. In general, all types of employment, who lost (temporary) part or all of their work, or even became unemployed, suffered income losses. Moreover, groups like the self-employed or workers in marginal employment were not entitled to STW or unemployment benefits. Walwei (2021) also stresses that, in contrast to the previous crisis, employment associated with weak income security (mini-jobs and solo self-employment) were particularly hard hit in the Corona crisis. It remains to be seen how this will affect the distribution of income. However, the actual impact of the Covid-19 pandemic will only be visible later when accurate data about this time period become available.

B. Coronavirus Crisis and Different Types of Employment

The burden of job losses in the Coronavirus Crisis was rather unevenly distributed. Job losses with respect to employment subject to social security contributions, which enjoys the protection of the STW scheme, were less severe than the number of Minijobs lost.

Employment subject to social security contributions, the backbone of the German welfare state, decreased by around 450 000 jobs or 1.3 per cent between March and May 2020 (see Figure 11). In line with their growth trends during the long boom before the outbreak of the Coronavirus Crisis, the recovery of employment subject to social security contributions was more dynamic than that of total employment in the summer and fall 2020.

Compared to the Great Recession the reduction in employment subject to social security contributions is this time somewhat larger and more pronounced. At that time, employment subject to social security contributions fell by just over 0.8 per cent in the first six months of 2009.

Workers in marginal employment (Minijobs), which are overwhelmingly working in the services sector were severely hit by the economic crisis due to the Covid-19 pandemic. In the months March to May 2020 the percentage decrease in marginal employment (-7.5 per cent) was five times as large as in employment subject to social security contributions (Figure 12).

Even after taking into account the different growth trends of these two employment forms, marginal employment was more severely hit by the Coronavirus Crisis. Marginal employment exhibits a marked negative growth trend since the introduction of the general legal minimum wage at the beginning of 2015. Furthermore, while both employment subject to social security contributions and marginal employment started to recover in the summer months, with the second wave of the pandemic marginal employment declined again.

The reduction in marginal employment is also more pronounced than in the Great Recession. Then, there was neither an obvious decline in marginal employment nor a real business-cycle effect recognizable.

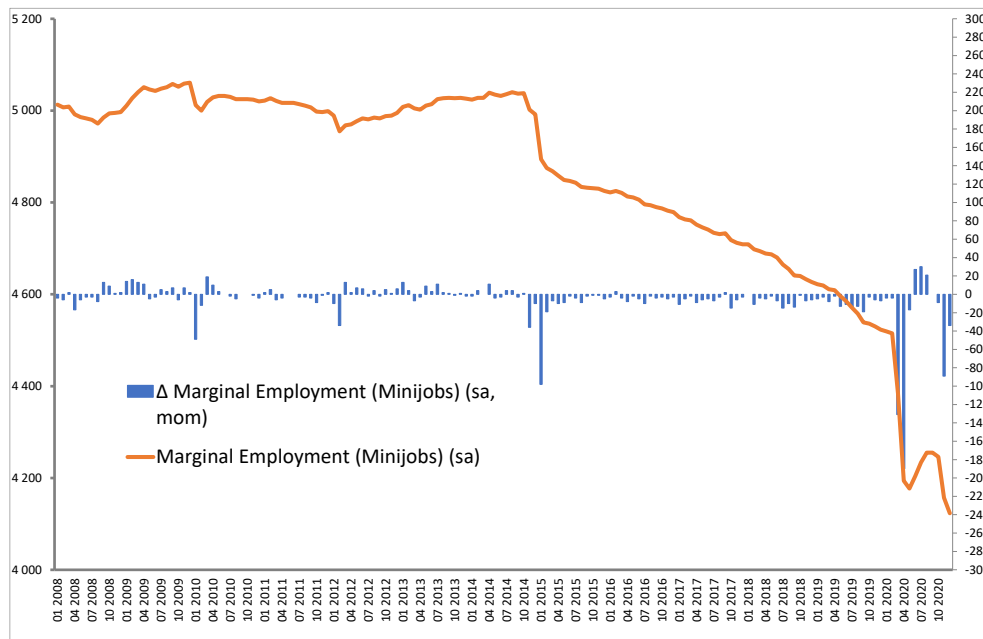


FIGURE 12. MARGINAL EMPLOYMENT (MINIJOBS) FROM 2008 TO 2020

Note: Level (line, left scale) and change (columns, right scale) of marginal employment measured in 1000 persons.

Sources: Federal Employment Agency, Bundesbank, own presentation.

There are two obvious reasons for these remarkable employment patterns during the current Coronavirus Crisis, which are interlinked. First, this time the services sector is much more hit by the economic crisis than during the Great Recession, which was a standard demand driven crisis in Germany and mainly concentrated in the industrial sector. Furthermore, in the Coronavirus Crisis the necessity to temporarily lock down and interrupt parts of economic activity to prevent the spread of infection cannot be overcome by stimulating aggregate demand. Rather, economic policies must try to sustain businesses, and hence employment, during these periods of (partial) lockdown and interruption of production processes.

Second, STW, the major pillar of the government's strategy to safeguard employment is not applicable to marginal employment. Hence, in parts of the services sector, where marginal employment constitutes a larger share of total employment, more jobs are left unprotected. In services sectors like accommodation and food service activities (section I), or arts, entertainment and recreation (section R), more than 40 per cent of all employees were either working in marginal employment as their only or as their second job (Figure 13).

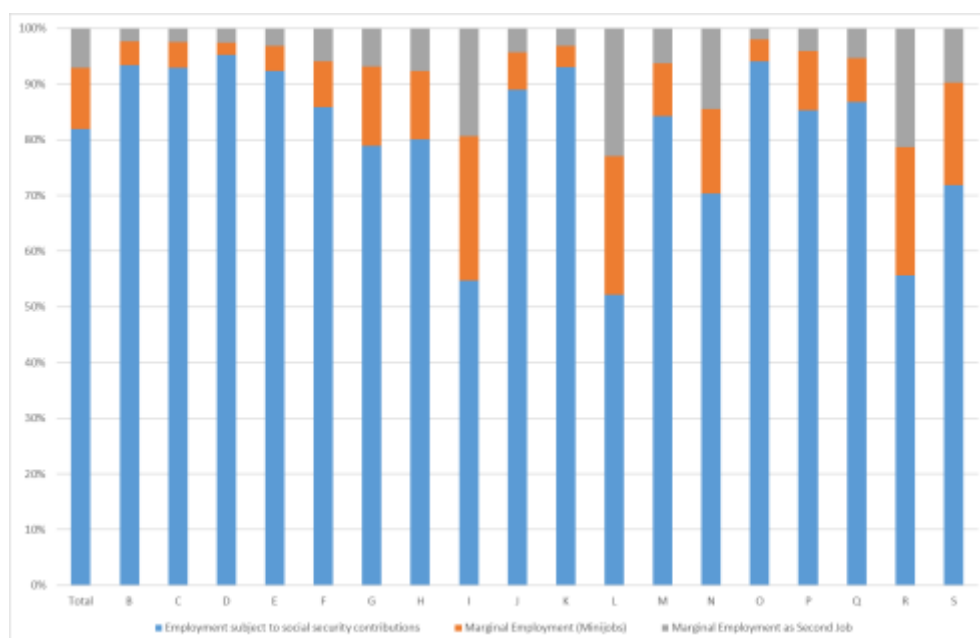


FIGURE 13. COMPOSITION OF EMPLOYMENT ACCORDING TO ECONOMIC SECTORS (MARCH 2020)

Note: B: Mining and quarrying; C: Manufacturing; D: Electricity, gas, steam and air conditioning supply; E: Water supply; sewerage, waste management and remediation activities; F: Construction; G: Wholesale and retail trade; repair of motor vehicles and motorcycles; H: Transportation and storage; I: Accommodation and food service activities; J: Information and communication; K: Financial and insurance activities; L: Real estate activities; M: Professional, scientific and technical activities; N: Administrative and support service activities; O: Public administration and defence; compulsory social security; P: Education; Q: Human health and social work activities; R: Arts, entertainment and recreation; S: Other service activities.

Source: Federal Employment Agency, own calculations.

Overall, since the services sectors were more severely affected by the Coronavirus Crisis than by the Great Recession, some weaknesses in the approach to safeguard employment became visible. In contrast to employment

subject to social security contributions, marginal employment as well as self-employment are not protected by the STW scheme. Furthermore, for workers in the services sector, whose wages are often lower than in manufacturing, the monetary safety net provided by STW may not be sufficient.

V. Conclusion

In this paper we investigated the measures taken to safeguard employment in the Coronavirus Crisis especially in comparison to the Great Recession. More specifically, we pursued the question whether the lessons learned from the Great Recession provided a current blueprint for the selected policies. Not surprisingly, we find major similarities but also marked differences between the Coronavirus Crisis and the Great Recession.

A business-cycle analysis comparing the Coronavirus Crisis to the Great Recession found that, unlike the Great Recession in Germany, which was the result of the financial and economic crisis originating in the U.S., this time the German economy had been in a moderate economic downturn for some time before the Covid-19 pandemic turned a recession into a major economic crisis. To some extent this finding complicates the comparison of the two economic slumps. Overall, we find that the use of measures of internal flexibility as well as standard labour hoarding through a procyclical decline in labour productivity successfully safeguarded employment in both economic crises. However, the cyclical working-time reduction via the use of STW as the major instrument of internal flexibility was the most important factor in safeguarding employment. The relative importance of standard labour hoarding in safeguarding employment was much smaller than in the Great Recession. Other instruments of internal flexibility like e.g. working time accounts played no or only a very minor role.

With respect to the use of STW we find a lot of similarities with the Great Recession, especially with respect to the discretionary changes to improve the attractiveness of the use of STW, like e.g. the extension of the eligibility period

and simplified eligibility criteria. Unlike the Great Recession, this time the STW scheme was more rapidly extended and adjusted, more generous from the start and for the first time a stronger focus was put on securing household income on a broad basis. Overall, there is evidence that the successful use of STW to safeguard employment in the Great Recession provided a blueprint for the attempt to secure employment on an even larger scale in the Coronavirus Crisis.

However, we also find significant differences regarding the impact of the Great Recession and the Coronavirus Crisis and the use of STW on the labour market. Whereas in the Great Recession in Germany it was mainly manufacturing and large export-oriented firms with high firm-specific human capital and permanent employment that were affected, the Covid-19 pandemic is more severe and affects other, large sectors of the economy. Consequently, the Covid-19 pandemic led to higher income losses across the economy than the Great Recession, especially in the services sector. Our analysis revealed that low-wage earners were not only affected more frequently by STW but also suffered on average relatively greater earnings losses. This was not the case in the Great Recession. Furthermore, this time marginal employment as well as self-employment are strongly affected but not protected by the STW scheme.

This observed polarisation in the labour market during the Coronavirus Crisis is an important lesson for the future design of the STW scheme. From a distributional point of view, the introduction of a staggered STW allowance with higher compensation rates for low-wage earners could be a solution worth discussing. Moreover, the inclusion of marginal as well as of self-employment into the German unemployment insurance scheme should be discussed as well.

However, at the time of writing the Covid-19 pandemic is still present, Germany is in the middle of a third wave of spreading infections, and it is uncertain how long it will persist. Therefore, any conclusions must be considered preliminary.

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