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Article

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Michael Christl, Silvia De Poli, Tine Hufkens, *Andreas Peichl* and Mattia Ricci

The Role of Fiscal Policy Measures in Mitigating the Effects of the Covid-19 Crisis in Germany

KEY MESSAGES

- We use a novel methodology for modeling the socio-economic impacts of economic crisis in Germany, and apply it to estimate the impact of the Covid-19 pandemic
- We estimate that German households lost more than 3 percent of their market income in 2020 due to the Covid-19 pandemic, with the effect being strongly regressive
- However, the fall in market income was largely offset by the tax-benefit system, which softened the reduction in disposable income to a more modest 0.5 percent
- Our study highlights the importance of short-time work and discretionary policy measures (the Covid-19 one-off child benefit and the increase in the tax allowance for single parents) in cushioning the impact of the Covid-19 crisis
- The strong income-stabilizing property of short-time work and discretionary policy measures for low-income earners has also helped overcome a strong reduction in household demand

The Covid-19 pandemic hit Germany hard in 2020. Driven by the need to limit close contact and the resulting strict lockdown measures, economic activity fell sharply. Despite Germany's well-known tradition of automatic stabilizers (including "short-time work," or *Kurzarbeit*), the impact on the labor market was severe. Registered unemployment rose by nearly 430,000 people, from about 2,266,000 to 2,695,000. In addition, the number of people on short-time work (STW) rose from about 145,000 in 2019 to 2,940,000 workers in 2020 – some 2.8 million. The resulting drop in GDP was almost as large as during the 2008/2009 financial crisis, making the Covid-19 crisis one of the most severe economic crises since World War II.

To counter the effects of the Covid-19 pandemic, the German government introduced several policy measures. First, it strengthened and expanded the existing STW scheme, which had already proved its worth during the 2008/2009 financial crisis. Second,

several discretionary policy measures (DPMs) were introduced. Both the STW and the DPMs were aimed at cushioning household income losses and preventing a sharp decline in private consumption. In this article, we focus on the most important (in monetary terms) measures introduced to counteract the impact of the Covid-19 pandemic on household income, namely the STW scheme, the Covid-19-related child bonus, and the tax allowance for single parents. In addition, several measures were introduced for the self-employed and firms, but these are not the focus of our analysis.

While the macroeconomic impact of the Covid-19 pandemic is well documented (almost in real time), evidence on the distributional impact on household income at the micro level is more limited. This is largely due to the lack of real-time microdata. In this article, we summarize the results of Christl et al. (2023), who address this issue by simulating the impact of Covid-19 on the labor market and household income in Germany in 2020, and make a first attempt to provide insights into how STW and DPMs mitigated the increase in income inequality and the at-risk-of-poverty rate (AROP) due to the Covid-19 pandemic.

METHODOLOGY

We use EUROMOD, the European Union's microsimulation model, to analyze the impact of the Covid-19 crisis on households in Germany. In particular, we focus on the role of STW and other DPMs introduced during the Covid-19 pandemic in absorbing the negative effects of the Covid-19 pandemic on labor income. Given that high-quality income data typically arrives with a significant lag, we use a novel nowcasting technique (Christl et al. 2021a) combined with detailed information on the labor market impact of the Covid-19 pandemic to update our microdata and simulate the Covid-19 shock. More specifically, we model labor market transitions using rich information from both administrative data on the use of the STW program from the German Federal Employment Agency and survey data from the HOPP database of the Institute for Employment Research (IAB). This allows us to identify workers who moved into STW schemes and unemployment in 2020, and to control for worker characteristics when simulating labor market transitions in our microdata.

We then examine the impact of the Covid-19 pandemic and Covid-19-related policies on household income across the income distribution in Germany, and thus their impact on inequality and poverty at a time when survey data was not available. In addition, we estimate the income-cushioning effect of the Covid-19-related policies by estimating the income-stabilizing coefficient (ISC), following Dolls et al. (2012). The ISC measures what percentage of a shock to households' market income is absorbed by the tax-benefit system. For example, an ISC of 0.8 would imply that 80 percent of a shock to market income is absorbed by the tax-benefit system. The ISC can be broken down into its main components, including: (i) taxes (including social security contributions), (ii) unemployment benefits, (iii) STW, (iv) DPMs, and (v) other benefits (including pensions). This allows us to assess the cushioning effect of each policy instrument.

In order to assess the impact of the Covid-19 pandemic in general, but also the impact of the policies discussed above, we use microsimulation techniques to distinguish between three scenarios:

1. The baseline scenario (no Covid-19): a completely hypothetical scenario without Covid-19, based on the 2020 tax and benefit policies and excluding any new policies. No Covid-19-related labor market transitions (to unemployment or STW) are modeled.
2. The Covid-19 scenario: based on the 2020 tax and benefit policy, including the STW scheme and the emergency measures (DPMs) introduced in response to the pandemic. We update the microdata using the labor market transition to account for the labor market shock generated by the Covid-19 crisis.
3. The Covid-19 scenario without STW and DPMs: this counterfactual scenario simulates the Covid-19 shock by assuming that the STW program and DPMs were not in place in 2020. Thus, in this scenario we assume the same reduction in working hours as in the "Covid-19 scenario" above, but with workers transitioning to unemployment instead of going on STW. More specifically, it is assumed that an equivalent number of workers on STW, in full-time equivalent terms, move into unemployment instead.

POLICIES IN FOCUS

In this article, we focus on three main household policies that were in place in Germany during the Covid-19 pandemic, namely the STW schemes, the child bonus, and the tax allowance for single parents.

STW consists of a contributory benefit paid by the social security unemployment insurance. The benefit compensates employees for wage losses due to an involuntary reduction in working hours. All employees subject to social security contributions are entitled

to the benefit if the employer requests (and qualifies for) a reduction in working hours. The amount of the benefit is calculated on the basis of the difference in net earnings before and after the reduction in working hours. Specifically, the amount is set at 60 percent of the difference in net earnings for individuals without children and 67 percent for individuals with children. Importantly, the pre-pandemic system of STW was further expanded at the onset of the pandemic, both in terms of access and monthly rates.

The Covid-19-related child bonus is a one-time payment to support families with children. The same eligibility rules apply as for the standard child benefit in Germany. In line with the standard child benefit, the age limit is extended to 24 years for children still in tertiary education and there is a limit on the number of hours the child can work. However, unlike the standard child benefit, the child bonus is not deducted from means-tested benefits. The parents of the eligible child receive EUR 300 per child. As discussed by Beznoska et al. (2020), this instrument is particularly relevant for low-income families.

The tax allowance for single parents already existed before Covid-19, but was increased in 2020 and 2021. Specifically, the allowance was increased from EUR 1,908 per year in 2019 to EUR 4,008 per year in 2020 and 2021. The aim of this policy is to compensate single parents for the higher cost of living during the Covid-19 pandemic.

RESULTS

The Buffering Effect of STW and DPMs

In this section, we analyze the impact of the Covid-19 pandemic on German household income and examine the role of short-time work (STW) and discretion-



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ary policy measures (DPMs) in mitigating the effects of the pandemic. To measure the impact, we compare the Covid-19 scenarios with a “no Covid-19” scenario, which assumes no DPMs and no labor market shock.

Figure 1 shows the percentage changes in market income and disposable income under the Covid-19 scenario compared to the “no Covid-19” scenario. The crisis led to a significant reduction in market income across the income distribution, with an overall decrease of 3 percent. This reduction was regressive, hitting lower-income households harder than high-

er-income ones. However, when taxes and benefits are taken into account, the impact on disposable income is mitigated, with an average reduction of 0.5 percent. Nevertheless, the regressive effect is only largely reversed.

We then examine the contribution of STW and DPMs in cushioning the impact of Covid-19 on household income. To do so, we construct a counterfactual scenario without these policies and compare it to the Covid-19 scenario with these policies in place.

Figure 2 shows the impact of the Covid-19 pandemic on market income. We observe that its overall reduction is similar in both scenarios. This result is expected, since we assume the same reduction in working hours. However, in the absence of STW and DPMs, the income loss is much higher in the lowest deciles of the distribution. This is because, without STW programs, the same reduction in hours is concentrated among fewer individuals who become fully unemployed (i.e., workers who are laid off cannot have their hours reduced only partially). These individuals are mostly concentrated in the bottom deciles of the distribution.

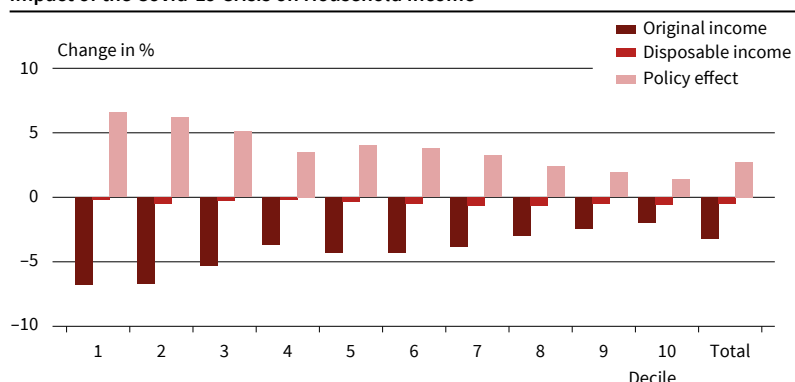
Figure 3 shows the impact on disposable income, taking into account the effect of the tax-benefit system. With the Covid-19 policies in place, the loss of disposable income is much smaller and also better distributed, to the benefit of lower-income households. The tax-benefit system largely offsets the impact of Covid-19 on households, especially when STW and DPMs are taken into account, effectively reversing the regressive impact by cushioning the income of poorer households. Given this strong countervailing effect of the tax-benefit system on poor households, it is not surprising that we also find that the policies counteract the expected increase in inequality and AROP in 2020 due to the Covid-19 pandemic.

Income Stabilization during the Covid-19 Pandemic

Having examined the role of STW and DPMs in mitigating the effects of the Covid-19 pandemic, we now examine the contribution of the German tax-benefit system to stabilizing household income. We calculate the income stabilization coefficient (ISC) for our Covid-19 scenarios with and without STW and DPMs. The ISC allows us to assess the effectiveness of the tax-benefit system and the DPMs as automatic stabilizers.

In Figure 3, we analyze the income stabilization capacity of the German tax-benefit system with and without STW and DPMs. With these measures in place (Figure 4), the tax-benefit system absorbs about 85 percent of the income shock caused by the Covid-19 crisis in 2020. This means that a EUR 100 loss in market income resulted in only a EUR 15 loss in disposable income. Income stabilization was stronger for low-income earners, with the tax-benefit system providing more protection to poorer households than

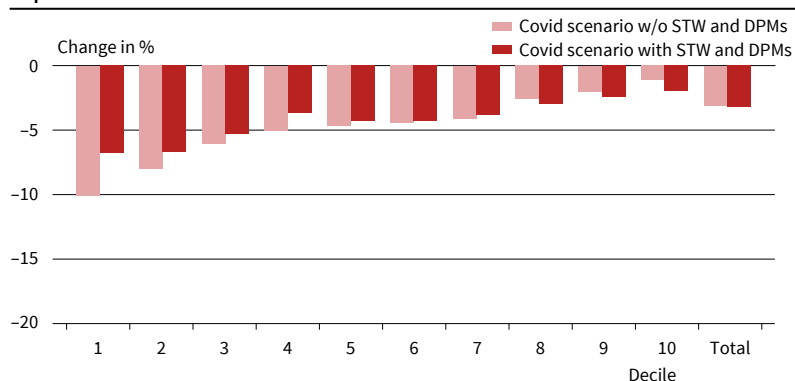
Figure 1
Impact of the Covid-19 Crisis on Household Income



Source: Authors' calculations.

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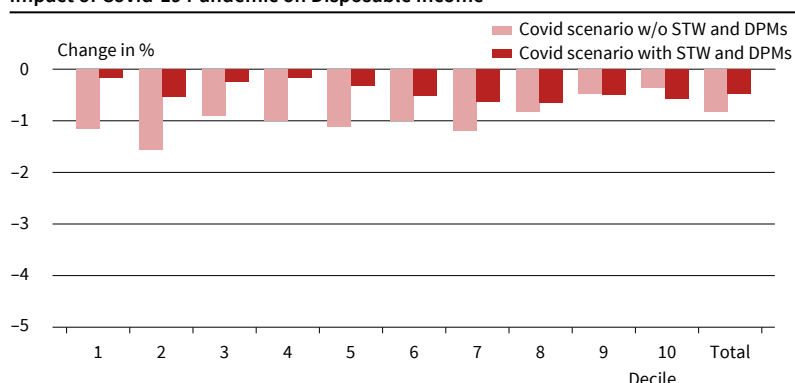
Figure 2
Impact of the Covid-19 Pandemic on Market Income



Source: Authors' calculations.

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Figure 3
Impact of Covid-19 Pandemic on Disposable Income



Source: Authors' calculations.

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to richer ones. For low-income households, this protection was largely driven by the STW and the DPMs, while for richer households, the progressive income tax played a more important role.

In contrast, in the hypothetical scenario without STW and DPMs (Figure 5), the income stabilization capacity is significantly reduced, especially for low-income earners. The ISC drops to about 69 percent for low-income earners, and for households in the middle of the income distribution, the stabilization effect drops below 80 percent. This is due to factors such as the discontinuous work history of some low-income individuals, which makes them ineligible for unemployment benefits. In addition, the absence of DPMs, in particular the Covid-19-related child benefit, and the relatively lower income stabilization provided by unemployment benefits compared to STW schemes contribute significantly to this effect.

Overall, our analysis suggests that income stabilizers were effective in cushioning the income loss caused by the Covid-19 pandemic in Germany in 2020, with STW and DPMs playing a crucial role for low-income earners.

POLICY CONCLUSION

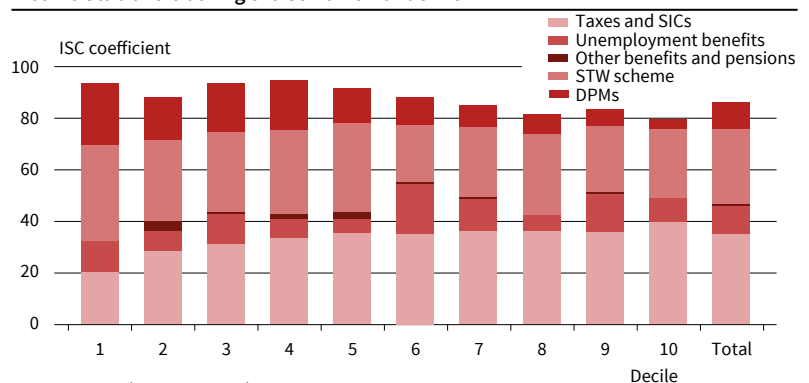
Our analysis shows that German households experienced a loss of over 3 percent of market income in 2020 due to the Covid-19 pandemic. The impact was regressive, with lower-income households being more affected, mainly because they are more likely to participate in STW schemes. However, the tax-benefit system effectively mitigated this loss, reducing the overall impact on disposable income to a more moderate 0.5 percent. Specifically, the German tax-benefit system, together with the DPMs introduced in response to the crisis, absorbed about 85 percent of the income shock, providing a stronger stabilization for low-income earners.

Our study highlights the importance of the STW and DPMs, especially the Covid-19 one-time child benefit and the increased tax allowance for single parents, in cushioning the impact of the Covid-19 pandemic. These policies play a crucial role in stabilizing the incomes of low-income earners, helping to counteract the expected increase in inequality and at-risk-of-poverty rates in 2020. The income-stabilizing properties of STW and DPMs for low-income earners may also help mitigate a sharp decline in household demand, as liquidity-constrained households are typically more prevalent in the lower part of the income distribution.

Comparing our results with similar studies in other countries, we find that discretionary policy measures are slightly less effective in cushioning household income in Germany than in Austria (Christl et al. 2021b), where a similar approach estimated an ISC of 87 percent. The results differ significantly along the income distribution, with Austria providing more

Figure 4

Income Stabilizers during the Covid-19 Pandemic



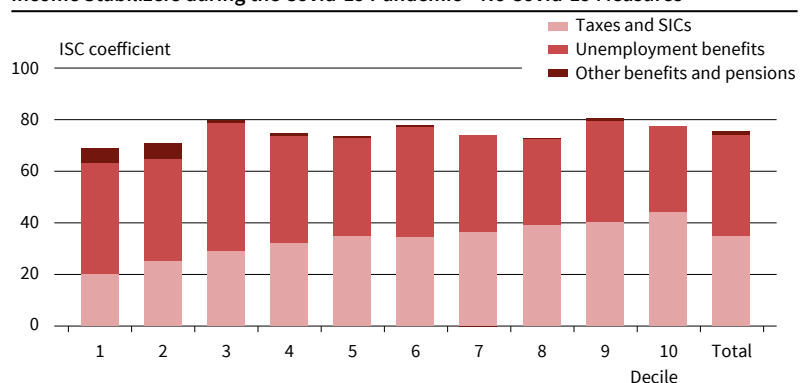
Note: SICs = social insurance contributions.

Source: Authors' calculations.

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Figure 5

Income Stabilizers during the Covid-19 Pandemic – No Covid-19 Measures



Note: SICs = social insurance contributions.

Source: Authors' calculations.

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protection to low-income earners and less protection to high-income earners. Moreover, compared to Spain, Belgium, the United Kingdom, and Italy (Cantó et al. 2021), only Belgium shows a similar protection of households against income loss. The case of Germany highlights the importance of having strong income stabilizers (e.g., STW) in place to mitigate income losses during macroeconomic crises.

Our work contributes to the literature on modeling the socio-economic impact of the Covid-19 pandemic by highlighting the importance of the extended labor market transition approach in estimating the impact of the crisis on highly important policy indicators. From a policy perspective, real-time data is crucial for assessing the impact of an economic crisis, especially with respect to income inequality. Our approach is also valuable for the analysis of future macroeconomic shocks, as it provides policymakers with early insights into the impact of a crisis and allows them to target policies to those who are most affected during an economic crisis.

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