Short-time Working Schemes, Replacement Rates and Labour Reallocation

Gaetano Basso, Emanuele Ciani, Francesco Manaresi

July 2021

Abstract

Job retention and short-time work (STW) schemes usually replace only part of the workers' wage loss while on furlough. One rationale against a high replacement rate is that it could discourage workers from taking up other job offers, thereby hampering reallocation towards other firms and sectors. We provide new causal evidence on the impact of a higher replacement rate on job separations and reallocation while on STW, exploiting a discontinuity in the benefit schedule of the Italian STW scheme *Cassa integrazione guadagni*. Our preliminary results indicate that a higher replacement rate has no effect on the likelihood that the worker leaves the firm in the 24 months after the start of a STW episode. This evidence weakens the case against an increase in the STW replacement rate.

JEL codes: H20, J62

Keywords: Short-time work, job mobility

1 Introduction

During the Covid-19 crisis, job retention and short-time working (STW) schemes have been expanded massively across OECD countries (OECD, 2020). In an attempt to counteract the impact of the crisis on workers' disposable income, some countries raised the replacement rate. In April 2020, Germany increased the statutory replacement rate of the *Kurzarbeit* scheme from 60% to 70% from the third month and to 80% from the seventh month. In May 2020, Japan almost doubled the top-ceiling for its STW benefit in large firms. The UK introduced a quite generous furlough scheme, in which workers keep receiving 80% of their wage.

In most countries, STW benefits are quite generous, usually more than unemployment benefits. Evaluated at the average gross wage, Italy has one of the lowest

replacement rates. While the nominal replacement rate is 80%, the benefit is capped at different thresholds (at euro 975.75 for wages above euro 1,214.63 and at euro 1,167.91 for wages higher than euro 2,102.24 in 2016). As a result, an average-wage worker whose working hours are reduced to zero receives just 45% of her wage (OECD, 2020).

There are three main rationales for a high replacement rate of the STW scheme. First, a higher subsidy facilitates consumption-smoothing by preserving the workers' purchasing power (similar to unemployment insurance benefits for the unemployed). Second, with more generous benefits, workers and trade unions are more likely to agree with a reduction of working-hours, and therefore the scheme take-up is higher (Boeri and Bruecker, 2014). Third, at the individual level, a high replacement rate reduces the benefit of taking up other job offers while on STW, allowing to maintain the employer-employee relationship and preserving the firm-specific human capital while the firm gets back on its feet. However, a high replacement rate also discourages workers' mobility towards firms whose labour demand is growing, thus hampering reallocation.

We focus on the third rationale, by looking at the effect of the replacement rate on job mobility. To this aim, we provide new causal evidence on the impact of replacement rate on job separations while on STW. We identify this effect by exploiting the discontinuity in the Italian STW schedule induced by the increase in the benefit cap at the euro 2,102 wage threshold. This setting leads naturally to a sharp Regression Discontinuity Design (RDD), which we conduct on the universe of private-sector employees from the administrative archives of the Italian Social Security Institute (INPS). Our findings suggest no effect of a higher replacement rate on the likelihood that the worker leaves the firm in the 24 months after the start of a CIG episode. Therefore, altering the generosity of the scheme by marginally changing the upper benefit cap does not have implications on the fraction of workers leaving the firm while on STW. Although our RDD strategy allows us to identify only the effect around the euro 2,102 threshold, we argue that such effect is policy relevant. First, we will show that a large part of the workforce receives a wage around that threshold. Second, the replacement rate is comparatively low in the Italian STW scheme precisely because of the upper benefit cap (see OECD, 2020).

While previous literature has analyzed the role of STW schemes in protecting workers, we are the first to study the impact of the replacement rate from the workers' point of view. The previous evidence underlined that the benefits of these schemes in terms of higher employment come together with risks of moral hazard at the *firm* level. From the *employer*'s point of view, if the cost (such as the experience rating) is too low, the scheme is overused and helps maintaining unproductive firms alive, thereby endangering the reallocation towards growing businesses (Boeri and Bruecker,

2014). From the *worker's* point of view, our results show that a higher benefit does not induce sizeable differences in reallocation to other firms, conditional on being on STW. This result weakens the case against an increase in the replacement rate.

Our paper is also related to the literature on the generosity of the unemployment insurance largely devoted to designing the optimal replacement rate that balances moral hazard and consumption-smoothing benefit (Baily, 1978; Chetty, 2006). A recent literature investigates how unemployment insurance benefits affect job search by the unemployed, finding that longer duration improves reemployment probability and destination firm quality (Nekoei and Weber, 2017; Scrutinio and D'ambrosio, 2020), while a more generous replacement rate does not change the characteristics of the reemployment job.

2 Empirical framework

To illustrate the role of the replacement rate in affecting the actions of a worker in a STW scheme, consider a very simple two-periods model. In the first period an individual working full-time in firm i, usually earning a wage W_i, is put on STW by the firm and earns a fraction b of her original wage. Assume that the Law prescribes that the replacement rate b changes according to the wage earned $b_i = f(W_i)$.

In the second period, the worker faces a probability θ of remaining in STW, a probability π_i of being laid off, earning an unemployment benefit equal to a share u of her current wage, and a probability $(1 - \theta - \pi)$ of being fully reintegrated at work.

In period 1, the worker can put some effort $e = \{0, 1\}$ to find another job in a firm j, where he would be employed in the second period, earning a wage w_j. The probability for her to be matched to j is λ. We may allow wages, the probability of being laid off, and the probability of finding a match with firm j to be a function of the worker's unobserved ability. We do not allow the worker to have another job while in a STW, as the Italian Law prohibits this.[1]

The worker's expected utility in the first period if she does not exert effort to look for a different job and remains in firm i is:

$$V_i := [b + \delta(\theta b + \pi u + 1 - \theta - \pi)]W_i \tag{1}$$

[1]The Law allows the worker to take up short-term contracts for work to be performed during the hours of STW. However, any wage earned from this second job has to be deducted from the STW benefit. This implies a 100% implicit tax rate. Furthermore, the worker needs to be ready to be re-employed full time as soon as the STW is brought to an end. In fact, we know that it is extremely rare that workers pick up such secondary jobs while on STW, and (anecdotally) most of the people think it is actually forbidden.

If, instead he looks for job, her expected utility will be

$$V_j := bW_i - e + \delta\left[\lambda W_j + (1-\lambda)[\theta b + \pi u + (1-\theta-\pi)]W_i\right] \tag{2}$$

The worker will choose to remain in her job if her expected benefit in firm i is larger than her expected benefit in firm j. Combining (1) and (2) we get the condition:

$$W_i\left[b\left(\frac{1}{\delta\lambda}-\theta\right)+1-\theta-\pi(1-u)\right]-W_j+\frac{e}{\delta\lambda}>0 \tag{3}$$

Equation (3) shows that the incentive to search depends on three features: (i) the expected duration of shock and the expected value of eventual layoff (θ and πu); (ii) the expected value of outside options (λW_j); (iii) the generosity of the replacement rate b.

We, thus, need to identify a change in b that is orthogonal to other features in (3). We do so by exploiting the discontinuity set by the law at about euro 2,102 of monthly wage. As discussed, the amount the worker receives when in STW is capped at roughly euro 971 below that amount and tops at around euro 1,168 above it. As shown in Figure 1, this result is a decline in the replacement rate over the wage distribution with a discontinuity at euro 2,102. We, thus, exploit this discontinuity in a RDD, namely comparing what happens to workers above and below the threshold when the firm recurs to STW for the first time (likely due to a shock to demand).

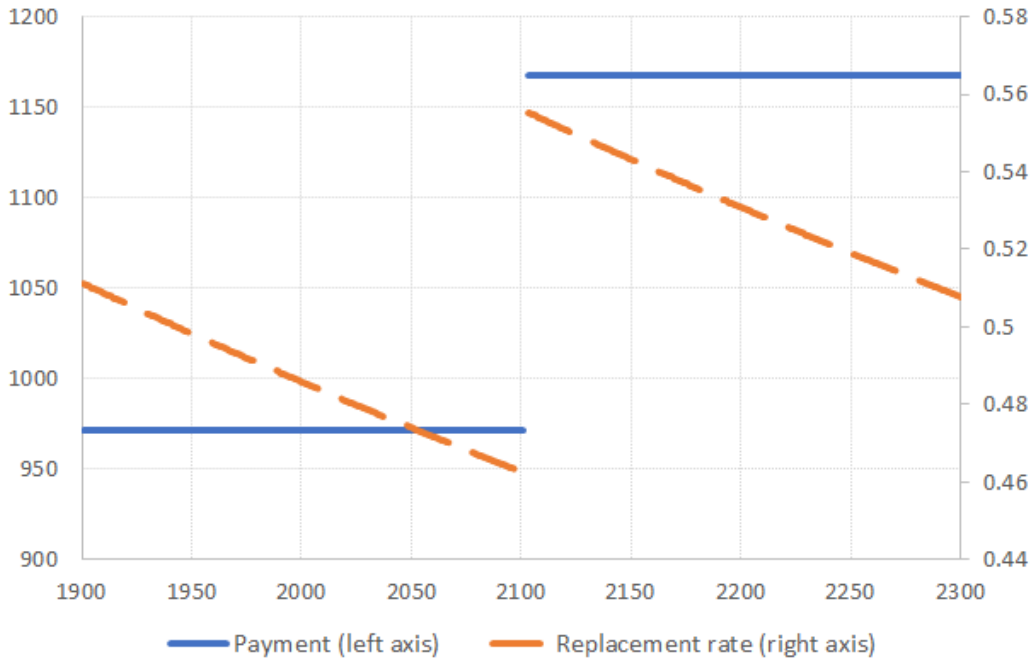
We estimate the following RDD equation:

$$y_{i(j),t} = \alpha_0+\beta 1(\tau_{i(j),t=0}>0)+\sum_{k=1}^{K}(\gamma_k\tau^k_{i(j),t=0}+\delta_k\tau^j_{i(j),t=0}*1(\tau_{i(j),t=0}>0)+X'_{i(j)}\eta+Z'_j\theta+\varepsilon_{i(j),t} \tag{4}$$

where τ is the difference between the wage at the onset of the STW scheme (i.e., the one used to calculate the replacement rate) and the threshold that determines the discontinuity in the benefits (euro 2,102). In the implementation, we use the optimal bandwitdth of Calonico et al. (2014) (see also Calonico et al., 2017) and local linear regression estimation with triangular kernel.

By estimating this equation, our goal is to identify the effect of the generosity of the replacement rate, i.e., point (iii) above, on reemployment (y, evaluated at different horizons $t, t+3, .., t+24$), while controlling for the other determinants (X, Z are vectors of individual and firm characteristics): as we identify the effect at the discontinuity induced by the Italian STW scheme, the expected value of all other confounders (e.g., individual ability) around the threshold should be the same.

Figure 1: STW benefits and replacement rate at the discontinuity



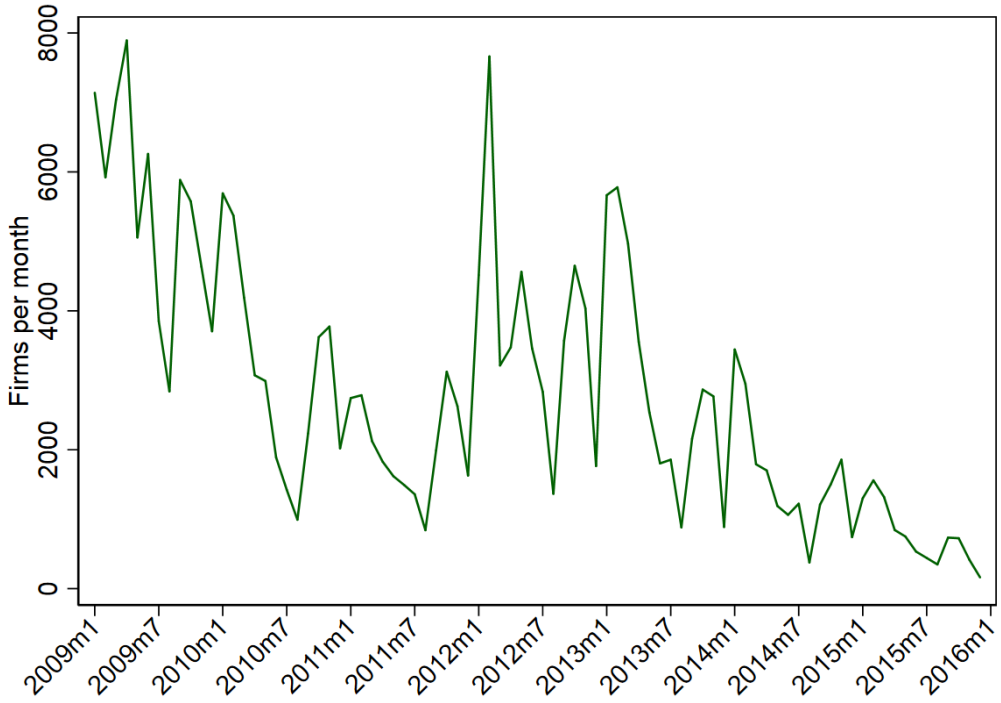
3 Data

We carry out the analysis on the linked employer-employee dataset of the Italian National Social Security Institute. The dataset covers all private employees and links them to their firms. It contains information on which workers were subject to CIG and for how many hours. The scheme is composed of different interventions. The "ordinary" scheme (CIGO) is the standard one, traditionally reserved to manufacturing. It lasts up to 12 months. If a firm's crisis lasts longer, the firm can request a "straordinary" intervention (CIGS) that covers up to other 24 months. These schemes do not usually cover other sectors, noticeably services. However, during the Great Recession and in the following years, the Italian government introduced a supplementary scheme (CIGD), which worked similarly to the other two.[2] In the remainder we consider the three schemes together, as there is no difference in the workers' benefit and replacement rate.

We select firms with at least one employee who went through a CIG episode between year 2009 and 2016. This was the recent period of strongest utilization of STW schemes, which started with the Great Recession. We exclude from the sample firms in the construction sector - as the calculation of the workers' benefit is different - and

[2]There were some differences in the firms' requisites, contribution, as well as in the way the request was approved (by regional authorities instead of the National Social Security Institute). However, there was no difference from the workers' point of view.

Figure 2: Firms first CIG episode between 2009 and 2016, excluding manufacturing, agriculture and household services



those in agriculture and household services - because they are not covered by CIG.

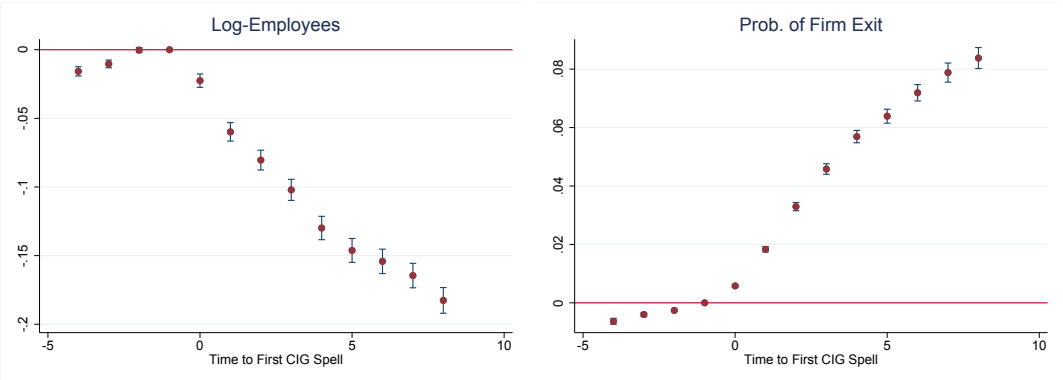
For each firm, we focus on the first CIG episode during the period, as it might happen that firms use the scheme repeatedly. Figure 2 shows that the largest number of selected events are concentrated around the two dips of the recession, in 2009 and 2012. We then observe quarterly data on employment and firm exit in the following two years (hence up to 2018). Figure 3 shows that firms using the scheme undergo a massive contraction of their overall employment and a sizeable increasing in the probability of shutting down.

Within this sample of firms, we track the employment trajectory of their workforce between 3 months before the CIG episode and 24 months after (Figure 4). Workers hired since the onset (t=0) of the STW scheme are not considered. We focus only on permanent employees, as for the temporary contracts the average duration is very short and would anyway terminate.[3]. We also focus only on full time employees to avoid adding noise due to the pro-rata calculation of benefits.

The replacement rate depends on a 'theoretical' monthly wage, which is the wage

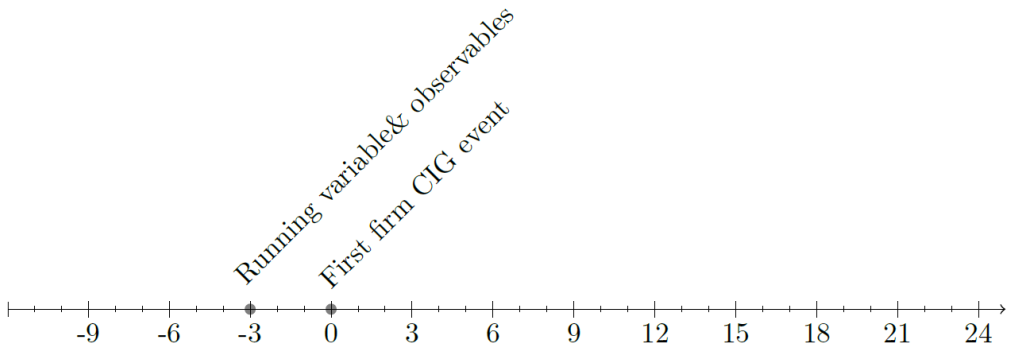
[3]According to Basso et al. (2021), 41.5 percent of temporary contracts in the private non-financial service sector last less than 6 months. In the South of Italy, only 7.6 percent of temporary contracts last more than 12 months (of Italy, 2019)

Figure 3: Firm's employment and survival around the first CIG event (time in quarters)



Note: the figures are estimated using an event study that includes firm, time (quarter) as well as sector-year and sector-province f.e.: $y_{it} = \gamma_t + \lambda_i + \sum_{\tau=-4}^{8} \delta_{t+\tau} T_{i,t+\tau} + [\theta_{st} + \iota_{sp}] + \varepsilon_{it}$.

Figure 4: Timeline of events



stripped of additional components such as overtime, and increased by 1/12 to account for the annual extra payment (the 13th month payment that characterizes Italian contracts).[4] This 'theoretical' wage (including the pro-quota annual payments) is the running variable z_{it} for the RDD. The benefit amount depends on whether the running variable is above certain ceilings. In 2016, for z_{it} below euro 2102.24 the payment was 80% of the wage, but was capped at euro 971.71 for a 0-hour CIG. For higher z_{it}, the cap raised at euro 1167.91, implying approximately 200 euro increase in the benefit around the threshold.[5]

The ceilings are adjusted for inflation every year using a national index that applies to all social benefits. To preserve comparability over the years, we adjust the running variable using the same index (bringing it to 2016 levels) and we always use the 2016 upper ceiling as threshold. We measure the running variable in the month in which the CIG episode starts ($t = 0$), as that is the most relevant moment in which calculations are performed. This choice implies that we drop all workers that leave the firm between $t = -3$ and $t = 0$, as we do cannot measure their running variable at $t = 0$. To lessen concerns about the possible endogeneity, we perform the main estimates calculating z_{it} at $t = -3$ in a robustness check. This also allows to observe possible anticipation effects between $t = -3$ and $t = 0$.

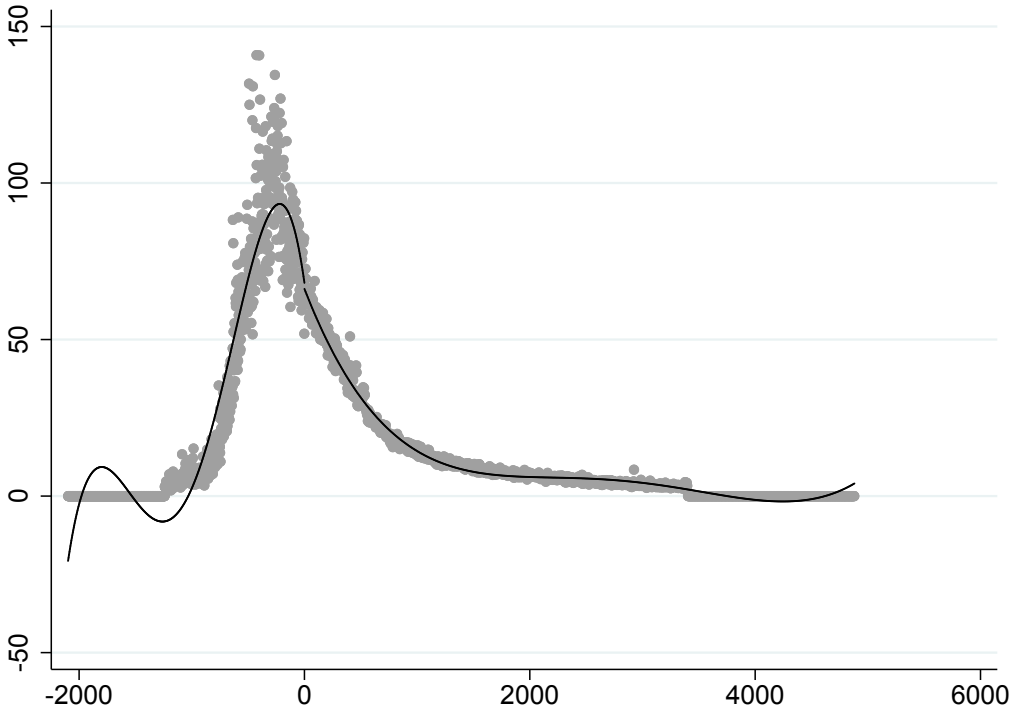
In the vast majority of cases, the benefit is paid by the employer, who later claims it back from the Social Security Institute. In some instances, the employer can request the Social Security Institute to pay the benefit directly to the employee. Unfortunately, only in the latter case the worker-level benefit is recorded in the administrative archives. We can, therefore, provide evidence about the first stage only in this selected sub-sample, which we also use to confirm our main findings.

A worker loses the benefit if s/he finds a new permanent job. Within contractual limitations, the worker is allowed to sign a fixed-term job while on CIG. However, the earnings are entirely deducted from the benefit. There is, therefore, no incentive to take up a short-term work and indeed we do not find evidence of it in the data. While being on CIG, individual employees cannot be fired for economic reasons, unless as part of a collective dismissal or there are other lawful reasons for terminating the single

[4]Only in few cases we do not observe this variable in the archives and we impute it using the monthly wage.

[5]Given that workers are often put on STW only for a fraction of their total working hours, the calculation of the benefit is actually performed at the hourly level, by dividing both the 'theoretical' wage and the ceilings by the contractual hours. Notice that this ensure that the replacement rate (benefit over forgone earnings) schedule with respect to the theoretical wage is independent from whether the CIG is 0-hours or partial. Note also that, even if different workers have different contractual hours, this does not change the relevance of the running variable and the thresholds, because both are divided by the same amount in the pro-quota calculation.

Figure 5: Distribution of the running variable (centered on the threshold)



Note: The figure plots the distribution of workers' monthly wages at baseline ($t = 0$) in our sample binned at euro 0.05. The discontinuity is estimated using the local quadratic polynomial regression and the optimal bandwidth of Calonico et al. (2017): we let the bandwidth to differ on either side of the threshold.

contract (e.g. the employee breaches it).

Our selected sample is composed of 2,031,095 workers. A large fraction of them is located next to the threshold, with the mode of the running variable being just slightly below it. Fitting the density distribution separately at the right and left of the threshold detects a marginal drop in the distribution (around 9 units) around the threshold. Such drop cannot be taken as evidence of manipulation, as workers have an incentive to be on the right side of the threshold, rather than on the left side.

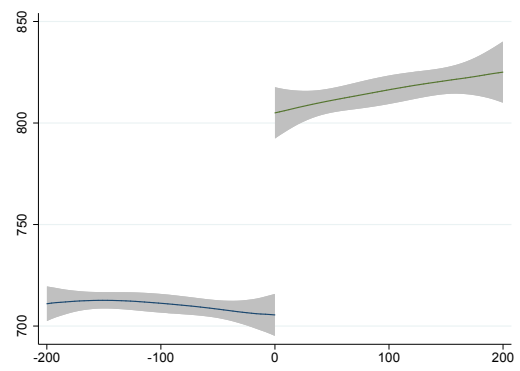
4 Results

4.1 The impact on replacement rate and CIG intensity

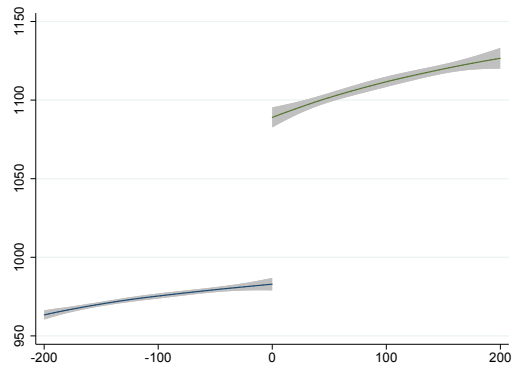
Using the sub-sample of workers that received a CIG payment directly from the Social Security Institute, Figure 6 shows the benefit amount vis-à-vis the running variable z_{it}. To account for the fact that some people are on the scheme only for some hours,

Figure 6: Discontinuity in the full-time equivalent monthly CIG benefit at the threshold

(a) Entire sample with direct payment



(b) Only hourly benefit ≥ euro 4



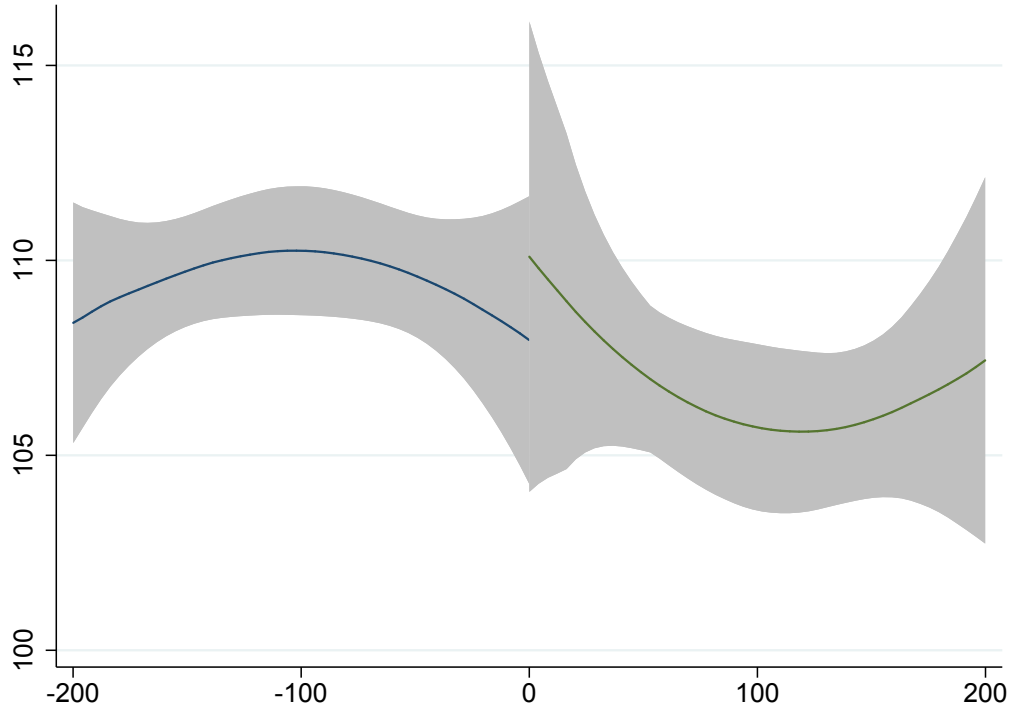
Note: sample of workers with direct payment from the Social Security Institute. The discontinuity, calculated at $t = 0$, is estimated using the local quadratic polynomial regression and the optimal bandwidth of Calonico et al. (2017): we let the bandwidth to differ on either side of the threshold.

we express all benefits on a full-time scale by multiplying the hourly amount by the monthly contractual hours. In some cases, the Social Security Institute pays directly only half of the benefit, but unfortunately these cases are not explicitly labeled as such in the administrative archives. As a consequence, the average benefit in the Figure is not equal to the theoretical one. For the sake of clarity, we also reproduce the Figure selecting only workers with a hourly payment above euro 4, which should exclude cases of half payment in the selected range of theoretical wages.

The figure shows a significant discontinuity in the full-time equivalent monthly payment around the threshold. The jump is around 100 euro, half of what we expect from the theoretical benefit schedule. The main reason is measurement error in the running variable that we need to impute based on the 'theoretical' wage introduced above, which makes the discontinuity less sharp. This is also shown by the fact that the average benefit is slightly increasing with z_{it} after the threshold, while it should be perfectly fixed. The jump is nevertheless significant, as it implies an increase in the monthly benefit from euro 970 to 1070.

The employer may take into account differences in the replacement rate and try to equalize the earnings loss across employees, by assigning a higher CIG intensity (in terms of hours) to those above the threshold (who have a higher replacement rate). Although the employer has no direct gain in doing so, s/he might want to avoid losing some employees. Trade unions might also put pressure on the employer to avoid strong differences across workers. Figure 7 shows that there is no evidence of such

Figure 7: Discontinuity in the intensity of CIG (hours)



Note: sample of workers with direct payment from the Social Security Institute. The discontinuity, calculated at $t = 0$, is estimated using the local quadratic polynomial regression and the optimal bandwidth of Calonico et al. (2017): we let the bandwidth to differ on either side of the threshold.

an equalizing behaviour. Workers around the threshold are on CIG for a substantial number of hours, 110 hours per month or 60% of their contractual schedule, with no difference above or below the threshold.

Differences across the threshold in the individual characteristics of the workers are very small (Table A.1).[6] There is a small jump in the probability that the worker belongs to manufacturing, and therefore we pay particular attention in presenting also the results separately by sector. Individual characteristics are balanced also within manufacturing.

[6]We focus on the few individual socio-demographic characteristics available in the administrative archives.

Table 1: Discontinuity in workers' characteristics around the threshold

					Manufacturing only		
	Female	Age	Foreign born	Manuf.	Female	Age	Foreign born
$\beta_{threshold}$	-0.002	0.2	-0.001	0.043	0.005	0.1	-0.004
s.e.	0.007	0.1	0.002	0.010	0.004	0.1	0.002
p-value	0.799	0.1	0.829	0.000	0.202	0.2	0.055
Average	0.261	41.6	0.058	0.592	0.194	41.5	0.072
Observations	1,012,569	732,580	993,932	705,488	584,097	509,078	628,571

Note: Full sample. Standard errors are clustered by firm. The discontinuity, calculated at $t = 0$, is estimated using the local quadratic polynomial regression and the optimal bandwidth of Calonico et al. (2017): we let the bandwidth to differ on either side of the threshold. The average refers to the value just below the threshold (the constant of the RDD regression).

4.2 The impact on job separations

The main results (Table 2, panel A) show that there is no effect of being above the threshold on the probability that, by a certain month, there has been a (voluntary or involuntary) job separation.[7] Even if the average fraction of separations rises steeply during the two years following the start of the CIG episode (as shown by the reported values just below the threshold), there is no sizeable difference across the discontinuity. These zero effects are rather precisely estimated. Very similar results hold for the probability of having being fired (Panel B). Within the manufacturing sample the effect is actually positive (Panel C), but again extremely small.[8] The effect is very close to zero in the service sector (Panel D). Overall, there is no evidence that being above the threshold, and therefore receiving a larger benefit, reduces the likelihood of leaving the firm.

One concern relates to measurement error of the running variable in the main sample. If measurement error is strong, there might not be strong differences in the amount of benefit across the threshold, hence there is no reason to expect a change in the fraction of job separations. In Table 3, panel A, we replicate the estimates on the sub-sample of firms where the payment is directly provided by the National Social Security Institute. In this sample we provided evidence of a sizeable discontinuity in the amount of benefit around the threshold. There is no evidence of differences across the threshold. The zero effects are less precisely estimated, but we can again exclude strong effects.[9]

Workers in firms that will end up being liquidated should have a stronger incentive to leave the firm as soon as possible. Consistently, we find stronger negative effects in the subset of firms that died within three years from the first STW event, particularly so in the earliest months (Table 3, panel B). Nevertheless, from a quantitative point of view, the effects are still rather small.

Workers close to retirement or with longer tenure have stronger attachment to the firm, because they are less likely to end up being fired and it might be harder for them

[7] Results using a linear polynomial and a different bandwidth are extremely similar. See Table A.1 in the Appendix.

[8] This result is somewhat surprising, but it is largely determined by a wide bandwidth, selected according to the Calonico et al. (2014) methodology. Although we do not observe significant differences in the observables characteristics of the workers in the manufacturing sample, such wide bandwidth may induce selection on unobservables.

[9] Similarly, the effect for those in STW for more than 50 percent and for whom the payment is directly provided by the National Social Security Institute –i.e., the sample with the smallest likelihood of measurement error– is negative at all horizons, but small and not statistically significant. The size ranges from to a precise zero at 3 and 6 months to -0.058 (with p-value equal to 0.204) at 24 months (the full set of results available upon request).

to find a new job. Furthermore, younger workers have lower risk aversion (Dohmen et al., 2017). However, Table 3, panel C, shows evidence of zero effects also among those workers aged less than 40. Finally, we do not find different results if we restrict our sample to men (Table 3, panel D).

5 Conclusions

STW schemes are widely employed in European and OECD countries to allow firms to face temporary crisis without laying off their workers, therefore limiting the dispersion of the firm-specific human capital. From the workers' point of view, the wage-replacing benefit associated with the scheme is crucial to limit welfare losses and facilitate consumption smoothing. Importantly, a more generous benefit is an incentive for the worker to remain in the same job and wait for the firm to resume its full activity. While this facilitates the preservation of the firms' workforce, it also limits the reallocation towards other firms. It is therefore crucial to know the elasticity of workers' mobility while on STW to the generosity of the benefit.

Our results indicate that a sizeable increase in the replacement rate does not alter the probability of workers' leaving the firm while on STW. The RDD estimates consistently show that the workers above the euro 2,102 wage threshold - who receive approximately 200 euro more when on 0-hour STW - are not less likely to leave the firm during the 24 months following the onset of STW. This zero-effect is also found in sub-samples of workers in firms that eventually close down - who should have a higher incentive to leave - as well as among those that are on STW for a larger fraction of their time. Measurement error does not seem to explain the results, because the estimates are close to zero also when we look at the sub-sample for which the benefit is directly paid by the National Social Security Institute (INPS), and therefore the records are more precise. Although our estimates refer to a change of generosity around a specific threshold, as usual for RDD designs, it has important policy implications: many workers are located around that threshold and the associated benefit cap explains the low replacement rate of the Italian scheme with respect to other countries.

Summing up, the estimates imply that altering the generosity of the scheme by marginally modifying the CIG benefit around the upper threshold should not have implications for workers' mobility while on CIG. This limits concerns pertaining to the risk that workers would leave the firm if the benefit decreases, as well as concerns about hampering their reallocation to more-productive or thriving firms and sectors. The decision on the generosity should, therefore, rather be taken on the basis of the

consumption-smoothing effects on workers.[10]

References

Baily, M. N. (1978). Some aspects of optimal unemployment insurance. *Journal of Public Economics 10*(3), 379–402.

Basso, G., A. Grompone, and F. Modena (2021). The (little) reallocation potential of workers most hit by the covid-19 crisis. Occasional paper 597, Bank of Italy.

Boeri, T. and H. Bruecker (2014, 08). Short-time work benefits revisited: some lessons from the Great Recession. *Economic Policy 26*(68), 697–765.

Calonico, S., M. D. Cattaneo, M. H. Farrell, and R. Titiunik (2017). rdrobust: Software for regression discontinuity designs. *Stata Journal 17*(2), 372–404.

Calonico, S., M. D. Cattaneo, and R. Titiunik (2014). Robust nonparametric confidence intervals for regression-discontinuity designs. *Econometrica 82*(6), 2295–2326.

Chetty, R. (2006). A general formula for the optimal level of social insurance. *Journal of Public Economics 90*(10), 1879–1901.

Dohmen, T., A. Falk, B. H. H. Golsteyn, D. Huffman, and U. Sunde (2017). Risk attitudes across the life course. *The Economic Journal 127*(605), F95–F116.

Nekoei, A. and A. Weber (2017). Does extending unemployment benefits improve job quality? *American Economic Review 107*(2), 527–61.

OECD (2020). Job retention schemes during the covid-19 lockdown and beyond.

of Italy, B. (2019). L'economia delle regioni italiane. Economie regionali 22, Bank of Italy.

Scrutinio, V. and A. D'ambrosio (2020). For a few euro more: Benefit generosity and the optimal path of unemployment benefits. *mimeo*.

[10]Clearly an increase in the benefit might make it even easier for trade-unions and workers to accept the STW scheme. This seems to be a minor concern in the Italian case, considering the already widespread utilization of the instrument.

Table 2: Discontinuity in the main outcomes at the threshold

	Month t from the beginning of CIG event							
	3	6	9	12	15	18	21	24
	Panel A. Outcome: job separation between 0 and month t, total sample							
$\beta_{threshold}$	-0.001	0.000	-0.001	0.002	0.003	0.003	0.004	0.003
s.e.	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.005
p-value	0.400	0.831	0.677	0.518	0.300	0.360	0.304	0.444
$\lim_{z\to 0^-} y(z)$	0.033	0.060	0.092	0.121	0.148	0.173	0.194	0.216
obs used	1,173,853	1,223,932	1,111,191	1,070,433	1,046,160	1,030,857	1,023,751	1,004,999
total obs	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095
	Panel B. Outcome: fired between 0 and month t, total sample							
$\beta_{threshold}$	0.001	0.001	0.001	0.003	0.004	0.003	0.003	0.003
s.e.	0.001	0.002	0.002	0.003	0.003	0.003	0.004	0.004
p-value	0.606	0.500	0.609	0.296	0.213	0.336	0.378	0.464
$\lim_{z\to 0^-} y(z)$	0.024							
obs	1,040,407	1,011,919	972,922	930,728	916,632	939,153	947,377	940,471
total obs	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095
	Panel C. Outcome: job separation between 0 and month t, total sample, Manufacturing							
$\beta_{threshold}$	0.001	0.004	0.005	0.007	0.007	0.009	0.009	0.011
s.e.	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.003
p-value	0.523	0.029	0.032	0.006	0.005	0.002	0.001	0.000
$\lim_{z\to 0^-} y(z)$	0.027	0.048	0.072	0.100	0.121	0.141	0.159	0.179
obs used	739,840	792,852	719,810	720,631	730,133	714,669	713,138	698,830
total obs	1,248,249	1,248,249	1,248,249	1,248,249	1,248,249	1,248,249	1,248,249	1,248,249
	Panel D. Outcome: job separation between 0 and month t, total sample, Services							
$\beta_{threshold}$	-0.003	-0.002	-0.005	0.000	0.003	0.001	0.000	-0.001
s.e.	0.003	0.004	0.005	0.006	0.007	0.009	0.009	0.011
p-value	0.276	0.690	0.337	0.993	0.698	0.009	0.989	0.911
$\lim_{z\to 0^-} y(z)$	0.041	0.078	0.124	0.161	0.188	0.221	0.246	0.272
obs used	443,678	430,151	442,485	438,679	441,244	442,671	446,925	433,584
total obs	782,846	782,846	782,846	782,846	782,846	782,846	782,846	782,846

Note: Full sample. Standard errors are clustered by firm. The discontinuity is estimated using the local quadratic polynomial regression and the optimal bandwidth of Calonico et al. (2017): we let the bandwidth to differ on either side of the threshold. The average refers to the value just below the threshold (the constant of the RDD regression).

Table 3: Discontinuity in the probability of job separation by a certain month, by subsample

	Month t from the beginning of CIG event							
	3	6	9	12	15	18	21	24
				Panel A: Sample with direct payment from the National Social Security Institute				
$\beta_{threshold}$	-0.002	0.004	0.001	-0.002	0.002	-0.001	-0.003	-0.003
s.e.	0.003	0.005	0.006	0.006	0.007	0.007	0.007	0.008
p-value	0.527	0.435	0.920	0.760	0.722	0.876	0.721	0.710
$\lim_{z\to 0^-} y(z)$	0.060	0.113	0.168	0.226	0.260	0.304	0.337	0.368
obs used	173,731	154,568	148,249	152,942	147,200	154,082	159,666	161,251
total obs	266,700	266,700	266,700	266,700	266,700	266,700	266,700	266,700
				Panel B: Firms that die				
$\beta_{threshold}$	-0.006	-0.003	-0.007	-0.004	-0.005	-0.006	-0.008	-0.015
s.e.	0.003	0.004	0.005	0.006	0.007	0.008	0.008	0.009
p-value	0.032	0.542	0.171	0.532	0.442	0.404	0.335	0.112
$\lim_{z\to 0^-} y(z)$	0.053	0.097	0.144	0.198	0.235	0.272	0.306	0.344
obs used	244,746	318,172	320,994	293,508	281,778	275,587	274,228	297,394
total obs	484,923	484,923	484,923	484,923	484,923	484,923	484,923	484,923
				Panel C: Young workers (age $\leq$ 40)				
$\beta_{threshold}$	-0.001	0.001	-0.003	0.000	0.001	0.001	0.001	0.000
s.e.	0.002	0.002	0.005	0.005	0.006	0.006	0.006	0.007
p-value	0.412	0.538	0.447	0.955	0.798	0.795	0.851	0.975
$\lim_{z\to 0^-} y(z)$	0.033	0.058	0.093	0.122	0.146	0.167	0.187	0.206
obs used		577,164	581,336	682,576	682,516	678,134	537,429	546,306
total obs	1,008,698	1,008,698	1,008,698	1,008,698	1,008,698	1,008,698	1,008,698	1,008,698
				Panel D: Male only				
$\beta_{threshold}$	-0.001	0.001	0.000	0.003	0.005	0.005	0.005	0.005
s.e.	0.001	0.002	0.002	0.003	0.003	0.003	0.003	0.004
p-value	0.309	0.763	0.927	0.225	0.077	0.141	0.143	0.189
$\lim_{z\to 0^-} y(z)$	0.034	0.060	0.089	0.120	0.145	0.169	0.191	0.213
obs used	862,965	813,367	789,150	788,548	760,816	772,491	774,707	758,909
total obs	1,469,424	1,469,424	1,469,424	1,469,424	1,469,424	1,469,424	1,469,424	1,469,424

Note: Full sample. Standard errors are clustered by firm. The discontinuity is estimated using the local quadratic polynomial regression and the optimal bandwidth of Calonico et al. (2017): we let the bandwidth to differ on either side of the threshold. The average refers to the value just below the threshold (the constant of the RDD regression).

6 Appendix: Additional tables

Table A.1: Discontinuity in the main outcomes using alternative bandwidths and local regressions

Outcome		Months from the beginning of CIG event							
		3	6	9	12	15	18	21	24
		Panel A: Msetwo bandwidth, linear polynomial							
Contract terminated	$\beta_{threshold}$	-0.002	0.000	-0.001	0.001	0.003	0.003	0.003	0.002
	s.e.	0.001	0.002	0.002	0.003	0.003	0.004	0.004	0.004
	p-value	0.240	0.806	0.492	0.641	0.407	0.400	0.430	0.630
	obs	864,103	708,859	847,398	717,103	793,990	775,412	829,260	743,438
Fired	$\beta_{threshold}$	0.001	0.001	0.002	0.004	0.005	0.003	0.003	0.002
	s.e.	0.001	0.002	0.002	0.002	0.003	0.003	0.003	0.004
	p-value	0.480	0.386	0.462	0.132	0.080	0.270	0.340	0.502
	obs	723,230	615,975	620,003	642,782	645,166	713,904	731,726	674,880
		Panel B: Certwo bandwidth, quadratic polynomial							
Contract terminated	$\beta_{threshold}$	-0.001	0.000	0.002	0.004	0.005	0.004	0.004	0.003
	s.e.	0.002	0.002	0.003	0.003	0.004	0.004	0.004	0.005
	p-value	0.623	0.856	0.370	0.239	0.133	0.261	0.372	0.585
	obs	662,369	674,354	643,237	590,851	564,136	547,542	539,196	528,157
Fired	$\beta_{threshold}$	0.001	0.001	0.002	0.005	0.006	0.005	0.004	0.003
	s.e.	0.001	0.002	0.002	0.003	0.003	0.003	0.004	0.004
	p-value	0.397	0.398	0.378	0.097	0.045	0.114	0.242	0.396
	obs	573,873	565,228	542,804	508,038	497,256	500,419	499,182	490,909
obs for bdwidth calc.		2,031,095	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095	2,031,095

Note: Full sample. Standard errors are clustered by firm. The average refers to the value just below the threshold (the constant of the RDD regression).