

Protecting Jobs, Preserving Efficiency: Insights from European Short-Time Work Schemes

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Abstract – Short-time work (STW) programmes have been central to European labour-market policy during the Great Recession and COVID-19. This survey integrates theory, cross-country institutional design, and microeconomic evidence to assess whether and how STW succeeds in stabilising employment, preserving firm-specific human capital, and mitigating employees' loss of earnings. Comparative analysis of Belgium, France, Germany, and Italy shows that targeting temporary shocks, combining monitoring with financial incentives for beneficiary firms, and limiting programme duration are crucial to maximise benefits. By contrast, untargeted or prolonged STW not only generates deadweight losses but also delays necessary labour reallocation. Well-designed programmes support firms and workers efficiently while preserving labour-market adjustment.

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Short-time work (STW) schemes subsidise temporary reductions in working hours to help firms adjust to transitory—generally unexpected—shocks without resorting to layoffs.¹ In contrast to standard unemployment insurance, STW preserves existing job matches and limits the destruction of firm-specific human capital. By stabilising employment and incomes, STW reduces inflows into unemployment, alleviates fiscal pressure on unemployment insurance systems, and contributes to aggregate demand stabilisation through support for household consumption (Dengler *et al.*, 2025). These schemes may also have distributive effects, particularly during large shocks that disproportionately affect lower-wage workers (Christl *et al.*, 2022).

STW gained prominence during the Great Recession and reached unprecedented levels during the COVID-19 crisis. In April 2020, roughly 15% of employees in Germany, 30% in Italy, 35% in France, and 30% in Belgium were enrolled in STW schemes (Hijzen & Salvatori, 2022). The sudden collapse in labour demand created a high risk of widespread layoffs and bankruptcies, prompting governments to mobilise and expand STW policies on a massive scale.

However, this rapid expansion revived long-standing concerns regarding programme design. Broad eligibility rules, weak monitoring, and limited financial responsibility for firms can generate moral hazard, encouraging overstated output losses, excessive reductions in hours, or enrolment of workers without genuine hour reductions. These behaviours can produce fiscal costs and distort labour reallocation by maintaining non-viable jobs for too long. While the precise challenges of coping with these distortive firm behaviours vary across contexts, this issue has received limited attention in previous surveys. In particular, even if the objective of STW programmes designed for economic reasons is not to protect against expected/seasonal or structural shocks, this is an unintended consequence in many settings, which enlarges the fiscal cost and compromises effectiveness. We return to these questions in the rest of the article, drawing on recent empirical evidence.

This article provides a systematic analytical review of STW as a labour-market policy instrument in Europe, focusing on four countries: Belgium, France, Germany, and Italy. This group is particularly relevant for several reasons. First, they have long-standing and institutionalised STW schemes repeatedly mobilised in response to cyclical downturns. Second, they share relatively stringent employment protection

legislation that restricts external flexibility, while hours and wage-setting rigidities heighten the importance of internal adjustment tools such as STW. Third, they experienced large yet heterogeneous expansions of STW during both the Great Recession and the COVID-19 crisis, offering a rich comparative framework for examining the effects of the institutional framework on the adoption and effectiveness of such measures.

Our contribution is threefold. First, we present a conceptual framework for understanding how STW operates within unemployment insurance systems in countries characterised by strong employment protection and labour-market rigidities. We highlight the expected benefits of STW—employment preservation, income stabilisation, and support for aggregate demand—and the potential inefficiencies arising from information asymmetries and moral hazard, which can generate fiscal costs and distort labour reallocation.

Second, we adopt a comparative institutional perspective to document the evolution of key design features—eligibility rules, conditionality, working-time arrangements, and co-financing mechanisms—during non-recession periods, the Great Recession, and the COVID-19 crisis in Belgium, France, Germany, and Italy. This perspective allows us to examine how differences in institutional architecture shape programme utilisation, targeting, and effectiveness, and to provide a systematic view of the policy trade-offs in high-employment-protection environments, both during aggregate economic downturns and in periods of lower programme use.

Third, we connect theoretical mechanisms, institutional design, and empirical findings by analysing three policy instruments that have received comparatively less attention in existing surveys: monitoring, co-financing mechanisms, including co-payments and experience-rating premia, and limits on the maximum duration of support. We further discuss how efforts to strengthen programme targeting through tighter

1. These programmes are also referred to as short-time compensation schemes. In several European countries, such as Belgium, France, and the Netherlands, STW schemes are also known as “temporary unemployment” or “partial unemployment”. They should not be confused with temporary layoffs, which are common in the United States and Canada and allow employers to temporarily suspend the employment relationship. In principle, temporary layoff policies enable dismissed workers to be rehired by their original employers (Feldstein, 1976). Temporary layoffs differ from STW schemes because STW maintains the employment relationship continuously. STW programmes should also be distinguished from furlough schemes, such as the one used in the United Kingdom, which allow for a full suspension of work. While some STW schemes may exceptionally permit a complete suspension of activity, they differ from furloughs in their ability to accommodate partial reductions in working time while keeping the employment relationship intact.

eligibility criteria and enhanced monitoring may compromise the timely delivery of assistance and increase administrative burdens. Finally, we highlight that employer co-financing and duration limits can discourage misuse and limit labour hoarding and reallocation inefficiencies while preserving the programme's ability to respond to temporary shocks. Drawing on recent empirical contributions, we show how these instruments can shape programme utilisation, improve targeting, and mitigate labour allocative distortions.

The remainder of the article is organised as follows. Section 1 develops a conceptual framework that synthesises existing research on STW, clarifying how these schemes operate within unemployment insurance systems, support employment and income stabilisation, and may generate fiscal and allocative inefficiencies arising from information asymmetries and moral hazard. Section 2 provides a comparative analysis of the institutional architecture and policy developments of STW schemes in Belgium, France, Germany, and Italy, documenting core design features during stable economic periods and tracing their evolution during the Great Recession and the COVID-19 crisis. Section 3 reviews empirical evidence on the effects of STW on firms and workers, drawing primarily on microeconomic evaluations from a broader set of European countries. Section 4 distils lessons for future policy design, with particular attention to targeting mechanisms, through monitoring and co-financing, and to the role of binding limits on maximum programme duration, then we conclude.

1. Conceptual Framework of STW

This section develops a conceptual framework to understand STW schemes in European labour markets. We first explain why STW is a necessary component of social insurance systems characterised by strict employment protection legislation and rigid wage and working-time agreements. Second, we describe the insurance value of STW for firms, workers, and society. Third, we discuss the main trade-offs involved in STW schemes, highlighting how the programme's insurance function may generate inefficiencies, including fiscal externalities that result in deadweight costs and distortions in labour reallocation.

1.1. Rationale for STW Inclusion in the Social Insurance System

This subsection illustrates why STW is a necessary component of European social insurance

systems, given institutional and financial constraints on labour adjustments during unexpected temporary shocks.

Several arguments explain why layoffs may become excessive relative to the social optimum during temporary economic shocks (Cahuc & Carcillo, 2011). The following paragraphs show how STW helps limit these excessive layoffs, that is, job destructions that are inefficient because they exceed the socially optimal level. First, when faced with a temporary economic downturn, firms encounter a trade-off between optimising their long-term labour force needs—by retaining more workers than strictly necessary during the crisis—and avoiding short-term cash-flow shortages caused by ongoing labour costs. Short-term financial constraints, such as limited cash flow and the worsening of financial market imperfections during economic shocks, hinder firms' ability to engage in labour hoarding, leading to increased job destruction (Giroud & Mueller, 2017; Melcangi, 2024) and potentially lower firm survival during downturns.

In principle, firms could also adjust labour costs by reducing working hours or lowering wages. However, in many European countries, labour market institutions (LMIs) and collective agreements restrict the scope for such adjustments. Pay cuts may harm employee morale or trigger voluntary quits (Bertheau *et al.*, 2025; Davis & Krolkowski, 2025), while reductions in working hours are often constrained by rigid agreements on hours and employment conditions (Jäger *et al.*, 2024; Villanueva & Adamopoulou, 2022). Germany stands as an exception, where flexible wage bargaining between firms and workers can lead to mutually agreed-upon downward wage adjustments following negative shocks (Brinkmann *et al.*, 2024; Jäger *et al.*, 2022). More generally, collective agreements negotiated at the national or sectoral level tend to limit firm-worker negotiations, reducing the capacity to preserve job-match surpluses and allocate labour efficiently during downturns (Jäger *et al.*, 2023; Acemoglu, 1995; Hall & Lazear, 1984; Giupponi & Landais, 2023).

Another argument concerns the limited incentives for firms to internalise the broader social costs of layoffs, such as increased government spending, lower tax revenues, and long-term unemployment scarring (Boeri & Cahuc, 2023). Standard unemployment insurance programmes typically do not fully align firms' private incentives with these social costs. An experience rating system can address this by linking firms' unemployment insurance contributions to their

layoff histories, thus incentivising them to limit excessive dismissals (Blanchard & Tirole, 2008; Cahuc & Malherbet, 2004; Feldstein, 1976).² In theory, full experience rating, where firms fully cover the costs of unemployment insurance benefits paid to a firm's former workers, would eliminate excessive dismissals. However, during downturns, financial constraints may make full experience rating suboptimal, as it could worsen firms' financial distress, increasing insolvency risk, and reducing hiring (Cahuc & Carcillo, 2011; Johnston, 2021). These risks arise because the experience rating system would tax firms concurrently with their layoff decisions. Given these limitations, unemployment insurance alone may not be sufficient to curb layoffs, underscoring STW's role in offering firms greater flexibility.

In contrast, strict employment protection laws (EPL) can deter excessive layoffs by restricting and discouraging dismissals. However, maintaining stringent EPL requirements during temporary economic shocks exacerbates the financial strain of firms affected by these shocks (Boeri & Cahuc, 2023). In such contexts, STW provides the necessary flexibility to manage labour costs without the negative impacts of rigid EPL.

Taken together, these institutional and financial limitations reinforce the need for a flexible adjustment mechanism, such as STW, to stabilise employment during transitory shocks.

1.2. Insurance Value of STW During Temporary Economic Shocks

STW schemes aim to preserve employment relationships, providing insurance for both firms and workers during temporary economic shocks. Unlike unemployment insurance, which compensates workers in the event of involuntary job loss, such as a layoff, STW aims to prevent layoffs altogether, sparing both parties from associated costs.

For firms, layoffs result in the loss of firm-specific human capital, severance costs, and the need to rehire and train workers once the economy recovers. For workers, STW provides financial support via government subsidies for hours not worked, while being able to keep their earnings for hours worked, and shields them from long-term earnings losses and re-employment difficulties (Schmieder *et al.*, 2023). Beyond financial effects, layoffs can negatively impact psychological well-being and economic security, with such consequences often intensifying during recessions (Drydak, 2021; Rodriguez Conde *et al.*, 2025).

These mechanisms suggest that STW can influence *firm-level outcomes* (employment, survival, productivity, and profitability) and *worker-level outcomes* (income trajectories and career stability). Section 3 examines empirical evidence on these expected effects, assessing whether different programme designs deliver the predicted benefits while considering potential trade-offs and inefficiencies (see Section 1.3).

At the aggregate level, STW generates positive effects through three channels: (i) a reduced fiscal burden relative to the unemployment insurance alternative, (ii) stabilisation of consumption and demand, and (iii) spillover effects for non-users. First, by limiting layoffs, STW reduces unemployment insurance claims, easing the fiscal burden from unemployment insurance—a link explored in Section 1.3. Second, by mitigating the risk of job loss and associated income reductions, STW stabilises demand during recessions (Jaravel, 2022). Faced with unemployment risk and borrowing constraints, workers may cut consumption, triggering a contractionary spiral. STW dampens this effect by reducing the incentive for precautionary savings (Dengler *et al.*, 2025). Finally, STW also benefits firms that do not directly make use of it. Within the theoretical framework developed by Cahuc (2024), the mere existence of STW within the social insurance system leads firms to internalise, in their expected profit calculations, the possibility of resorting to it in the event of a future economic shock. This anticipation mechanism thereby reduces the expected risk of job loss for employees of these firms, even in the absence of any actual use of the scheme. STW also mitigates “rat race” dynamics and congestion externalities on the labour market, which arise when job seekers compete for a limited number of vacancies during economic downturns. This mechanism operates through a reduction in the influx of displaced workers into unemployment, which prevents a deterioration in re-employment rates for non-users (Montenegro & Hijzen, 2024).

Overall, these mechanisms show that STW provides multi-level insurance: stabilising firms' labour forces, safeguarding workers' incomes and careers, and mitigating macroeconomic and labour market disruptions.

2. Experience rating applies within the unemployment insurance in the United States. Unemployment benefits are financed by firms that pay individualised rates that reflect the actual unemployment insurance costs imposed on the system by the firm's layoffs. While these taxes are computed based on the layoff history of a firm, experience rating is paid concurrently (Guo & Johnston, 2021). Empirical evidence by Duggan *et al.* (2023) demonstrates that U.S. firms laid off fewer workers in response to labour-demand shocks during the Great Recession when facing higher layoff penalties.

1.3. Towards Efficient STW Insurance: Key Trade-Offs

STW schemes provide rapid and flexible support to firms and workers during temporary shocks, stabilising employment and protecting workers' income. However, these benefits come with fundamental trade-offs rooted in information asymmetries between firms and governments. The latter ones cannot perfectly identify which firms genuinely face large, temporary shocks and would otherwise resort to layoffs without incurring slow and costly verification procedures (Burdett & Wright, 1989; Jaravel, 2022). Moreover, public authorities often struggle to distinguish temporary, unexpected shocks from predictable seasonal (Cahuc & Nevoux, 2018) or structural fluctuations (Mosley & Kruppe, 1996), leading to inefficiencies when firms outside the programme's intended target are nevertheless protected. These informational frictions lie at the core of potential inefficiencies, which we discuss in the following section.

1.3.1. Information Asymmetry and Moral Hazard

The information asymmetry generates moral hazard: firms may strategically manipulate eligibility criteria or overuse STW benefits by excessively reducing working hours (Burdett & Wright, 1989; Jaravel, 2022), even when financially stable or growing. This mirrors the moral hazard problem observed in standard unemployment insurance, but here it is firms' behaviour, rather than workers', that is affected.

Firms may also benefit from "cross-subsidization," receiving support despite not facing genuinely temporary shocks. For instance, firms with seasonal fluctuations or structural problems may enrol workers or reduce hours excessively, thereby benefiting disproportionately from STW without facing a genuine temporary and unexpected decline in activity (Boeri & Cahuc, 2023; Cahuc & Nevoux, 2018). Some countries explicitly limit such misuse (i.e., Switzerland) or establish separate schemes to prevent it.

Misreporting hours of work or enrolling workers without actual reductions further illustrates these behaviours. In Germany, Bossler *et al.* (2023) provide evidence of such practices: employees on STW often worked more than reported and, in some cases, did not experience any reduction in working time during the COVID-19 crisis. In practice, high administrative verification costs and imperfect government information amplify the moral hazard problem.

1.3.2. Fiscal Externalities and Deadweight Costs

Moral hazard generates fiscal externalities: some public resources are allocated to firms that would not have laid off their workers even without the STW programme, creating deadweight fiscal costs (Burdett & Wright, 1989; Cahuc, 2019; Van Audenrode, 1994). In other words, public funds are spent without producing additional social benefits.

Deadweight fiscal costs may also arise when STW preserves structurally non-viable jobs that would be destroyed in the medium term regardless of programme take-up. Moreover, cross-subsidisation can increase the overall fiscal cost, as firms that do not face genuine temporary shocks but rather predictable seasonal downturns may benefit disproportionately (Cahuc & Nevoux, 2018).

Empirical illustrations of these fiscal externalities include the following. First, during the COVID-19 crisis in France, Lapeyre (2023) documents misreporting of firms' eligibility status to access more generous STW benefits. Second, simulations from a dynamic search-and-matching model by Albertini *et al.* (2022) indicate that a 10 percent increase in employer contributions to the most generous STW programme used at the peak of the crisis in France would have reduced demand for the scheme without harming aggregate employment, highlighting that overly generous subsidies induced excessive hour reductions and generated substantial fiscal externalities, thereby increasing the overall cost of the programme. Third, Bossler *et al.* (2023) document free-riding in Germany during the COVID-19 pandemic, with firms misreporting hours and generating potential deadweight fiscal costs.

Few studies have analysed the net fiscal cost of STW relative to traditional unemployment insurance in the absence of STW. During the Great Recession in Italy, each euro spent on STW cost society €1.38, lower than unemployment insurance alone (€1.5–2.5 per marginal euro) (Giupponi & Landais, 2023). In Switzerland, STW's fiscal benefits outweighed its costs, meaning that the programme effectively paid for itself (Kopp & Siegenthaler, 2021). This cross-country variation underscores the importance of institutional design. Consistent with this evidence, Stiepelmann (2026) shows, using a calibrated search-and-matching model, that a system combining unemployment insurance

with an optimally designed STW scheme is fiscally more efficient than one relying on unemployment insurance alone. Indeed, STW limits job separations which, under a pure unemployment insurance regime, generate negative fiscal externalities by imposing a collective cost on public finances.

1.3.3. Labour Market Reallocation Distortions

Beyond fiscal externalities, STW can also affect labour reallocation, a key driver of aggregate productivity (Cahuc *et al.*, 2014; Cahuc, 2019). Just as moral hazard and cross-subsidies create deadweight fiscal costs by allocating resources to firms that do not need support, inefficiencies in labour allocation arise when STW preserves jobs that would naturally have been reallocated in the absence of the programme.

By stabilising employment, STW may maintain temporarily low-productive but viable jobs, allowing firms to ride out shocks without resorting to layoffs (Boeri & Bruecker, 2011; Cooper *et al.*, 2017; Hijzen & Venn, 2011). However, supporting structurally non-viable jobs can slow the transition of labour to more productive firms, generating allocative inefficiencies (Mosley & Kruppe, 1996; Giupponi & Landais, 2023; Cahuc, 2024). The extent of these distortions depends on both the duration and the nature of the shock.

In the case of persistent recessions, reallocation inefficiencies may be amplified, as STW subsidises jobs that would otherwise have disappeared, crowding out vacancies and slowing labour mobility towards higher-productivity jobs. As a result, STW can increase hiring costs for more productive firms and for new entrants, tightening the labour market (Cooper *et al.*, 2017; Giupponi & Landais, 2023; Jaravel, 2022). Importantly, reallocation inefficiencies may also arise in short-lived and sector-specific shocks, as STW can crowd out the voluntary labour hoarding that firms would otherwise undertake, given that incentives to hoard labour endogenously are stronger during brief downturns in the absence of STW (Diaz *et al.*, 2025). This mechanism may amplify adverse effects on sectoral reallocation and output losses. Moreover, STW may impede reallocation even more during short recessions, as the discouraging effect of the scheme on workers' job search in declining sectors is stronger when aggregate uncertainty is lower, further reducing incentives for low-surplus workers to move towards expanding sectors. Finally, the COVID-19

crisis introduced additional complexity due to heterogeneous sectoral impacts and accelerated structural shifts, such as the rise of remote work and gig employment (Barrero *et al.*, 2021; Boeri & Cahuc, 2023). In this context, STW may have preserved temporarily viable jobs while hindering the reallocation of structurally non-viable ones, with potential implications for aggregate productivity (Mohimont *et al.*, 2024; Meriküll & Paulus, 2024). However, empirical evidence on whether STW has significantly impeded reallocation remains limited and is still emerging.

In this way, the labour reallocation inefficiencies complement the fiscal deadweight costs discussed in Section 1.3.2: both represent indirect social costs of STW arising from moral hazard and programme design, highlighting the trade-off between providing insurance and maintaining STW efficiency.

1.4. Asymmetric Contract Protection

In addition to fiscal externalities and labour reallocation distortions, STW programmes can cause inefficiencies through unequal protection across different types of contracts. By design, STW often favours open-ended contracts with high replacement costs, leaving fixed-term or low-cost workers underserved (OECD, 2021; Cahuc & Carcillo, 2011; Cahuc, 2019). During large temporary shocks, firms typically adjust by not renewing fixed-term contracts and/or by laying off workers with weaker attachment to the firm. In this context, STW reinforces incentives to place workers on open-ended contracts into the scheme, as these workers face higher dismissal costs and stronger employment protection.

This asymmetry can exacerbate labour market segmentation and limit the movement of workers across contract types, hindering transitions from fixed-term to permanent positions (Hijzen & Venn, 2011). Asymmetric contract protection represents a form of allocative inefficiency: certain workers benefit disproportionately from insurance while others remain exposed, potentially slowing overall labour market adjustment and reducing aggregate productivity.

Evidence from Italy confirms that STW predominantly protected open-ended contracts during the Great Recession (Giupponi & Landais, 2023), although other studies find no clear reduction in fixed-term contract use (Kopp & Siegenthaler, 2021). Recognising these asymmetries is important for understanding the full scope of trade-offs in STW design and for

ensuring that the programme balances insurance provision with efficiency across the entire labour market.

1.5. From Theory to Practice and Evidence

The conceptual framework developed in Section 1 highlights why STW emerges as a key component of social insurance systems characterised by strict employment protection, limited internal flexibility in hours and wages, and financially constrained firms facing temporary shocks. When firms cannot easily adjust labour costs without resorting to layoffs (Section 1.1), STW provides a mechanism for smoothing temporary fluctuations in labour demand while preserving valuable job matches. As Section 1.2 discusses, this insurance tool benefits firms, workers, and the broader economy by stabilising employment, protecting incomes, and reducing public expenditure relative to unemployment insurance.

Yet Section 1.3 also makes clear that these benefits come with fundamental trade-offs. Information asymmetry between firms and policymakers creates scope for moral hazard behaviours, including misreporting and cross-subsidisation, generating fiscal externalities and deadweight losses. Similarly, by preventing separations, STW may distort labour reallocation, particularly when shocks are persistent or heterogeneous, and may strengthen existing labour market segmentation by disproportionately protecting open-ended contracts. These inefficiencies arise directly from the same design features that make STW valuable during temporary shocks, underscoring the challenge of calibrating the programme to offer insurance while preserving incentives for efficient adjustment.

Translating these theoretical insights into practice requires examining how countries design and implement their STW systems. Institutional arrangements—such as eligibility rules, monitoring procedures, employer co-financing, benefit generosity, and maximum duration—not only determine the extent to which firms use the scheme but also shape the severity of moral hazard, the size of fiscal externalities, and the potential distortions to labour reallocation. For instance, stricter targeting mechanisms may reduce deadweight costs but risk excluding financially constrained firms that truly need support, whereas more generous and broadly accessible schemes may stabilise employment at the cost of efficiency.

2. STW Design and Policy Changes During Major Shocks

It is essential to understand how STW schemes are designed in order to interpret variations in their effectiveness from one country to another. This section examines the institutional design and policy evolution of STW programmes in four countries, Belgium, France, Germany, and Italy, in response to major economic shocks, namely the Great Recession and the COVID-19 pandemic. We first outline the core design features of STW schemes—eligibility rules, conditionality requirements, working-time arrangements, and co-financing mechanisms—and discuss how they support STW's aim to stabilise employment during temporary downturns. We then document how these features evolved across the two crises, emphasising both common adjustments and crisis-specific innovations. Understanding the structure and adaptability of these schemes is essential for interpreting cross-country differences in programme effectiveness and the inherent trade-offs between employment protection, fiscal costs, and labour reallocation.

2.1. Design Features of STW Programmes

Across countries, STW programmes generally share similar design features. These are eligibility criteria for workers and firms, follow-up conditions upon enrolment, varying regimes of working time reduction, and different co-financing levels by participating firms and workers (Cahuc & Carcillo, 2011; Giupponi *et al.*, 2022). These features define how STW operates under stable business cycle conditions, prior to any crisis-specific adjustments. They are designed to address firm- or sector-specific idiosyncratic shocks. We summarise the main design features of STW linked to economic downturns for Belgium, France, Germany, and Italy in the pre-COVID-19 period (see Table).

Eligibility criteria are a set of rules for firms and workers to qualify for and gain access to STW. Workers, whether on open-ended or fixed-term contracts, may be required to meet minimum past employment requirements in some countries (i.e., akin to eligibility for unemployment insurance). Firms must generally demonstrate a temporary decline in revenues or demand to qualify, driven by cyclical economic downturns or, in a few countries, by anticipated seasonal fluctuations. We notice that the German STW system is the only one in which eligibility for firms is tied to specific thresholds of working-time reduction. By contrast, the Belgian STW system features lax eligibility criteria for firms.

The take-up of STW policies typically rises during aggregate economic crises. However, in some countries, STW can also be activated to cope with predictable seasonal fluctuations in sales or profits linked to the economic activity of specific industries (Belgium and France) or structural shocks (Italy). By contrast, Italy has a distinct STW scheme to address predictable seasonal declines in revenues, whereas Germany has two distinct STW schemes to tackle, respectively, anticipated seasonal fluctuations and structural downturns.³

Conditionality requirements are designed to maintain employment relationships while preserving workers' employability. Firms are expected to retain jobs during the STW period, and workers may be required to participate in training or upskilling programmes. These measures ensure that firm-worker matches are preserved during temporary shocks, facilitating smooth reintegration once business conditions recover.

Working-time arrangements under STW are operated via the maximum potential duration of STW support and the modality of hours reduction, whether full or partial suspension. These two features are most often linked: full suspensions of activity generally correspond to lower maximum duration of STW support. Setting a maximum duration reinforces the temporary nature of STW support and its core function: subsidising labour hoarding, which is itself a transitory phenomenon. Firms retain workers during downturns in anticipation that the job match will become profitable again once business conditions improve (Cahuc *et al.*, 2014). However, prolonged usage may restrain the reallocation of workers to more productive sectors and firms, in particular in times of economic recovery, when business conditions improve. Therefore, restricting the programme's duration may thus curtail potential adverse effects of STW on labour reallocation, which is among the social costs of STW discussed in Section 1.3. We observe that Belgium and Italy are the countries with the longer maximum potential duration of STW support.

Co-financing mechanisms allocate costs among workers, firms, and the government. Workers generally receive compensation for lost hours at statutory replacement rates often equal to or higher than standard unemployment insurance, often subject to statutory caps. Firms may contribute via co-payments, experience-rated contributions, or sectoral agreements.⁴ These mechanisms aim to reduce overuse and moral hazard. We learn that Italy presents the highest

statutory replacement rate for workers, whereas Belgium features the lowest one. Belgium and Italy are the sole countries in which an experience rating system for employers applies.

2.2. Design and Policy Changes Across Crises in Belgium, France, Germany, and Italy

A notable feature of STW programmes is their built-in flexibility, allowing adjustments to eligibility rules for programme access, working-time arrangements, conditionality rules, and co-financing structures in response to major aggregate fluctuations in demand.

For instance, easing STW access when major crises hit aligns with STW's objective of delivering timely support to firms and workers during economic downturns. Its streamlined procedures for application, approval, and payment enable a swift reduction of labour costs for firms while ensuring that workers receive prompt income compensation. The speed of STW implementation is therefore crucial to achieving its stabilising objectives and preventing unnecessary job losses. Another example of policy flexibility is that employers' co-financing generally decreases during acute downturns and gradually rises as the economy recovers. As discussed in Section 1.2, the rationale is that, during unanticipated aggregate shocks, firms typically face greater financial market frictions and more constrained access to credit, necessitating stronger government support (Cahuc & Carcillo, 2011). By contrast, reinstating financial incentives as soon as the economy recovers creates incentives for firms to exit prolonged, and potentially no longer warranted, use of the programme.

Belgium, France, Germany, and Italy—whose STW schemes have been embedded in their social insurance systems since the first half of the twentieth century (Cahuc, 2024)—benefited from mature administrative infrastructures that enabled swift policy modifications during both crises. This institutional maturity stands in contrast to countries that introduced STW programmes only in response to the Great Recession.

3. The Belgian and French STW systems allow for take-up linked to predicted seasonal fluctuations in addition to cyclical downturns (Table). By contrast, the German and Italian STW systems operate distinct schemes for seasonal shocks—namely *Baugewerbetarif* in Germany and *Cassa Integrazione Guadagni Ordinaria* in Italy—separate from the instruments used for cyclical downturns. Additionally, Germany operates a scheme to tackle structural firm downturns (*Transferkurzarbeitergeld*).

4. Co-payments generally rise with reduced hours and wages and are paid concurrently with STW use. By contrast, experience rating, like the system for unemployment insurance in the US (Guo & Johnston, 2021) or disability insurance in Europe, imposes deferred, progressive premiums based on past STW uptake. We discuss the experience rating system in STW in Section 3.

Table – Core features of STW programmes in Belgium, France, Germany, and Italy (stable business cycle conditions before COVID-19)

	Belgium	France	Germany	Italy
Programme	<i>Chômage temporaire</i>	<i>Activité partielle</i>	<i>Kurzarbeit</i>	CIGS
Eligibility	Initially designed for blue-collar workers; firms self-declare a temporary decline in activity, including seasonal fluctuations. White-collar workers were progressively included after 2008, but eligibility requires sectoral or firm-level agreements and verifiable evidence of significant economic difficulties, making access more stringent than for blue-collar workers.	Firms must demonstrate a temporary slowdown in activity, including seasonal fluctuations or structural needs (reorganisation or restructuring). Access is often linked to sectoral or firm-level agreements.	Firms must show a temporary reduction in working hours affecting a minimum share of employees (pre-crisis: 30% of workforce, $\geq 30\%$ hours reduction).	Firms experiencing economic shocks, company crises, restructuring, or liquidity problems, subject to firm-size thresholds (≥ 15 FTE) and sectoral eligibility.
Replacement rate	65% of gross daily wage (capped).	70% of the reference wage (floor at the minimum wage).	67% of net wage (capped), with higher rates for employees with children.	80% of wage (capped).
Co-financing	Experience rating for blue-collar workers based on STW intensity (110 days per worker per year), with delayed payments to avoid liquidity pressures; additional social security contributions and optional sectoral or firm-level top-ups.	Government contribution of €7.74 per hour not worked for firms with fewer than 250 employees and €7.23 for firms with 250 employees or more; employers cover the remainder to reach the 70% replacement rate. Since 2013, employer cost is zero for gross hourly wages below €11.	Employers pay social security contributions on unworked hours.	Employer top-ups, experience rating at the firm level after 9 months of STW use, and social security contributions.
Working-time arrangements	Partial or full reduction in days per week; maximum duration of 3–12 months for partial reduction and 4 weeks for full reduction. Firms must resume activity for one week before reusing STW during the same year.	Partial or full reduction in hours for a maximum of 6 months per year.	Partial or full reduction in hours; maximum duration of 6 continuous months, with no yearly limit.	Partial or full reduction in hours; maximum duration of 36 months over a 5-year period.

Sources: OECD (2020); Cahuc & Carcillo (2011); Giupponi *et al.* (2022).

We summarise the main design features and policy changes in Belgium, France, Germany, and Italy during the Great Recession (2009) and the COVID-19 crisis (March 2020–June 2021), highlighting both shared patterns and country-specific innovations (see Table S1 in Online Appendix—link to the Online Appendix at the end of the article). The following sections examine each core design feature—eligibility criteria, conditionality requirements, working-time arrangements, and co-financing mechanisms—and describe how they were modified in response to these crises, linking the discussion to the mechanisms highlighted in Section 1.

2.2.1. Eligibility Criteria

During the Great Recession, eligibility was generally limited to firms demonstrating temporary economic need and, in some cases, structural needs, such as planned reorganisation (Italy). Firms in Italy faced additional restrictions based on size and specific industry/sectors. Germany's *Kurzarbeit* STW programme extended access to firms with at least 10% of the workforce experiencing a minimum 10% drop in working time relative to a pre-crisis reference period. Eligibility was thus enlarged as the pre-crisis thresholds corresponded to 30% of the workforce. As of 2009, France launched the *Activité Partielle de Longue Durée* (APLD)

for firms to cope with shocks expected to be longer than the general short-term nature of STW. Workers' eligibility was typically tied to contract type (temporary or permanent) and working-time arrangement (full-time or part-time) and prior entitlement to unemployment insurance. In Belgium, white-collar workers gained temporary eligibility in 2009, with permanent eligibility established in 2012.

During COVID-19, access was significantly eased through crisis-specific regimes: Belgium implemented the Force Majeure Corona scheme, France reinstalled the APLD as of July 2020, and Italy introduced CIG-Covid. Eligibility was virtually extended to almost all firms of all sizes, and in some cases proof of economic need was no longer required. Retroactive applications were allowed in France and Italy. In Germany, the threshold for workforce reduction to access STW was lowered from 30% to 10%, as during the Great Recession. For workers, coverage was extended to temporary agency workers. These eligibility expansions directly reflect the insurance role of STW highlighted in Section 1, aiming to preserve firm-worker matches and maintain employment even under widespread shocks, while also reducing labour market segmentation by covering previously excluded workers.

Unlike conventional STW, which addresses temporary shocks, the APLD in France targeted firms facing more persistent but non-terminal difficulties and offered exceptionally long support: up to 24 months within a 36-month period (Calavrezo & Walkowiak, 2025). Access was conditional on prior collective bargaining at the firm, establishment, or sectoral level and required explicit commitments to job retention and worker training.⁵ In contrast, the conventional STW scheme involved far fewer obligations and no mandatory agreements, highlighting the APLD's more conditional and negotiated approach to employment support.

2.2.2. Conditionality Requirements

During the Great Recession, firms were typically required to maintain employment during and shortly after STW participation, sometimes submitting recovery plans.

During COVID-19, as uncertainty was rising and the shock was becoming more persistent, conditionality increasingly emphasised training and skill development. In France, APLD participants had to provide firm-specific training during non-working hours, reimbursed by the government. Optional firm-specific training

was also introduced in Germany and Belgium, focusing on skills directly relevant to employees' current positions rather than general transferable skills. These measures reinforce the mechanisms discussed in Section 1, ensuring that temporarily idle workers retain relevant skills and supporting the preservation of viable jobs.

2.2.3. Working-Time Arrangements

During the Great Recession, STW typically allowed partial or total reductions in working hours, with country-specific maximum durations (e.g., up to 12 months in Germany, six months in France, and 36 months over five years in Italy). In France, the yearly number of subsidised hours per employee rose to 800, or 1,000 hours for sectors most severely affected by the Great Recession, such as textiles and automobile manufacturing.

The **COVID-19** shock prompted substantial extensions: Belgium's Force Majeure Corona scheme had no defined maximum; France's *Activité Partielle* allowed a maximum of STW hours per worker equal to 1,607 per year, well above the extension implemented during the Great Recession; Germany extended Kurzarbeit from 12 to 24 months. As noted in Section 1.3.2, prolonged STW support can, in theory, risk protecting structurally non-viable jobs, potentially hindering labour reallocation and productivity recovery once economic conditions improve.

2.2.4. Co-Financing Mechanisms

During the Great Recession, the financing was shared among workers, firms, and the government. Workers received partial compensation for lost hours, subject to statutory caps, while firms contributed via direct payments, sectoral top-ups, or experience-rated contributions, discouraging overuse, and aligning incentives with employment preservation. For instance, in France, the government subsidy amounted to €3.84 per hour per employee for establishments employing up to 250 workers and €3.33 for those with more than 250 employees. Therefore, the firm was responsible for covering the difference between the benefits paid to the worker and the flat government subsidy.

During COVID-19, employer contributions were temporarily reduced or eliminated in most countries to ease liquidity constraints. In Belgium and Italy, firms faced zero costs under

5. Social dialogue played a key role in France, enhancing transparency and mitigating workers' job insecurity associated with prolonged reductions in hours.

emergency schemes. In France, the government financed compensation up to 4.5 times the minimum wage, with employers covering any excess to maintain a 70% replacement rate. A key distinction was introduced in June 2020 between sectors particularly affected by COVID-19 and those less affected, formalised through the classification of industries into protected and non-protected sectors at the 5-digit level. While all employers remained responsible for compensation above 4.5 times the minimum wage, firms in non-protected sectors were required to co-finance 10% of STW costs below this ceiling, whereas protected-sector firms were exempt from this increase (Lapeyre, 2023).⁶ In Germany, firms' payments of social security contributions for unworked hours were reduced by 50%. Across countries, workers' replacement rates increased: Belgium to 70% of gross wages, France up to 84% depending on earnings level, Germany to 70% from the fourth month and 80% from the seventh month (higher for workers with children), and France APLD at 70% of gross wage. These adjustments provided timely income support while ensuring continued employment.

2.2.5. Key Differences Between Crises

During the Great Recession, these four countries were able to easily expand their existing STW programmes that were already part of strict employment protection systems. They had the highest take-up rates in Europe and kept unemployment rates low, which is often seen as a sign of success. Nonetheless, their institutional frameworks exhibited significant differences. First, employer cost-sharing varied markedly. Belgium and Germany reduced employers' costs to zero, whereas France had some contributions, which may help explain France's comparatively low take-up and limited intensity of use. Second, targeting features diverged. Germany set a quantitative threshold—at least 10% of workers having their hours cut by at least 10%—to weed out companies that were only facing mild shocks. Italy limited eligibility to businesses with more than 15 full-time equivalents and left out some industries, which made the distribution of support more selective. Belgium and France, on the other hand, used broad administrative assessments of economic hardship. Third, the adjustment margins available to countries varied. In Germany, decentralised negotiations over pay and working hours provided firms with an alternative mechanism for labour hoarding, reducing reliance on STW and influencing the implementation of *Kurzarbeit*. Overall, these institutional contrasts

shaped take-up patterns and the employment-stabilising role of STW, reflecting differences in policy design.

The COVID-19 crisis triggered similar design adjustments as those observed during the Great Recession, with two notable differences, reflecting the exceptional nature of this latter crisis. First, whereas during the former crisis the relaxation of eligibility criteria still excluded certain firms from access, such as those with more than 15 full-time equivalents in Italy, eligibility during the COVID-19 crisis was extended to virtually all firms in most countries. This difference reflects the changing nature of firms' constraints: during the Great Recession, STW primarily addressed liquidity shortages that limited firms' ability to hoard labour, while during COVID-19, mandatory business closures and complete halts in working time added a non-financial dimension to labour market disruptions. As a result, a broader spectrum of firms, beyond financially constrained small enterprises, became eligible for support.

Secondly, as governments sought to phase out the exceptionally generous support provided in the early stages of the pandemic, countries such as France introduced distinctions between firms in more affected and less affected sectors. These categorisations, based on evolving health and economic indicators, aimed to dynamically recalibrate the scope of support—concentrating resources on genuinely distressed, pandemic-hit sectors while excluding firms no longer in need. This approach sought to reduce negative reallocation inefficiencies and minimise deadweight losses, as discussed in Section 1.3.

3. STW in Practice: Do Designs Deliver the Predicted Effects?

This section reviews key findings on the effects of STW on firms and workers and examines whether different programme designs achieve the outcomes predicted by theory. We focus on recent causal microeconomic evaluations, distinguishing evidence by country and crisis episode (Great Recession vs. COVID-19). These evaluations rely on quasi-experimental designs to account for non-random take-up (i.e., selection bias) and ensure credible causal inference.

6. Below the cap, employers were now required to contribute proportionally, covering 10% of the worker's gross hourly wage, while the government financed the remaining 60%. As under the previous arrangement, for wages above the 4.5 minimum wage cap, the employer bore the full cost of STW compensation, ensuring continuity of the 70% replacement rate.

From the firm perspective, STW enables labour hoarding, supporting survival, particularly for liquidity-constrained firms, and helps preserve human capital, which can influence future investment in both human and physical capital. Accordingly, STW may affect employment, survival, profitability, and productivity over both short- and medium-term horizons.

From the worker perspective, STW provides insurance against (i) income loss from reduced working hours and (ii) unemployment scarring, which can have persistent effects on earnings trajectories and employment probabilities. The policy thus shapes individual labour-market outcomes in both the short and medium term.

Early cross-country studies on the Great Recession suggest that STW stabilised aggregate employment during temporary downturns (Boeri & Bruecker, 2011; Cahuc & Carcillo, 2011; Hijzen & Venn, 2011; Hijzen & Martin, 2013; Brey & Hertweck, 2020). While these analyses partially account for selection bias, they cannot fully separate country-specific features or heterogeneous crisis effects, which may jointly affect STW take-up and employment.

In contrast, causal microeconomic studies exploit firm-level variation within a fixed institutional setting to estimate causal impacts. Because programme take-up is non-random, naïve comparisons risk conflating STW effects with pre-existing firm characteristics. Credible counterfactuals are therefore essential. Although randomised experiments are rare, quasi-experimental approaches enable robust estimation at both firm and worker levels. Nevertheless, early evaluations of the effects of STW during the Great Recession reached mixed conclusions, with results heavily influenced by the identification strategies employed (Bellmann & Gerner, 2011; Calavrezo *et al.*, 2010).

The following subsections first examine firm-level outcomes, distinguishing short-term effects—observed during STW take-up—from medium-term effects, and exploring heterogeneity by firm characteristics and exposure to shocks. The discussion then turns to worker-level outcomes.

3.1. Effects of STW on the Economic Behaviour of Firms

3.1.1. Employment Effects

STW influences employment along two main margins. On the intensive margin, firms respond to temporary demand and/or revenues shocks

by adjusting labour demand at the intensive margin, reducing hours per worker. On the extensive margin, STW can preserve jobs that might otherwise be destroyed, generating immediate short-term effects, particularly in firms facing severe demand shocks (Cahuc *et al.*, 2021), thereby stabilising overall employment. However, deadweight losses may arise if jobs that would have survived without intervention are subsidised, which are likely concentrated in firms facing mild demand shocks.

Over the medium term, employment gains are likely to persist, as firms avoid the costs of rehiring and hours per worker gradually recover, given that the scheme is intended to be temporary. However, when short-term gains dissipate, STW may delay the exit of non-viable jobs, potentially hindering long-term employment growth in both treated and untreated firms and slowing labour reallocation (a summary of these expected effects is presented in Table S2 in Online Appendix).

Some micro-econometric evaluations for the Great Recession (see Table S3 in Online Appendix for a summary) provide robust empirical evidence consistent with these mechanisms. These studies rely on credible identification strategies that exploit exogenous variation generated by institutional features of STW programmes using large administrative datasets. Taken together, these papers highlight a common pattern: STW reduces hours per worker, while its employment effects depend critically on the severity of firms' demand shocks, programme targeting, and how persistent the aggregate downturn was.

In France, Cahuc *et al.* (2021)⁷ use administrative discretion in the approval of STW applications as an instrumental variable (IV) for STW take-up among single-establishment firms. For the average firm, STW induces a sharp decline in hours per worker—28 percent in the short term—but no employment gains, except among firms facing large adverse shocks. In those firms, hour reductions translate into substantial increases in both headcount and total hours, consistent with the view that STW provides insurance precisely when jobs are truly at risk. In particular, firms with a predicted growth of hours of work below the median—estimated based on pre-crisis firm characteristics and used by the authors as a proxy for large negative demand shocks—that took up STW in

7. The effect sizes reported in the text are drawn from Cahuc *et al.* (2021). A revised version appears as Cahuc *et al.* (forthcoming). The main conclusions are unchanged, though some estimates differ slightly across versions.

2009 experienced, in the short run (i.e., during the first year of take-up), a 15 percent decline in hours per worker, accompanied by increases of 42 and 34 percent in employment and total hours worked, respectively. Yet, much of the French STW use occurred in firms experiencing mild shocks, generating deadweight losses, or what the authors refer to as large windfall effects. The low costs employers face when using STW—particularly for protecting low-wage workers, who are largely concentrated in sectors that make recurrent use of the programme—may further help explain these windfall effects (Cahuc & Nevoux, 2018).⁸

In Belgium, Bermúdez *et al.* (2025) exploit variation in firm-level STW take-up stemming from differential eligibility rules for blue- and white-collar workers (see Table). Using grouped administrative data for firms with 5 to 50 employees, they examine the effects of STW on employment and wages. Consistent with the French evidence, STW primarily reduces hours per worker without increasing average employment or wages. However, the effects vary sharply across sectors. In manufacturing—the sector most exposed to the crisis—one additional FTE of STW per firm corresponds to a 2.3 percent reduction in hours per worker and a 5 percent increase in headcount employment. These short-term gains disappear after one year, and no positive effects emerge in less affected sectors, implying substantial deadweight fiscal costs when programme access is broad. This evidence further suggests that STW may have delayed the exit of non-viable jobs that entered the programme at the onset of the crisis.

In Italy, Giupponi & Landais (2023) exploit STW eligibility rules related to firm size and sectors among firms with 15–25 FTEs (see Table). STW induces a 40 percent reduction in hours per worker and a 45 percent increase in headcount employment in the short term, although these effects fade after the first year of take-up. Their analysis also reveals strong heterogeneity across firm characteristics: firms facing liquidity constraints benefit the most, as STW eases short-term financial pressures and allows employment to rebound once activity resumes (Giroud & Mueller, 2017; Melcangi, 2024). Interestingly, although most STW users were low-productivity firms prior to the crisis, medium-term employment gains per hour reduced are concentrated among high-productivity firms. By contrast, very low-productivity firms exhibit no such gains in the medium term—even though they reduce hours per worker more extensively—consistent with Biancardi *et al.* (2022).

These findings underscore the dual role of the programme: it can stabilise viable matches but may be less effective—or even distortive—when it ends up protecting a substantial number of non-viable jobs, as in Belgium at the onset of the crisis.

Kopp & Siegenthaler (2021) analyse the impact of STW during the Great Recession in Switzerland using an event study difference-in-difference (DID) design. They compare changes in the outcomes of successful and unsuccessful applicants, examining both average and dynamic effects around the event of application to the programme. They document sizeable short- and long-term employment increases (9–17% up to 4.5 years after application). Switzerland's strict monitoring and selective access—largely restricted to firms facing temporary cyclical shocks—are likely drivers explaining the programme's effectiveness and limited deadweight costs, especially given the country's short-lived recession.

Evidence for the immediate aftermath of the Great Recession in Germany (Brinkmann *et al.*, 2024) suggests that, in an institutional environment characterised by substantial internal wage flexibility, extensions of STW duration limits generated deadweight losses by preserving jobs that would have survived through wage bargaining alone, albeit at the cost of lower wages per employee. The authors exploit a policy-induced regression discontinuity design arising from the 2012 extension of the maximum STW duration. Comparing firms just above and below the eligibility threshold, they find no employment effects, as firms instead adjust wages downward when the potential duration of STW benefits tightens.

The Great Recession experience shows that STW consistently reduces hours per worker, but employment gains arise primarily in firms facing severe, temporary shocks or liquidity constraints. Programmes with strict targeting and monitoring, as in Switzerland, generate positive employment effects, whereas broadly accessible schemes risk substantial deadweight losses. Moreover, these effects tend to be short-lived, particularly when firms subsequently undertake significant structural adjustments.

The COVID-19 pandemic provides a distinct context: an unprecedented and abrupt collapse in economic activity, accompanied by substantial

8. In practice, although co-financing requirements were in place in France during the Great Recession, the cost to employers of enrolling low-wage workers in STW was substantially lower than for high-wage workers, which in turn induced higher take-up among low-wage workers.

STW expansions, simplified eligibility rules, and large-scale programmes. The existing empirical evidence (see Table S3 in Online Appendix) remains preliminary, and credible causal identification is particularly challenging given the near-universal nature of both the shock and the policy response.

Moreover, evidence from the COVID-19 period extends beyond traditional STW programmes to include furlough schemes implemented in several countries to fully suspend working time. A number of studies (see Table S3 in Online Appendix) document that these furlough schemes generated substantial short-term employment protection without raising major concerns about their overall effectiveness (Bennedsen *et al.*, 2023; Benkovskis *et al.*, 2023; Montenegro & Hijzen, 2024; Meriküll & Paulus, 2023). Other contributions—although not always based on micro-econometric identification—highlight that large programme expansions entailed significant deadweight losses due to firms' behavioural responses, thereby increasing the risk of inefficient allocation of support as the pandemic evolved (Albertini *et al.*, 2022; Brinkmann *et al.*, 2024; Kagerl, 2024; Dengler *et al.*, 2025).

Bennedsen *et al.* (2023) evaluate Denmark's furlough programme using a selection-on-observables strategy that exploits managers' pre-policy predictions of layoffs and furlough use under a no-policy scenario—collected before programme implementation—as counterfactuals. Combining these survey data with administrative records, they find that firms using furloughs reduced layoffs by about 24 percentage points relative to comparable non-treated firms, which would otherwise have dismissed workers during the first year of the pandemic.

Benkovskis *et al.* (2023) study the Latvian furlough scheme using a local-projection DID design, documenting positive effects on headcount employment both in the short term and persistently through the end of 2021 for first-wave users relative to pre-pandemic levels and to non-users. Montenegro & Hijzen (2024), using an RDD that exploits variation in programme generosity in Spain, show that each furloughed worker corresponded to roughly one job saved, indicating the absence of short-term deadweight effects. Meriküll & Paulus (2023) evaluate Estonia's COVID-era STW programme through propensity score matching, comparing treated firms with non-users experiencing similar turnover declines. They find that treated firms reduced layoffs relative to their matched

counterfactuals, with approximately 20 percent of supported jobs preserved in the short term.

Early micro-econometric evidence from the COVID-19 period therefore indicates that pandemic-era job-retention schemes were highly effective in preventing layoffs, particularly in sectors unable to operate during lockdowns. One key feature stands out: most of the furlough programmes examined above were introduced for the first time during COVID-19, at a moment when an exceptionally large number of jobs were at risk. The absence of prior experience with these schemes, combined with the severity of the shock driven by mandated closures, likely limited their use by firms facing predictable seasonal fluctuations rather than genuine, unexpected demand shocks.

Another set of studies underscores important inefficiencies created by very broad or universal eligibility, high replacement rates, and—in some cases—slow adjustment of programme parameters as the pandemic evolved. These features raised concerns about sizeable deadweight losses (Albertini *et al.*, 2022; Kagerl, 2024) and about the risk of inefficient labour reallocation with potential aggregate productivity consequences (Dengler *et al.*, 2025).

Albertini *et al.* (2022) find that, in France, the STW programme during the pandemic successfully prevented job destruction but also excessively reduced working hours, thereby protecting jobs that would have survived without support. Kagerl (2024) evaluates the German STW programme during the COVID-19 crisis using an event-study combined with coarsened exact matching. The study shows that firms using STW increased employment by 3.5 percent in the short term but experienced no medium-term effects, indicating only temporary stabilisation driven by the protection of a large number of low-productivity job matches. These results also suggest that the net effects on employment remain limited due to significant windfall effects associated with widespread use of the scheme.

Dengler *et al.* (2025) quantify the aggregate effects of Germany's programme using a New Keynesian model with search-and-matching frictions and incomplete financial markets. They highlight several insights. First, although STW resulted in overall productivity losses, these are moderate relative to the sizeable employment benefits during aggregate shocks. Second, when monetary policy is constrained by the zero interest rate lower bound, STW further reduces

workers' income risk, dampens precautionary savings, and stabilises aggregate demand by preserving employment. Finally, discretionary relaxations of eligibility criteria or increases in generosity become progressively less effective as they protect more firms that would have not fired even in the absence of the programme, yielding limited additional employment gains.

Overall, the COVID-19 experience illustrates that STW can serve as a powerful emergency stabiliser for employment, particularly when a large share of sectors face severe operational constraints as at the peak of the crisis. However, the effectiveness of such programmes—especially once sectors begin to reopen—depends heavily on programme design and timely adjustments that balance generosity with targeting, thereby limiting support to jobs that are either viable and genuinely at risk of destruction.

3.1.2. Effects Beyond Employment

Beyond employment, STW can shape a wide range of firm outcomes, influencing both short-term adjustment margins and longer-term performance. By subsidising labour hoarding during temporary revenue declines and preserving existing job matches, STW may affect firm survival probability, as well as productivity and investment decisions in the short and medium term.

Giupponi & Landais (2023) find that, in Italy during the Great Recession, STW increased firm survival by 10 percentage points one year after treatment, with stronger effects for liquidity-constrained firms. However, they detect no significant survival effects for less productive firms—defined based on pre-crisis productivity—consistent with the absence of employment effects for this group. Similarly, Kopp & Siegenthaler (2021) show that Swiss firms using STW during the 2008–2009 financial crisis were 5.5–9 percentage points more likely to remain operational 4.5 years later. Evidence on survival during the COVID-19 period remains limited, but Beňkovskis *et al.* (2023) demonstrate that reduced firm exits account for an important share of STW's positive employment effects in Latvia during this episode.

Beyond survival, STW can influence productivity and profitability. By preserving employment, the programme reduces turnover costs and protects firm- and industry-specific human capital. These mechanisms have implications for productivity as well as for future investment decisions and can translate into higher profits when demand recovers. Nonetheless, Giupponi & Landais

(2023) and Biancardi *et al.* (2022) find that, although STW boosts short-term employment in Italy during the Great Recession, it temporarily lowers per-employee productivity (proxied by value added per worker) due to fewer hours worked, with no effect on productivity per hour in the short or medium term. Giupponi & Landais (2023) also find no significant impact on physical capital investment in either the short or medium term.

Moreover, Biancardi *et al.* (2022) further examine the effects of STW on firm performance in Italy during the Great Recession, emphasising the role of unionisation. Although STW leads to a modest short-term decline in profits—reflecting that the fall in per capita productivity exceeds the reduction in labour costs—these effects dissipate after STW uptake. Importantly, the degree of unionisation shapes these responses. In highly unionised firms, STW leads to stronger reductions in hours worked per employee but has only limited effects on labour costs, as unions negotiate to prevent wage reductions (e.g., via wage top-up payments) while promoting work-sharing, with no adverse effects on profitability. In contrast, weakly unionised firms, which exhibit smaller reductions in hours worked per employee, may achieve substantial labour-cost reductions through wage negotiations. These reductions are accompanied by larger short-term declines in productivity and profits than those observed in highly unionised firms.

Overall, the evidence shows that STW can improve firm survival and stabilise employment during downturns, particularly for liquidity-constrained firms. Its effects on productivity and profitability are more mixed: reductions in hours tend to lower per capita productivity without affecting hourly productivity in the short term, and there is little evidence of medium-term efficiency gains or increased investment. Institutional features such as unionisation further shape these outcomes by influencing wage and cost adjustments.

3.2. Effects of STW on Worker Outcomes

STW protects workers in two main ways: by providing income insurance for reduced hours and by mitigating the scarring effects of unemployment, which can have persistent consequences for future earnings and employment prospects. These mechanisms generate both short-term and medium-to-long-term impacts on worker outcomes.

In the short term, STW stabilises employment by preventing layoffs, allowing workers to maintain

their jobs and labour market attachment. Over the medium term, retained employment can translate into faster earnings recovery and lower risk of long-term unemployment. Broad, untargeted programmes may, however, offer limited gains if they subsidise low-productive jobs that are unviable in the medium term, delaying layoffs.

Assessing the dynamic effects of STW requires comparing STW-insured employees to different counterfactual groups, i.e., the scenarios workers would have faced in the absence of the programme. Recent studies primarily adopt two counterfactuals: (i) unemployed individuals and (ii) employees similar to STW participants but not covered by the programme.

Some studies from the Great Recession period suggest that STW positively impacts earnings and employment prospects but highlight varying short- and medium-term effects. Tilly & Niedermayer (2016), who calibrate a job search and matching model assuming non-negotiable contracts in terms of hours and wages, find that STW participation in Germany causes a sharp but temporary decline in earnings, albeit less severe than for unemployed individuals. They find no medium-term earnings penalties for STW participants, unlike unemployed workers, due to STW's ability to preserve employment relationships and its higher replacement rates compared to unemployment insurance systems.

Giupponi & Landais (2023) find that, in the short term, workers in STW have the same employment probability one year after programme participation as similar workers employed in non-eligible firms. However, this probability declines over time for STW users. Three years after treatment, the employment probabilities of STW workers converge towards those of similar workers in non-eligible firms who were laid off. Likewise, earnings per employee in STW decline in the short term due to reduced hours and, in the medium term, become comparable to the earnings of similar laid-off workers in non-eligible firms. This suggests that in Italy, STW had no significant medium-term effect on employment prospects, consistent with its lack of impact on firm headcount employment during the Great Recession.

Overall, STW appears to provide only short-term insurance, particularly in Italy during the Great Recession, where the economic shock was more persistent than in other countries and a larger fraction of structurally unviable jobs was treated by the programme. In prolonged downturns, firms eventually resort to layoffs, reducing workers'

earnings over time. Moreover, Giupponi & Landais (2023) show that in high-productivity firms (defined prior to the crisis), medium-term earnings of STW participants are significantly higher than those of laid-off workers in comparable firms. This suggests that STW improves medium-term employment prospects only for workers in high-productivity firms.

During the COVID-19 period, Brinkmann *et al.* (2024) leverage exogenous worker-level variation in STW eligibility within firms, exploiting the statutory retirement age cutoff, beyond which individuals become ineligible. They focus on workers in firms that took up STW in April 2020 but had not done so in the previous three months. Using an RDD approach, they compare workers who reached the statutory retirement age up to three months before or in April 2020 (never-eligible workers) with workers in the same firm who reached the statutory retirement age up to three months after April 2020 (eligible workers). They find no difference in the probability of remaining employed at the same firm between eligible and ineligible older workers. In this case, STW is directed toward workers with high baseline retention probabilities. Although specific to older workers—who face higher layoff costs—this finding nevertheless highlights potential deadweight losses from subsidising workers unlikely to be laid off.

Taken together, existing studies provide only a partial view of how STW shapes workers' longer-term employment trajectories. While its short-term stabilising effects are well established, evidence on medium- and long-term outcomes remains limited and highly context-dependent. Most worker-level analyses derive from environments in which STW sustained a substantial number of low-productivity or otherwise non-viable firms; much less is known about systems that more effectively screen such firms out. A fuller understanding of these dynamic impacts—across different types of firms and workers—remains an important direction for future research.

3.3. Main Insights From the Empirical Evaluation of STW

The empirical literature shows that STW delivers its intended short-term employment protection, but its overall effectiveness depends critically on whether support reaches firms at genuine risk of destroying jobs. The largest gains arise in sectors facing severe temporary shocks and among liquidity-constrained firms, where STW reduces hours while

stabilising headcount and improving survival. When access is broad, however, programmes frequently subsidise firms that would not have laid off workers, generating deadweight effects, insuring predictable or seasonal fluctuations, and in some cases sustaining structurally weak, low-productivity jobs.

For workers, STW offers immediate insurance by preventing layoffs and limiting income losses. Medium-term outcomes, however, depend on firms' underlying viability: workers in productive, resilient firms experience smoother earnings and employment recovery, whereas those in structurally weak firms see few sustained gains, mirroring the limited medium-term effects observed at the firm level.

These issues were especially visible during the Great Recession, when positive effects were concentrated in severely affected firms, while broad eligibility and low employer costs often increased windfall use. Medium-term outcomes remain highly heterogeneous and sensitive to programme design, the nature of the shock, and firms' underlying fundamentals. During the COVID-19 crisis—although evidence is still emerging—employment gains appear more widespread, particularly in settings where job-retention schemes were introduced for the first time. These programmes protected a large share of jobs during mandatory shutdowns, generating sizeable short-term employment gains. However, in countries with pre-existing STW systems, the exceptional generosity and duration of COVID-era schemes heightened fiscal costs and raised concerns about delaying necessary reallocation.

Taken together, the evidence shows that STW is most effective when shocks are temporary, firms are fundamentally viable, and support is well-targeted and time-limited. Yet this evidence is drawn largely from periods of aggregate downturn. There is little causal evidence on STW effectiveness during more stable periods, primarily because low take-up severely limits identification.

Overall, the findings underscore that the effectiveness of STW critically depends on careful targeting, appropriate duration, and adequate co-financing, ensuring that temporary shocks are mitigated without unnecessarily subsidising firms or jobs that would have survived independently. These insights motivate the next section, which draws lessons for refining STW design to optimise insurance provision while minimising distortions.

4. Lessons for Future STW Design

The experience of recent crises, and especially the COVID-19 pandemic, has revived interest in how STW schemes can be designed to provide rapid stabilisation (Section 1.1) while minimising inefficiencies and fiscal costs (Section 1.3). Despite the central role of STW in countries' social-insurance responses—often exceeding the take-up of unemployment insurance—evidence on how specific design features influence take-up and performance remains limited, particularly compared with the unemployment insurance literature (Schmieder & von Wachter, 2016; Spinnewijn, 2020). This section proposes two core sets of design levers: employer co-financing, such as co-insurance and an experience rating premium, and setting a maximum duration of STW support.

In this section, we first emphasise that an efficient STW design would hinge on screening firms experiencing genuine, temporary shocks to ensure that support is properly targeted. We then discuss how tightening eligibility criteria to strengthen programme targeting and the monitoring of those may compromise the timely delivery of STW assistance and can be costly. Finally, we highlight how employer co-financing and limits on the maximum duration of support can curb misuse and labour-hoarding reallocation inefficiencies while preserving STW responsiveness.

4.1. Targeting and Monitoring

Effective STW requires screening firms to ensure support reaches those experiencing genuine, temporary shocks. Section 3.1 shows that persistent employment and survival gains mainly occur in liquidity-constrained firms or those hit by severe, temporary demand shocks (Cahuc *et al.*, 2021; Giupponi & Landais, 2023; Bermúdez-Barrezueta *et al.*, 2025). Monitoring reduces the risk of subsidising jobs that would have survived (Cahuc *et al.*, 2021) or supporting structurally weak firms (Giupponi & Landais, 2023). Ex-ante criteria typically rely on revenues or demand indicators, while ex-post checks verify actual reductions in working time.

Extensive screening, however, is costly and can slow access, undermining STW's rapid stabilisation role (Boeri & Cahuc, 2023). While stricter eligibility improves targeting, real-time verification is administratively demanding. Empirical evidence suggests that employer co-financing and duration limits can curb misuse more efficiently, at lower administrative cost (Sections 4.2–4.3).

4.2. Co-Financing

Building on the fiscal externalities highlighted in Section 1.3.2, financial tools such as co-payments and experience rating are designed to internalise part of STW's cost and discourage misuse along both the intensive (hours per worker) and extensive (number of workers) margins. In Belgium, the experience rating system applies at the individual worker level, making employer contributions depend on past STW usage per worker per year rather than only on aggregate firm-level take-up. This design has two advantages. First, unlike experience rating within unemployment insurance, tax rates are not only linked to a firm's past STW take-up history but are also deferred and paid in the following calendar year. This design reduces potential liquidity pressures on firms. Secondly, the Belgian experience rating system ensures that firms are accountable for repeated or intensive use while maintaining a fair distribution of reductions across employees. Relative to unemployment insurance, STW promotes a more even distribution of working-time reductions across the workforce rather than concentrating job losses among a few workers (Abraham & Houseman, 2014; Giupponi *et al.*, 2022). In Belgium, the experience rating system, adjusted according to the use of STW per employee, aims to strengthen this redistributive role, which was one of the objectives behind the introduction of this scheme.

When costs are borne directly by employers and rise with STW take-up, excessive use is naturally deterred. By contrast, pooled contributions via sectoral funds or general social security payments weaken this link, reducing incentives for efficient programme use. Because strict ex-ante screening can delay support, financial levies provide a cost-effective alternative. By penalising prolonged or excessive uptake, experience rating systems discourage reliance on STW for structural and seasonal anticipated shocks rather than temporary unexpected downturns.

To avoid straining firms' liquidity, payments can be deferred and smoothed over time (e.g., similar to the structure of the U.S. experience rating system in unemployment insurance; Guo & Johnston, 2021). Levy-based incentives also have distributional implications: labour hoarding primarily benefits workers with high replacement costs, potentially leaving lower-wage or fixed-term workers underserved (OECD, 2021). STW design should consider this to avoid reinforcing labour-market segmentation.

Causal evidence, though limited due to data constraints and endogenous policy design, supports the effectiveness of these measures. Further research will be needed to better understand the causal effect of financial incentives on the use of STW.⁹

4.3. Maximum Duration Limits: Maintaining Focus on Temporary Shocks

STW programmes ought to be limited to short-term temporary economic shocks. Long-term or structural use can hinder the survival of viable businesses, slow labour reallocation, and reduce productivity gains. Research demonstrates that while widespread, untargeted programmes significantly postpone layoffs, and that persistent employment and survival effects primarily occur in businesses experiencing severe but transient shocks (Cahuc *et al.*, 2021; Giupponi & Landais, 2023).

Without the need for extra steps like mandatory registration with employment services, maximum duration limits combined with financial incentives can discourage abuse and lessen administrative burden. These restrictions aid in maintaining STW's status as a stabilising instrument as opposed to a structural support system. However, these restrictions are not without trade-offs: by limiting the duration of use of the scheme, they may lead some employees to move to new firms, which conflicts with the very objective of STW, namely preserving firm-specific human capital and maintaining a strong link between the employee and their employer.

Consistent with this principle, training under STW should focus on firm-specific skills to preserve human capital within the enterprise. General training that facilitates worker mobility outside the firm may be inappropriate within STW, as it encourages structural adjustment rather than temporary stabilisation. General training may become relevant only if the negative shock persists and transitions into a structural problem, beyond the scope of STW.

Overall, STW programmes designed to address temporary problems—complemented by appropriate financial incentives and maximum duration limits—can provide rapid stabilisation, protect workers, and minimise distortions

9. Recent studies have drawn on natural experiments exploiting kinks in employers' co-financing schedules—notably the changes in the Belgian experience rating system (Cockx *et al.*, 2026) and the changes in employers' contributions made in France during the COVID-19 period (Lapeyre, 2023). These studies draw respectively on detailed Belgian and French administrative data (at the establishment and employee level) and analyse the impact of financial incentives on the use of STW, both at the intensive and extensive margins.

(Cahuc *et al.*, 2021; Giupponi & Landais, 2023; Bennedsen *et al.*, 2023; Montenegro & Hijzen, 2024). It is also important to ensure that co-financing requirements and maximum duration limits can be adjusted throughout the crisis period—with regard to co-financing, by reducing it to zero during the downturn, before gradually restoring it as the economy recovers.

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This survey has examined STW programmes as a key labour-market policy instrument in European economic downturns. First, we elucidated the mechanisms by which STW offers employment insurance and temporary income support by creating an integrated conceptual framework, emphasising the trade-offs between stabilisation, fiscal costs, and allocative efficiency. This framework assisted in determining how programme design features, including financial incentives, duration restrictions, and targeting, influence the impacts of STW and mediate the trade-off between efficiency and insurance.

Second, comparative analyses from Belgium, France, Germany, and Italy during the Great Recession and COVID-19 crisis show that institutional design has a significant impact on programme uptake and efficacy. Given that persistent employment, survival, and productivity gains are concentrated among liquidity-constrained firms or those facing large temporary declines in demand, STW is thus most effective when subsidies are targeted toward these firms. Broad or untargeted programmes, on the other hand, typically result in deadweight

losses without long-term benefits and postpone necessary labour reallocation. As seen during COVID-19, rapid STW expansions highlight the trade-off between accurate targeting and prompt support.

Thirdly, well-designed STW reduces unemployment scarring, protects earnings, and maintains jobs, according to microeconomic studies at the firm and worker levels. If financial incentives, such as experience rating or co-payments, are carefully calibrated to prevent penalising firms facing exogenous shocks, they can prevent excessive use and internalise fiscal costs. The temporary nature of STW is reinforced by maximum duration limits, which also prohibit structural use that might impede reallocation.

Finally, our survey points to remaining research gaps. Medium- and long-term impacts on productivity, profitability, and workers' earnings trajectories remain underexplored, as do distributional effects across contract types, age groups, and sectors. Further work is needed to understand the optimal balance between targeting through monitoring and co-financing mechanisms, as well as the interaction of STW with the complementary labour hoarding strategies and working-time arrangements.

Overall, this analysis shows that STW can minimise distortions and financial costs while offering prompt, targeted stabilisation. By systematically connecting theory, cross-country institutional design, and empirical evidence, it also offers practical insights for improving STW schemes so that they remain a reliable and effective tool for managing transient economic shocks in Europe. □

Link to the Online Appendix:

www.insee.fr/en/statistiques/fichier/9008748/ES549_Bermudez-et-al_Online-Appendix.pdf

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