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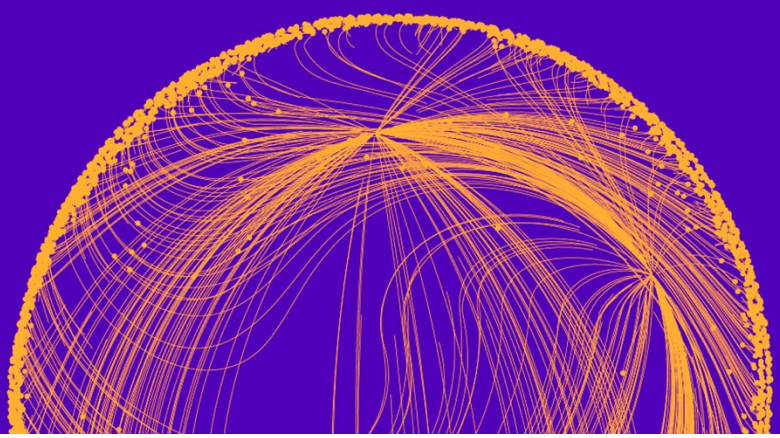
Furlough unemployment

Heikki Korpela



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Furlough unemployment

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June 14, 2024

Abstract

I examine the long-established scheme of furloughs in Finland, using detailed data on unemployment spells from 1999 to 2021. Furloughs allow employers in financial difficulty to suspend wages and work while retaining the job contract. They constituted the majority of new UI spells during the economic crises in 2009 and 2020. Most furloughs end quickly with a return to regular work, and they are only weakly associated with later permanent dismissals or firm survival. Despite widespread use in crisis years, more than half of the cumulative furlough benefits over the two decades were collected by only a few percent of the population. This group was furloughed five times or more over the observed period, often by the same employer. The patterns suggest that furloughs have a dual role: as a short-term safety net in recessions for most employers and as a regular business practice in normal times in a few industries.

Key words: temporary unemployment; furloughs; recall.

JEL classes: J23, J33, J63, J68

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1 Introduction

In Finland, employers in financial difficulty have had the option to furlough employees since 1970. During a furlough, wages and work are suspended. The job contract remains binding, and work must resume after the difficulty ends. Furloughed employees are entitled to unemployment insurance (UI). Furloughs have amounted to between 20% and 60% of all UI spells annually from 1999 to 2021. This paper uses extensive register data over the two decades to examine long-term trends for the furloughed and the furloughers. Among both employers and employees, small groups are responsible for the majority of furloughs over the long run. For example, more than half of all furlough benefits were collected by workers who were furloughed at least five times.

Furloughs are one type of system that explicitly allows labour hoarding. Hoarding can improve welfare when it helps fundamentally sound firms to hold on to workers during an unexpected shock. If, instead, employers would have to either permanently dismiss workers or go under, significant human capital might be lost, and later rehiring costs could be substantial.

However, hoarding can also be highly inefficient if it only slows reallocation to more productive jobs. When a hoarding scheme is permanent, as furloughs are in Finland, it can constitute an ingrained subsidy to industries with volatile employment. The same hoarding regime can also have a different role at different times: for example, saving jobs in a wide economic crisis, while hampering reallocation during normal times. Ultimately, the net effect of the system on welfare will depend on the institutions and incentives that constrain excessive hoarding.

Furloughs differ from both temporary layoffs (TL) and short-time work (STW), as defined below. All three mechanisms allow employers in financial difficulty to reduce their wage bill while shielding worker incomes. However, while a vibrant literature has focused on TL and STW, little is known about the long-term empirical patterns of furloughing systems, to be examined in this paper.

In temporary layoffs or temporary unemployment, workers are laid off but expect to be recalled to their previous employer. This expectation is usually not legally binding and may turn out to be wrong. Most recall rate estimates among those expecting a recall vary between 50% and 70% in Europe, the US and Canada (table 1). With furloughs, the job contract is retained, and the employee can contest furloughs if their wages do not resume when the difficulty is over. The employer-employee link remains strong empirically. 97% of Finnish furlough spells end in a return to work, and the median duration is only 3.2 weeks. At a conservative estimate, in 82% of the cases, work resumes at the furloughing employer.

Giupponi, Landais, and Lapeyre (2022) characterise TL as a dominant institution in the US, while STW has been important in Europe. One of the safeguards against excessive

use of TL is also unique to the US: as noted by Feldstein (1976), experience-rated UI taxes force employers to internalise some of the costs of temporary unemployment.

Short-time work (STW) schemes directly subsidise employers for reductions in hours worked. The Great Recession induced many countries to design new such schemes; at the onset of the COVID-19 pandemic in 2020, most OECD countries introduced a STW program to prevent job losses. Results by Giupponi and Landais (2023) indicate that the STW schemes helped retain jobs during the transient COVID-19 shock in 2020 in Italy. In contrast, during the more persistent Great Recession, the schemes delayed reallocation, and the job retention effects dissipated as the programs ended. Both Giupponi and Landais (2023) and Boeri and Cahuc (2022) emphasise the role of constraints to prevent excessive subsidies, such as duration limits, strict targeting, and experience rating.

Müller, Schulten, and Drahokoupil (2022) argue that furloughs are a distinct type of job retention scheme. In their classification, furloughs are characterised by transfers paid directly to employees from unemployment insurance. These features incentivise the workers to guard against, monitor and contest excessive furloughs. Furloughs themselves are usually not approved or monitored by the government. Instead, the employees need to apply for support: the UI. Workers typically have strong incentives to react to unnecessary furloughs, as UI only replaces a part of their wages. Furlough schemes typically also have provisions for formal involvement by employees and unions.

Furloughs do not absorb all recall unemployment. Recall unemployment refers to all cases where an unemployed person is recalled to the latest employer, whether expected or not. In Finland, the recall rates vary widely depending on the cause of unemployment. For spells following collective dismissals, recall rates are low at about 10%, but these spells are quite rare. Spells following fixed-term contracts are five times as common. Among such spells, the recall rate is 41%. In a few professions, unemployment after fixed-term work exhibits very similar patterns to furloughs: long-term attachment to the same employer, regularly paused by short periods of unemployment. Specific institutional constraints explain at least some such patterns.

For employers, furloughs are often only one of many alternatives for adjusting the size of their workforce. If furloughs were very difficult to implement, employers would probably turn more often to the other alternatives. This substitution may also affect the type of contract initially negotiated, for example the choice between open-ended and fixed-term jobs. For these reasons, the later sections will systematically compare furloughs to other types of recall unemployment and part-time unemployment.

Earlier literature has explored whether temporary unemployment contributes significantly to overall unemployment rates. Gertler, Huckfeldt, and Trigari (2022) show that in the US, loss-of-recall – persons expecting a recall who end up losing their job permanently – varies over the business cycle, growing in slumps. This variation turns out to be a significant driver of aggregate unemployment.

In Finland, the amount of new furlough spells grew by 370% in 2009 and by 553% in 2020. However, these spells were, on average, even shorter than usual, as seen in figure 1, and observed recall rates were very high. In comparison, other entries into UI grew by 14.6% and 6.8%. Among other common UI spell types, recall rates and durations exhibit modest cyclicality at most. These findings are thus opposite to the observed temporary layoff patterns in the US: furloughs do not appear to be feeding long-term unemployment.

The Finnish register data allows for individual-level follow-ups for employment, unemployment, and the employer's situation from 1999 to 2021. Following a panel of more than a million working-age Finns reveals that a quarter experience a furlough at least once. Turning to employers, employers who furloughed at least once paid almost 75% of cumulative wages.

However, most of the furlough days were experienced by only a few percent who kept alternating between work and furloughs. This group tended to remain with their furloughing employer and had persistently high employment rates. Compared to individuals with similar education and tenure, they received similar compensation (wage and UI) per month worked.

When comparing furlough-prone employers to firms that were similar at the time of the furlough, both groups exhibited quite similar later survival rates. However, the furloughing firms tended to be less profitable. Thus, insofar as the furlough system subsidizes volative industries, the available evidence suggests that the subsidy is not being channelled to excessive wages or profits.

Furloughed workers are eligible to UI on the same terms as the jobless unemployed. However, empirically these workers appear to largely constitute an employer-specific workforce reserve, rather than a group of active job searchers. They very rarely switch jobs, and during the early months of unemployment, they are only half as frequently in contact with the public employment services as the other unemployed. A furloughed worker can rationally expect a recall with high probability – especially if they have been frequently recalled before, as many of the furloughed have.

Overall, furloughs appear to play a dual role. During deep recessions, they allow many employers to briefly adjust their wage bills to limit their losses. As most of the furloughs in the crisis years 2009 and 2020 were short and did not repeat, it is implausible for furloughs to have substantially slowed down reallocation to more profitable firms. However, in some industries, furloughs appear to have become an entrenched business practice: employers maintain a steady attached work reserve but push some of this reserve regularly into pseudo-unemployment with furloughs.

The approach taken in this paper aims at a descriptive, overall look at the long-term patterns related to furloughs. Before the COVID-19 pandemic, rules on furloughs had little variation over the two decades for which high-quality data is available. This consistency and the detailed, individual- and firm-level register data allow one to examine

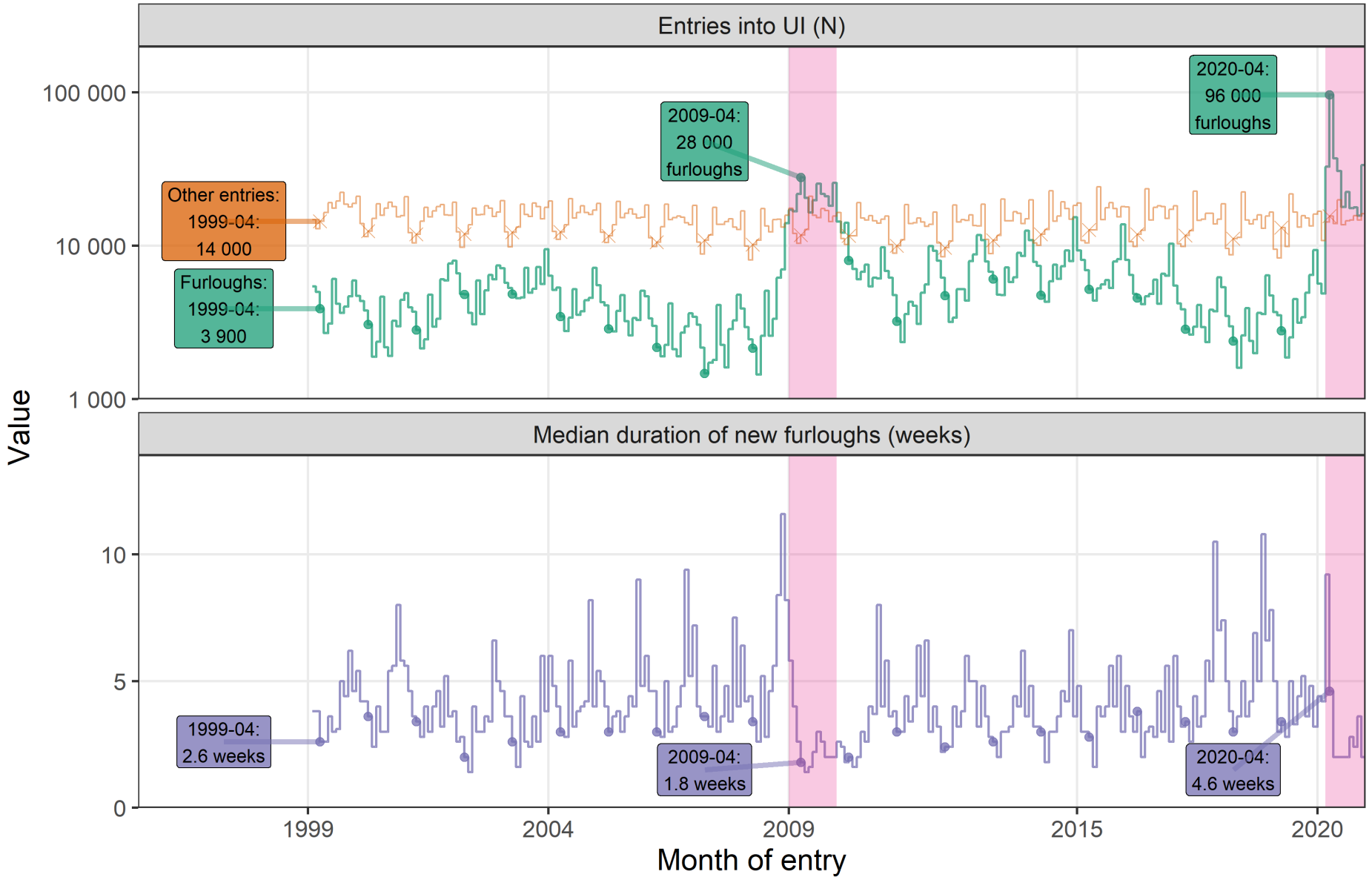
furloughs over several decades in an institutionally stable environment, including both normal times and crisis years.

The rest of the paper is organised as follows. Section 2 covers the institutional setting in Finland. Section 3 describes the data. Sections 4–6 describe patterns of furlough spells, furlough-prone individuals and furlough-prone employers, respectively. Section 7 concludes.

Table 1: Estimated rates for recall from unemployment across countries and states

Country or state	Conditionality	Estimate	Source
Austria	Employer expectation	58%	Nekoei and Weber (2015)
California	Jobseeker expectation	51%	Bell et al. (2021)
Canada	Jobseeker expectation	61%	Corak (1996)
Missouri and Pennsylvania	Jobseeker expectation	72%	Katz and Meyer (1990)
Norway	Excluding furloughs	6%	Røed and Nordberg (2003)
Austria	Unconditional	42%	Nekoei and Weber (2020)
Canada	Unconditional	57%	Corak (1996)
Denmark	Unconditional	50%	Jensen and Svarer (2003)
Germany	Unconditional	10%–25%	DellaVigna et al. (2021), Mavromaras and Orme (2004)
Spain	Unconditional	29%	María Arranz and García-Serrano (2014)
Sweden	Unconditional	45%	Jansson (2002), Nivorozhkin (2008)
United States	Unconditional	54%	Albertini, Fairise, and Terriau (2023)

Figure 1: New furloughs, other entries into UI, and furlough durations, 1999–2020. The upper panel has a $\log_{10}$ vertical scale. The durations in the bottom panel are medians. Spells are defined by the periods for which individuals claim unemployment benefits. The shaded areas correspond to periods where monthly new furloughs exceeded 15,000 during the financial crisis and the COVID-19 pandemic.



2 The institutional setting

2.1 Adjusting labour demand in Finland

In the Finnish system, employers can formally adjust labour demand in several ways. Table 2 briefly summarises the different mechanisms and their magnitudes. [1] Percentages of UI spells are for new spells started in 1999–2020; section 4 will cover the classification of unemployment spells in detail.

Table 2: Labour demand adjustment mechanisms in Finland

Mechanism	Stage	Constraints	Frequency
Fixed-term contracts	Contract negotiation	Valid cause, e.g. job tied to a fixed-term project or substituting another employee; FT employees usually cannot be furloughed or dismissed	20.3% of new UI spells, 11% of employees
Adjustable hours contracts	Contract negotiation	Employee request, or demonstrated need for less hours	9% of employees, 5% with zero min. hours
Termination during probation	At the start of a job	Maximum probation is six months	0.8% of new UI spells
Voluntary quits	During open-ended contracts	-	At least 2.2% of new UI spells
Collective dismissals	During open-ended contracts	Substantial and permanent reduction in available work, collective negotiations, recall mandate, paid notice period (up to six months)	4.2% of new UI spells
Furloughs	During open-ended contracts	Substantial reduction in available work, collective negotiations, recall mandate, 200 day soft cap	31.5% of new UI spells
Individual dismissals	During open-ended contracts	Severe violation of employee obligations, prior warning, paid notice period	0.6% of new UI spells

The share of working-age population in fixed-term contracts has remained quite stable since the 1990's. The fraction in open-ended full-time jobs has increased slightly, while the share in part-time jobs has grown more rapidly and now exceeds 10%. Appendix T further illustrates the trends.

An employer may furlough an employee when their demand for labour contracts. Formally, furloughs are possible (A) when the employer would also have grounds for a permanent collective dismissal. Alternatively, they can be used when (B) the employer's "potential for offering work" has diminished temporarily. The statutory text does not go

[1] The register data on voluntary quits has some inconsistencies. The number presented is a lower end estimate.

into much more detail about these conditions. According to secondary sources cited by Bruun (2022) and Tiitinen and Kröger (2015), the condition of reduced "available work" may refer to a fall in market demand, or simply to the employer reorganising work to improve profitability. The employer must, however, always first exhaust any reasonable arrangements that would allow employment to continue, such as reassigning the employee to a different suitable task.

If the employer would have grounds for a collective dismissal, the furlough may be open-ended. Otherwise, it must have a fixed duration.[2] The furloughs can also be postponed, suspended, or ended early with some flexibility, mostly provided by sectoral collective agreements. The furloughs can be part-time or full-time; 90% are full-time.

If the employer only needs to furlough or dismiss some workers, the employer chooses the individuals. The choice cannot be discriminatory, and certain employee representatives also enjoy additional protection. Otherwise, there are strict no priority rules (such as last-in first-out). Appendix A covers some empirical patterns in how employees are selected in these cases, and how the different groups then fare afterwards. In most furloughs, less than a fifth of the headcount is furloughed, and simultaneous collective dismissals are uncommon.

Besides the prerequisites, several other rules increase the effective burden of the different methods. Employers with more than 20 workers (30 before 2007) must initiate formal cooperation negotiations before collective dismissals or furloughs.[3] The negotiations must last at least two weeks; the mean empirical duration appears to be roughly two months.[4]

In the negotiation process, employees gain extended access to the employer's finances. Employers must justify their proposed action, and employees may present alternatives. While the employers retain final say in decisions, simply gaining more information enhances the ability of employees to contest excessive furloughing. Based on a superficial analysis of observed negotiation outcomes, the ratio of actual dismissals to initially estimated reduction needs is roughly 0.65 on average.

During a furlough and for 4–9 months after a collective dismissal, hiring is severely limited. If employer has demand for broadly similar labour, work must first be offered to the furloughed or previously dismissed workers (recall mandate). For collectively dismissed persons, further additional costs have been set over the years, such as a mandate to provide training, paid leave for seeking jobs, and partial sharing in UI costs for older workers (see next subsection).

If the employer wishes to dismiss a person during a furlough, they must initiate a new

[2]Unfortunately, comprehensive data covering the planned dates or the distribution of furlough justifications is not available.

[3]There are few employers close to the 20- or 30-employee thresholds, so the thresholds do not provide a useful causal identification strategy.

[4]This estimate is based on data on individual cooperation negotiations published by the Central Organisation of Finnish Trade Unions for 2006–2019; the data is extensive but unlikely to be exhaustive.

procedure (typically, a new round of negotiations) and resume paying wages normally during a notice period. The hiring freeze is also extended. Thus, while an employer can technically furlough first (to buy time to evaluate their options) and decide to dismiss later, they face substantial additional costs for doing so. These constraints may explain why furloughs are quite rarely followed by permanent dismissals.

The employees can also react in other economically significant ways than legally disputing a furlough. During furloughs, the employee can usually accept employment elsewhere and terminate their contract with no notice. Thus, if an employer furloughs employees who can easily find a new stable job elsewhere, they risk losing a valuable match. If a furlough lasts more than 200 days, the employee may resign and becomes entitled to the same pay for their notice period as if they had been dismissed.[5]

Established furloughing systems, as defined in the introduction, are rare internationally. Legislation with similarities to the Finnish furlough scheme appear in Belgium, Canada, Denmark, Greece, Norway, Slovenia, and Spain. Müller, Schulten, and Drahokoupil (2022) and Eichhorst et al. (2022) find that most developed countries responded to the COVID-19 pandemic with STW or wage subsidy schemes, and only a handful primarily with furloughs.

For assessing the relative importance of furlough-type temporary unemployment in different countries, one can turn to Labour Force Surveys. In most of the European surveys, there was a separate category for absences from work until 2020: temporary layoffs. In the Finnish survey, furloughed persons are typically designated absent this way[6]. Figure 2 shows that the share of population absent for this reason is significantly higher in Finland than most other European countries, indicating a strong role for furloughs in the system.

2.2 Unemployment benefits

Finland has a two-tiered system of unemployment-based benefits. Most newly unemployed and furloughed job seekers start on unemployment insurance (UI), which is based on prior earnings and has a limited duration (the entitlement) of 60 to 100 weeks. Persons who are not eligible for UI or exhaust the entitlement may apply for lower, flat-rate unemployment assistance benefits (UA) that have no maximum duration. Both types of benefits are conditional on being a registered unemployed or furloughed jobseeker. For furloughs, roughly 95% of spells start and end on UI.

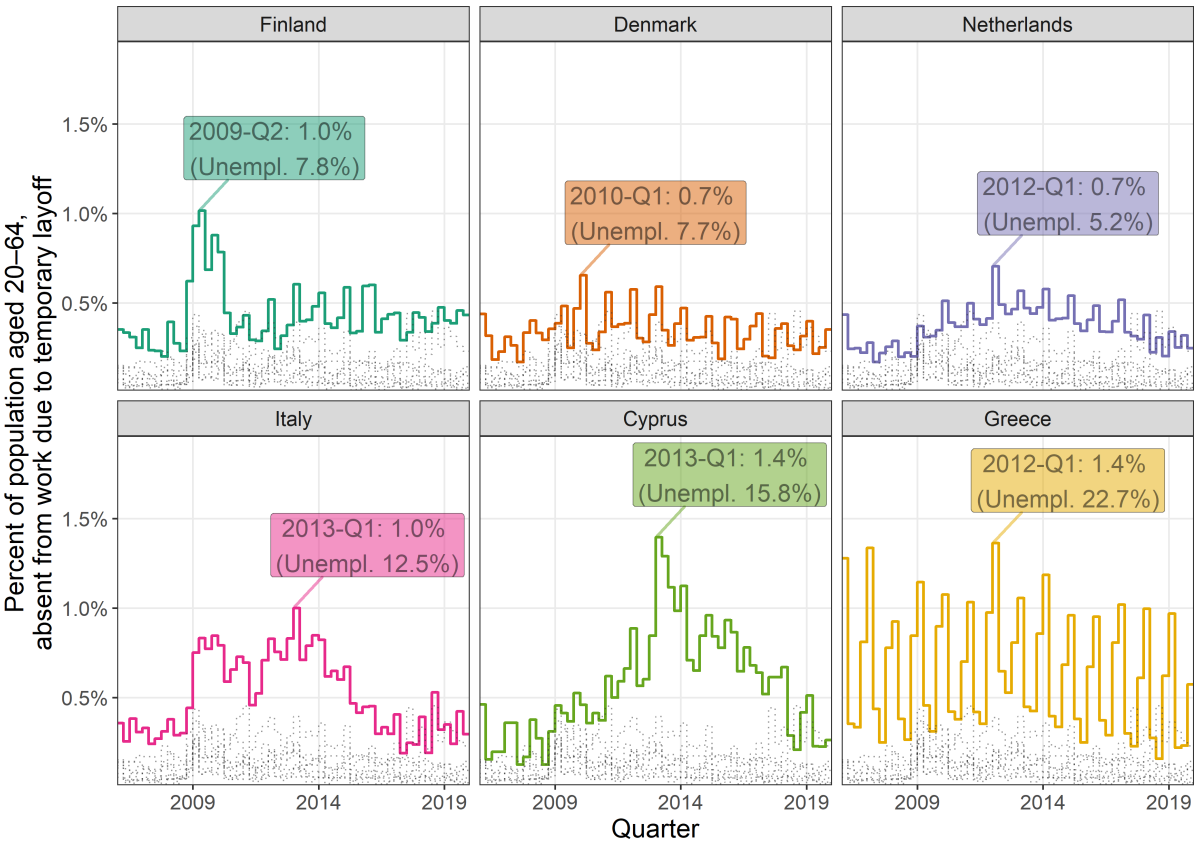
Insurance is based on prior wages. In 2019, the mean observed payment was 333 euros per benefit week for UI and 162 euros for UA. For UI, the median gross[7] replacement

[5]Usually, voluntary quits trigger a 90-day exemption period from UI. If a person quits after a furlough lasting more than 200 days, no such sanctions are imposed.

[6]They thus also usually appear as employed rather than unemployed for the purposes of the LFS-based unemployment rate.

[7]Including any increases and reductions to unemployment benefits but ignoring taxes and other types

Figure 2: Share of population in temporary unemployment in Europe. Labour Force Survey, Eurostat: Absent from work due to layoff (*lfsi_abs_q_h*), divided by population aged 20–64. Turkey and countries with less than 4 years of data were excluded. Numbers in parentheses in the labels refer to the overall unemployment rate. The six highlighted countries are the ones with the highest mean absence rates due to layoffs. Dotted lines were used for the other European countries with lower absence rates.



rate has varied between .55 and .6 over 1999–2021. Over the period, benefits have been subject to various individual increases, for example during participation in ALMPs or for dependent children; these have been included in all payment sums reported. Both types of benefits are taxable income.

If a person is part-time employed but looking for a full-time job, they may apply for part-time benefits. To a first approximation, benefits are reduced by 0.5 euros for each additional euro earned. The jobseeker's weekly hours must, however, be below 80% of the hours in a full-time job. They must also continue to seek for a full-time job and adhere to other obligations for unemployed jobseekers. The benefit agencies translate partial unemployment weeks to full-time equivalents[8], and this paper uses this metric to measure benefit duration.

of benefits.

[8]The translation formula is weeks $\times \frac{\text{benefits paid}}{\text{full-time benefits}}$. For example, if a person is entitled to 400 euros per week of full-time unemployment and receives 300 euros for a week in partial unemployment, the number of FTE weeks is $\frac{300}{400} = .67$.

Persons entering UI have an initial short waiting period without benefits. It serves a function similar to a deductible or risk-sharing in other insurance. The waiting period rules have varied slightly over the years. Generally, a person who is unemployed for one month at years T and $T+1$ and works in between will have a one-week waiting period on both years. As furloughs are short and often repeat at the individual level at different years, the waiting period may absorb a large fraction of furlough time. The nominal replacement rate can thus be somewhat misleading. Taking into account the waiting period, UI, wages and taxes, the average change in real annual income is about -3.0% for a furlough lasting one month, or about -5.0% if the furlough lasts two months. Further calculations and details about the method appear in appendix B.

2.3 Financing

UI is financed by the central government, unemployment fund membership fees, and mandatory UI taxes paid by employees and employers. With some rare exceptions, all employers and employees pay the UI tax, which covers roughly 50% of UI costs.[9] However, only those who voluntarily join an unemployment fund may collect the earnings-related UI; the funds themselves finance only 5.5% of UI costs. The central government finances the residual costs: it pays most of the the flat-rate UA, and a fixed-rate part of UI.

The central government usually does not contribute to UI during furloughs. Exceptions were made with temporary legislation in 2010, 2012–2013 and 2020, where the central government also covered the flat-rate part of furlough UI to ease the pressure to raise UI taxes.

The level and nominal incidence of the UI taxes have varied significantly across the years. In 2023, both employees and employers paid a 1.5% tax on wages on average.[10] Before 2017, a significantly higher share of the nominal incidence fell on employers.

Two limited schemes for UI experience rating (ER) have existed in Finland. One, still in force, applies to employers who dismiss older workers. Historically, individuals who were aged 55 when the usual UI entitlement period was exhausted have been granted an UI extension until old-age retirement; the age threshold for the extension has been gradually increased over time. Nominally, the separating employers are responsible for 80%–90% of the costs of the extension since 2009 (a total of 2.1 billion over 2009–2021 in 2019 euros). In reality, experience rating has covered less than a quarter of the actual costs.[11] Nevertheless, Kyyrä and Tuomala (2023) estimate that the system has reduced excess layoffs of older workers.

[9] Despite its name, the UI tax also covers some smaller expenditures not directly related to UI.

[10] For employers, a lower flat rate applies to wages below 2.2 million per employer. For the part of wages exceeding that, the rate is higher.

[11] The rating system excludes, for example, expirations of fixed-term contracts, employers with small wage bills, and jobs with durations less than three years. Based on estimated ER payments from benefit and employment data, each of these rules substantially reduced the true cost to employers.

Another rating system applied to furloughs between 1994 and 1996. In the exceptionally deep recession of the 1990's, unemployment benefit costs had increased by 575%, prompting the government to find new cost-sharing mechanisms. Sweden and Norway also experienced difficulties with increasing furlough UI costs. Sweden ended up effectively abolishing their furlough system; the Norwegian experience is discussed in appendix C.

In Finland, for each new furlough spell, employers had to pay a fixed tax. The tax amount corresponded to the flat-rate benefit for two weeks. The system was phased out when a new tripartite agreement on UI financing was reached in the late 1990's, detaching the central government from any responsibility for the furlough UI costs. In appendix D, a similar system in simulated for Finland over 1999–2021. The simulation reveals that even after doubling the fixed rate (calculated at present UI levels), only about 10% of actual furlough UI costs would have been covered because of the various constraints in the original system. Nevertheless, in some industries even this modest form of ER would have increased the average effective UI tax by 0.6 percentage points.

3 Data

This study combines extensive register data on employment, unemployment benefits, registered unemployment, incomes, individual characteristics, and employer finances. Most of the data covers years 1999 to either 2020 or 2021. Register data on employment, incomes, registered jobseekers, and employers were obtained through Statistics Finland; each dataset covers the entire Finnish population. The Financial Security Authority provided the data on unemployment insurance (1999–2021); data on unemployment assistance (2010–2021) were from the Social Security Institution.

The unemployment benefit data are at the level of each individual payment and the corresponding period of unemployment. Employment data cover the start and end dates of *job contracts* from 1999 to 2018. For these years, annual wage data per each (employee, employer, year) triplet were paired with the contract data to estimate a daily wage. From 2019 to 2023, data for both work and wage are at the level of *payment periods*, typically per month. This somewhat increases the measurement error when comparing periods before and after 2019. Some additional notes on the data appear in appendix E.

Information on whether a person is furloughed or otherwise unemployed is observed in the UI benefit data, which records it for each payment. For those in non-furlough unemployment, the reason for the termination of last job comes from the jobseeker register data. Since persons can also enter UI from non-employment if they have sufficient employment in previous years, the termination reason is ignored if it precedes unemployment by more than six months.

The separating or suspending employer is identified from employment data, as it is not observed in the jobseeker register. If the latest job had a very low wage or short

duration, the previous employer is considered unidentified. Appendix F examines how different alternative identification constraints would affect the recall estimates.

4 Furlough spells

6,395,582 unemployment benefit spells that started between 1999 and 2020 were observed for 2,157,995 individuals. The data covers all unemployment insurance starting from 1999, but unemployment assistance only from 2010. Table 3 collects some characteristics of the spells by spell type, with appendix H complementing. Across the paper, all monetary amounts are deflated to 2019 levels by the Statistics Finland wage index unless otherwise noted.

A spell is defined by the time in unemployment for which person claims unemployment benefits. Spells are censored at a maximum of 3 years.[12] During a spell, persons may alternate between regular unemployment, participating in services such as training, and part-time unemployment, as long as they continue to collect UI benefits. After a period of at least 30 days for which no benefits are claimed, a spell ends.

From 2014 to 2020, the benefit data is estimated to overlap at least 98% of the spells where the furloughed registered as jobseekers. However, compared to the data on registered jobseekers, the benefit data cover furloughs before 2014 much more comprehensively. Data on benefits also capture the end dates and suspensions of furloughs more reliably. Further details on the choice of defining time in unemployment by benefit recipiency is covered in appendix G.

For this paper, spells were classified into broad categories by the reason of entry in the jobseeker register. For UI, the primary identified reasons are furloughs, expiration of fixed-term contracts, and collective dismissals. In a relatively large number of cases, the activity preceding unemployment is unknown; such spells are treated as a distinct spell type. The distribution of benefit days over 2010–2021 is illustrated in figure 4. For brevity, furlough spells where the individual collects UI are simply called "furloughed"; roughly 5% of the furlough spells with UA are classified under UA spells instead.[13]

To keep the number of categories manageable, "miscellaneous reasons" collects various rarer cases. This category chiefly covers spells with long periods between a person's last job and entering UI. One common example are fresh graduates who qualified for UI by working during their studies. Individual dismissals and ends of probation periods also appear here.

For some descriptives, a specific (sub-)designation for "summer unemployment" is used for teachers in fixed-term jobs. This category of spells resembles furloughs in three ways:

[12] Any descriptives that depend on duration are for a subsample of spells that started before 2019.

[13] The UA data strongly suggests that for UA spells, transitions from furloughs to non-furlough unemployment are usually not observed by the benefit administration.

unemployment is overwhelmingly of a fixed duration; the workers return to employment at very high rates, often to their previous employer; and these spells are highly repetitive at the individual level. The institutional background for this system and the exact definition are discussed in appendix H.

The reasons for entry are strongly segregated by age, and the different combinations of age and spell type are associated with very different medium-term outcomes. In particular, collective dismissals are sharply concentrated among older workers, while unemployment assistance is often collected by younger individuals who have not yet accrued sufficient work experience to qualify for UI. Figure 3 shows the number of spells started in 2010–2018 per age and spell type, and the distribution of statuses at 3 years after the spell start.

For collective dismissals, employers appear to have prioritized older individuals. The older cohorts have historically been eligible to collect UI until retirement. This extension system was discussed earlier in subsection 2.3. Kyyrä and Pesola (2020) show that the age distribution of dismissals has closely followed the changes to the old-age extension eligibility age in UI. 18% of spells due to a collective dismissal end in a transition to the old-age extension, compared to only 2% of spells following a fixed-term contract. Appendix A further examines firm-level furlough events to describe how those selected for furloughs, dismissals or neither differ and how these groups fare in the long run.

A recall is defined as a person exiting unemployment and having the same primary employer shortly before and soon after unemployment. Both the preceding and the subsequent employment are subject to additional constraints. The recall rates are likely to be underestimates. Appendix F examines how relaxing the constraints would affect the estimates.

The various spell types also differ in the observable links between the unemployed and the public employment services (PES). During the initial months of unemployment, the furloughed are only half as frequently in contact with the PES caseworkers as most of the other groups. They are also only half as likely to have a registered re-employment plan with self-reported plans to search actively for jobs.

Figure 3: Spells and medium-term outcomes, by age and spell type. The status in three years after entering unemployment is defined hierarchically based on benefit and employment data; unemployment overrides employment. "Placements" refer to subsidised jobs targeted at difficult-to-employ individuals. "UI extension" refers to unemployment insurance collectable until retirement, available for the older unemployed.

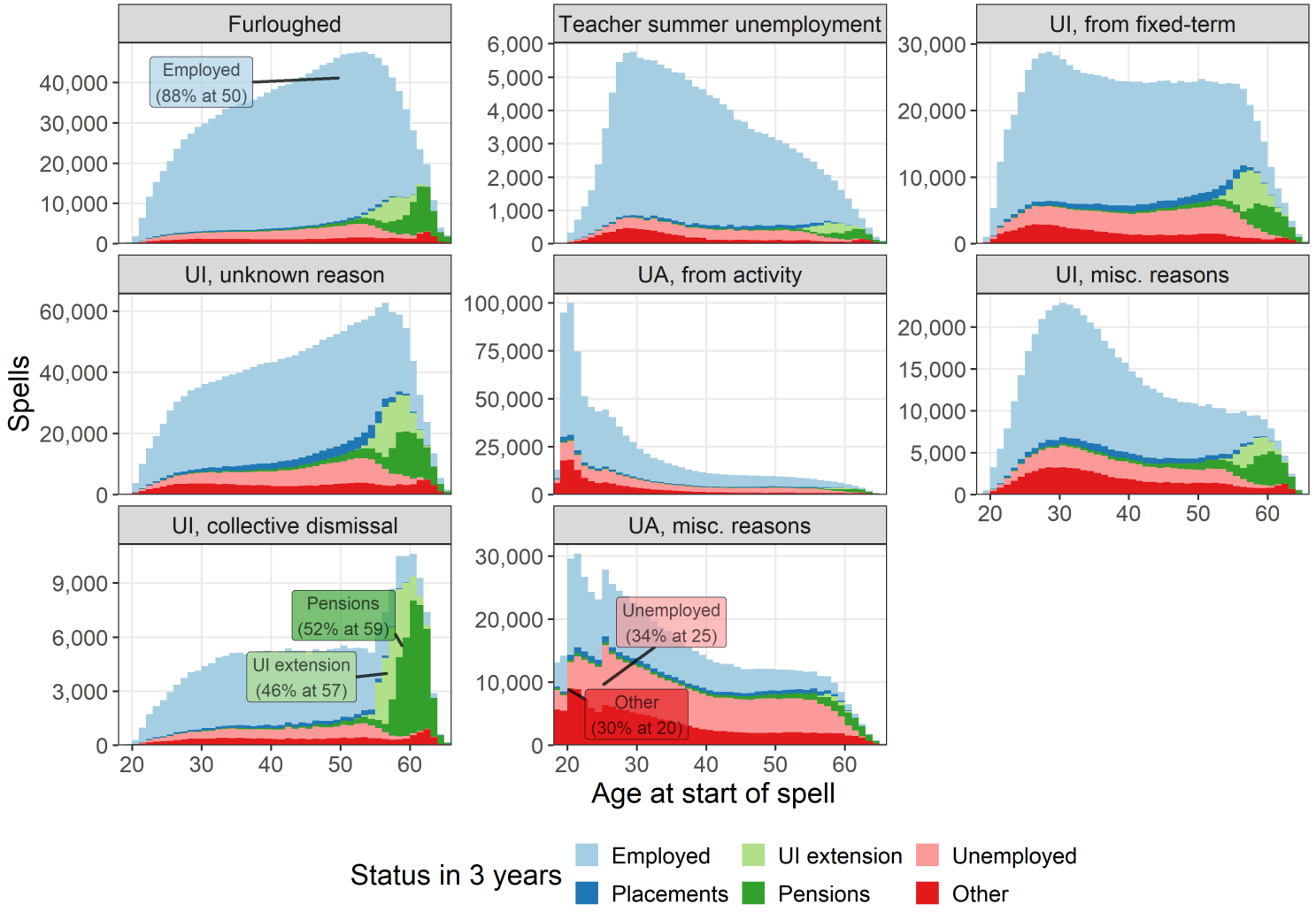


Figure 4: Share of benefit days by spell type, 2010–2021. Spell durations are censored at 3 years.

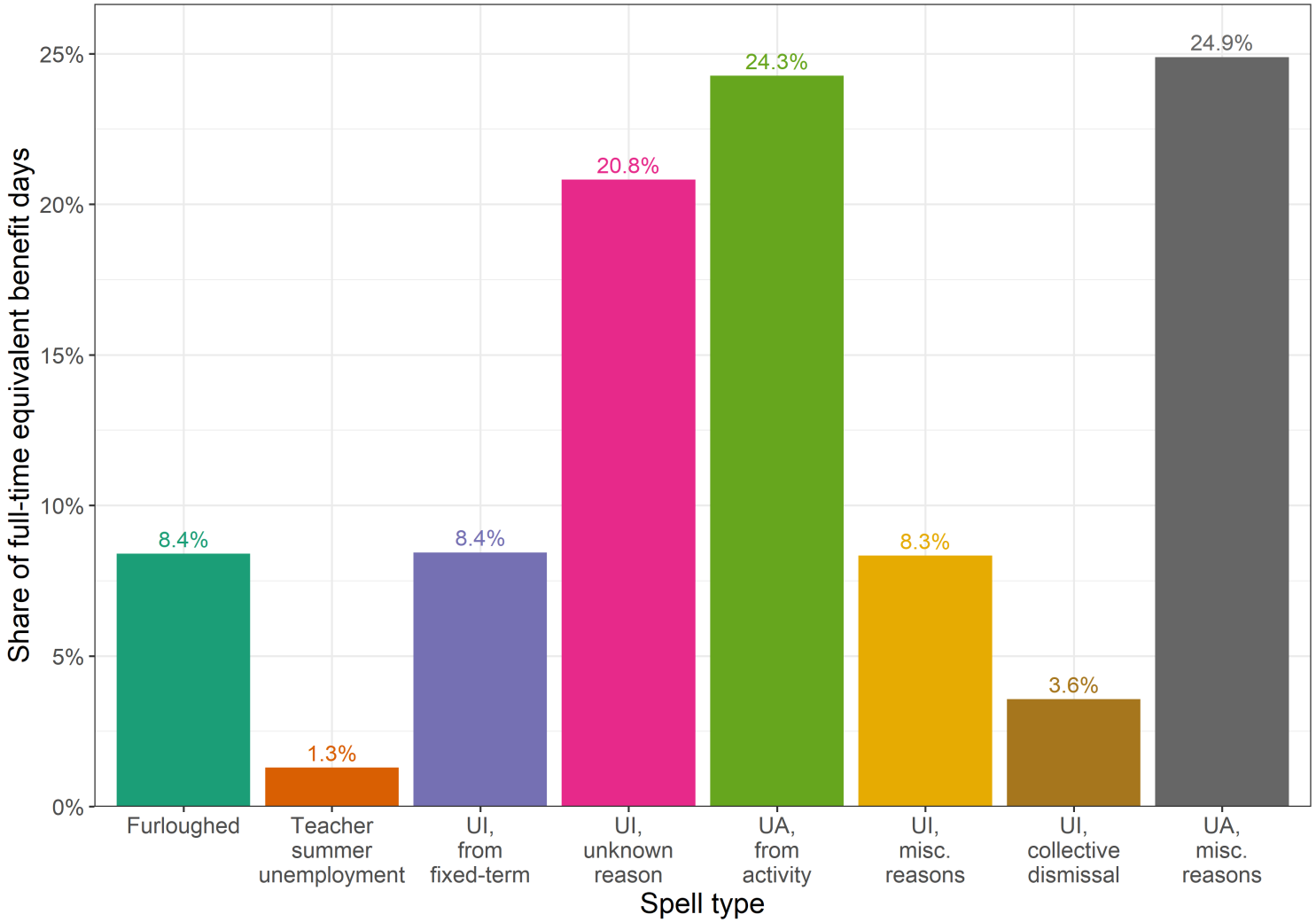


Table 3: Descriptives for unemployment benefit spells in 1999–2020.

	Spell type						
	Furloughed	UI, from fixed-term	UI, collective dismissal	UI, unknown reason	UI, misc. reasons	UA, from activity	UA, misc. reasons
Spells	1,404,016	1,071,198	220,534	1,671,175	553,550	852,259	622,850
Individuals	481,118	495,897	199,344	636,929	404,417	497,470	365,436
Duration in FTE weeks	3.20	12.20	38.00	11.40	22.80	14.51	29.20
Re-employed	97.30%	86.40%	62.15%	81.24%	68.36%	69.19%	39.98%
Recalled	83.45%	40.99%	9.56%	42.57%	9.97%	17.03%	7.37%
Employed at +3 years (ages 54 or less)	89.6%	78.0%	75.6%	73.2%	66.2%	64.8%	35.9%
Age	45	40	47	45	36	26	33
Female	28.9%	57.8%	38.0%	67.9%	61.6%	45.4%	49.7%
Foreign background	2.84%	3.04%	3.60%	3.79%	4.32%	10.43%	25.46%
Re-enters unempl. within 6 months	36.55%	38.83%	22.47%	49.54%	32.79%	35.70%	39.46%
Observed in a job before spell	98.33%	94.11%	94.26%	86.43%	50.24%	59.92%	28.91%
Last weekly wage	700 €	612 €	813 €	540 €	580 €	392 €	322 €
Weekly gross benefit	398.9 €	349.9 €	412.6 €	322.0 €	343.6 €	172.9 €	177.4 €
Next weekly wage (if working)	679 €	570 €	581 €	499 €	517 €	421 €	378 €
Collects non-furlough UI (if furloughed)	3%						
Transitions to old-age UI extension	0.41%	2.08%	18.26%	5.49%	3.94%	0.30%	0.04%

Values are counts, frequencies or medians. For definitions and additional data, see appendix H.

4.1 Medium- and long-term outcomes

To reveal longer-term patterns, persons experiencing an unemployment event were followed beyond the individual spell. Two types of comparisons were made. In both cases, at each period, the panel was split into groups, based on whether a person remained unemployed, had been recalled, had found a new job, or had returned to unemployment. [14] The share of the original sample in each status was then plotted by month.

The first comparison contrasts those experiencing a furlough to those experiencing other types of spells. This comparison starts from an event year, with the crisis year 2009 demonstrated here and a later year 2011 in the appendix J. The follow-up continues for 9 years at a monthly level. To increase comparability, the population is restricted to persons born in 1960–1976, ensuring everyone is in working age throughout the follow-up. The same birthyear constraint is used in section 5.

Figures 5 and 6 show the monthly designation for individuals born in 1960–1976 experiencing a furlough or a "miscellaneous reason" UI spell in 2009 respectively. The furloughed enjoy a high average employment rate, commonly stay with their previous employer, but also regularly experience new furloughs. Those in the miscellaneous category are, in turn, significantly more likely to be unemployed in the long-term. Appendix J presents similar follow-ups for other spell categories.

The second comparison considers outcomes for groups of furloughed individuals. As most furloughs are quite short, the follow-up was shortened to a year, but the frequency increased: a status is designated for each (individual, week) pair.

For furloughs, figures 7 and 8 show the short-term daily outcomes for years 1999-2020. The dashed vertical line shows the employment rate at one year after the original event.

While the overall short-term employment rate is quite high for all the base years, it is lower just *before* the economic shocks in 2009 and 2020, but higher for spells starting in those years. The most natural explanation is that employers that were already in difficulty before an economy-wide shock are more likely to end up having to delay recalls, repeat the furloughs, and dismiss individuals when the shock compounds the earlier difficulty. The pre-crisis furlough spells still only have a small effect on aggregate unemployment, because they are significantly more rare and the short-term employment rates are still high compared to most other types of unemployment spells.

Appendix K presents similar figures by age, industry, and profession. The medium-term employment rate one year after a furlough varies considerably across industries. This is true even across the most furlough-prone industries: it is between 62–64% in construction and 76–85% in manufacturing.

[14] More specifically, everyone from the original population was assigned a status in the following order: (a) the original spell continues, (b) a new non-furlough unemployment spell, (c) a new furlough spell, (d) employed with the pre-spell employer, (e) employed with a new employer, and (f) not observed. The determination is hierarchical: the first matching status wins.

Figure 5: Long-term outcomes after furloughs in 2009. Each person is given a status for each month after the start of a furlough. For definitions of the status, see text.

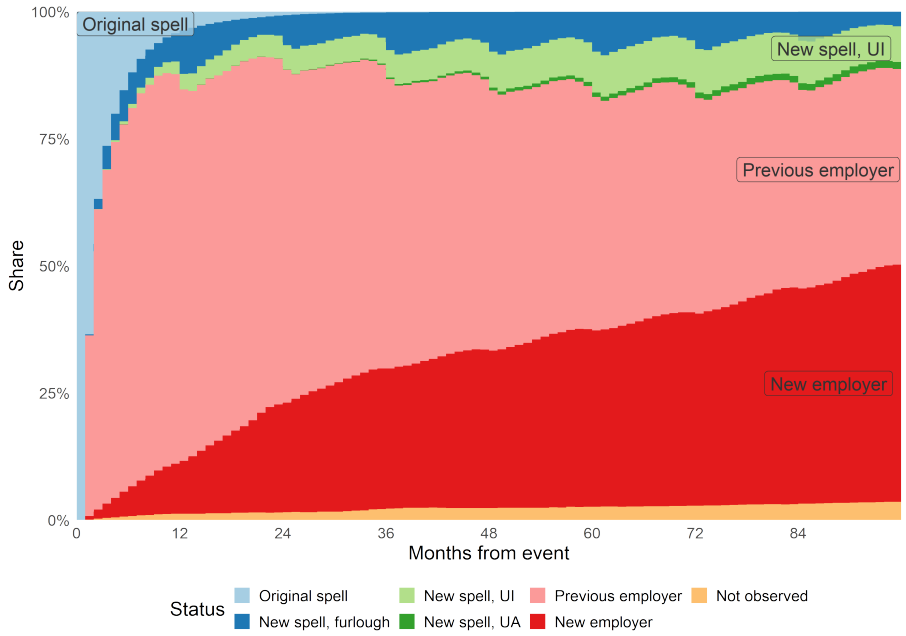


Figure 6: Long-term outcomes after miscellaneous UI spells in 2009. Similar to figure 5, but for miscellaneous UI spells. This group of spells includes residual cases that are not due to furloughs, expiration of fixed-term contracts, or collective dismissals. A common example is a fresh graduate.

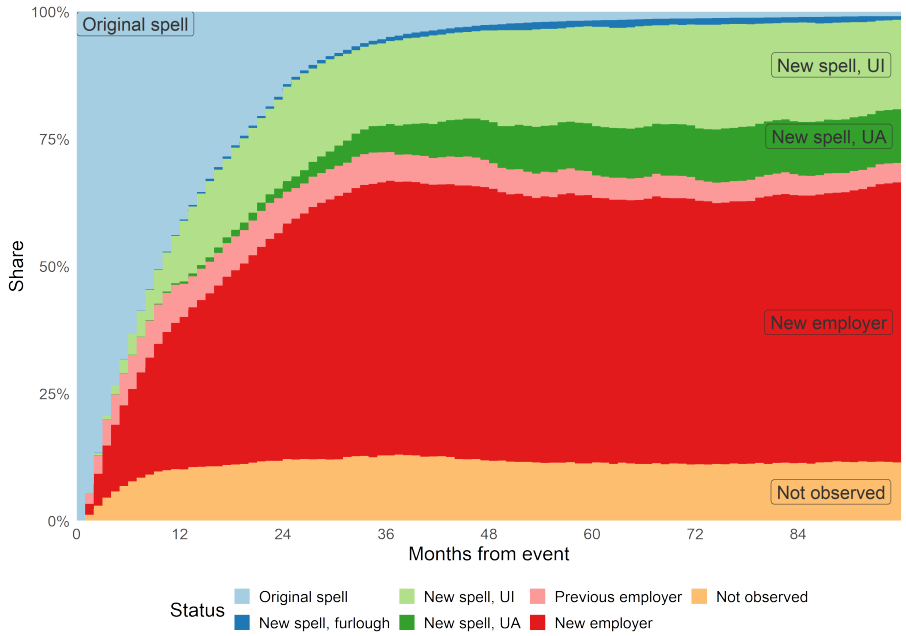


Figure 7: Medium-term outcomes after furloughs in 1999-2009. All new furlough spells per year. For the hierarchical status definitions, see text. The label for the employment rate per year corresponds to those employed at the end of the one-year followup.

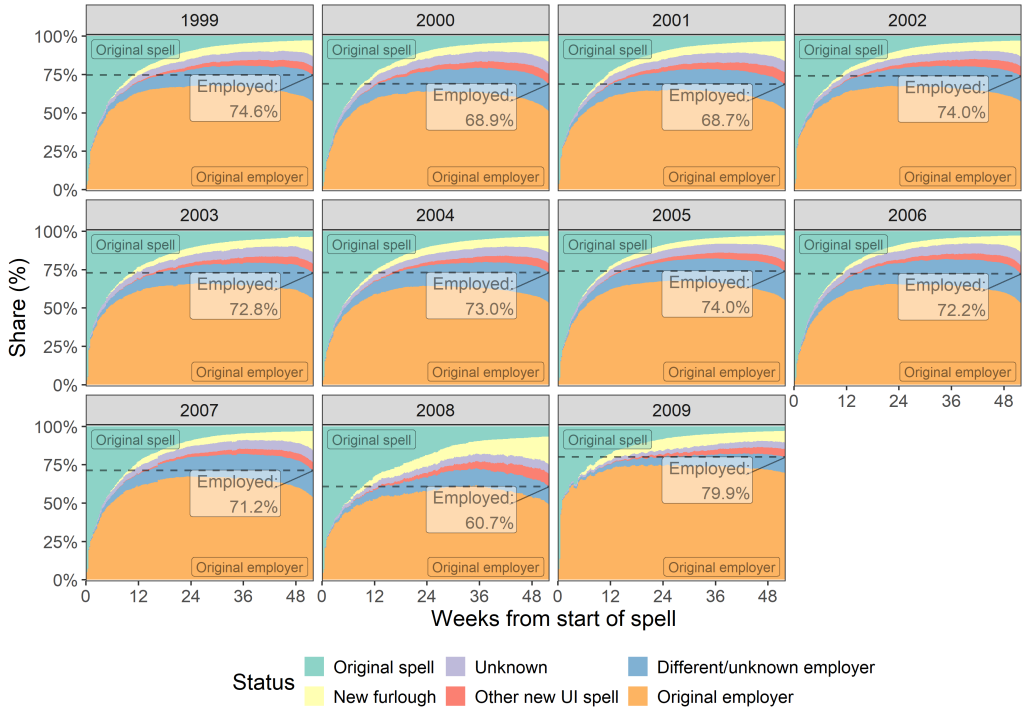
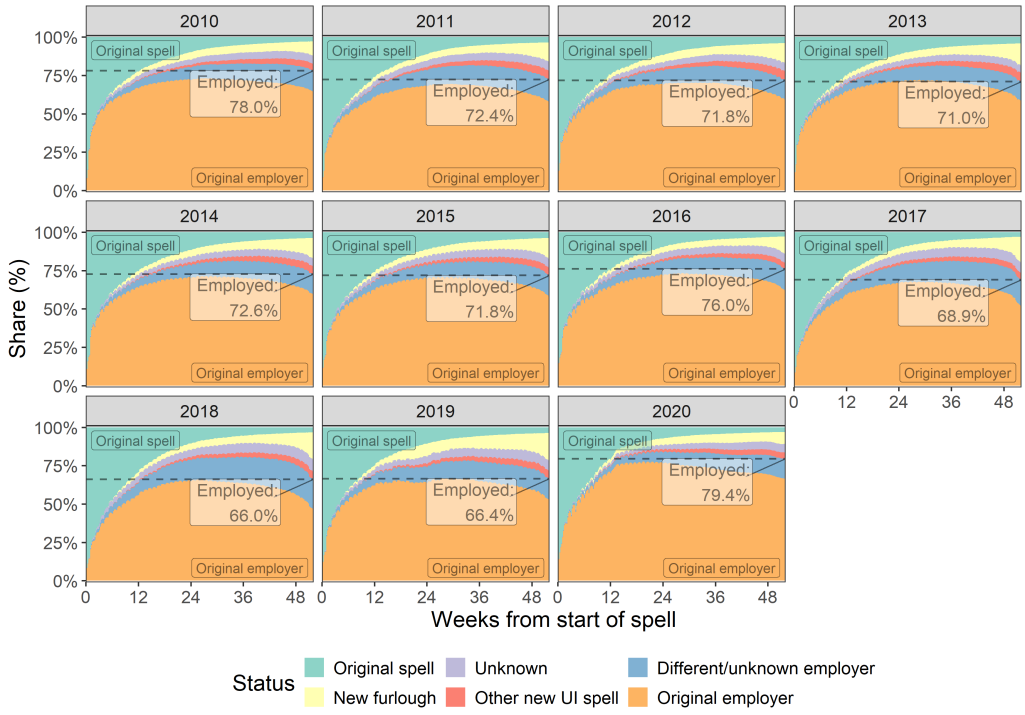


Figure 8: Medium-term outcomes after furloughs in 2010-2020



5 The often furloughed

To further examine patterns of repetitive unemployment, a sample born between 1960 and 1976 was selected for analysis. The birthyear restrictions ensure that the persons remain in prime working age throughout the period 1999–2021. Persons who died before 2020 or resided in Finland for less than 20 years during the period were excluded. Thus, the sample excludes persons who immigrated later than 2000 or emigrated (for more than two years) before 2020; it includes 1,109,736 individuals.

The population was then divided hierarchically into groups, based on their cumulative outcomes averaged over the 22 years of follow-ups, as follows:

1. Furlough-prone individuals: at least 500 euros/year in UI during furloughs
2. Partial UI: claimed part-time UI for at least 4 weeks/year
3. Non-UI unemployment: at least 3,000 euros/year in non-UI benefits
4. Low wages: wages below 10,000 euros/year and business/property income under the below thresholds
5. UI unemployment: at least 3,000 euros/year in UI benefits
6. Entrepreneurs: business income[15] at least 10,000 euros/year
7. Property income: property income at least 10,000 euros/year
8. No classification: everyone else (regular wages, occasional or no unemployment), by far the largest group

There is relatively little overlap between these designations. The major exception is the low-wage group, which strongly overlaps both with entrepreneurs and those prone to uninsured unemployment. A separate group for those who have little formal income emphasises that the formal unemployment system does not capture everyone with low employment rates. To keep the analysis more compact, the small groups with significant business or property income were omitted from most descriptive tables and figures.

Table 4 collects some of the descriptives for the different groups. Definitions and additional descriptives and definitions appear in appendix O. In all the groups with a significant number of years in reasonably paid employment, roughly a quarter or more are furloughed at least once over the observation period. While the COVID-19 pandemic caused a significant surge in furloughs, even before the pandemic the share was roughly 20% across the sample.

[15] Self-employed persons who primarily register their incomes as wages rather than business income will not appear here.

Yet the clear majority of furlough benefits is collected by a group that claims them quite often: every third year on average. Figure 9 illustrates the incidence of at least one furlough per year across groups. Furloughs are often repeated at the level of an employer-employee pair; on average, the furlough-prone group has 1.7 different furloughing employers.

Figure 10 shows a rough estimate of the net individual contribution to public finances: the mean difference between wages and levies paid and transfers received. This number only includes taxes on individuals (about 73% of all taxes and levies) and excludes taxes on consumption and on corporations. While those furloughed make a net-positive contribution during their working careers on average, the balance is much smaller compared to the majority of workers who only experience unemployment rarely.

Figures 11–13 plot Lorenz curves[16] for cumulative benefit euros for different groups and for furloughs, for overall UI and for all unemployment benefits. The different panels use different subsamples to show that even among those who collect some unemployment benefits, a small minority collects about half of all benefits. This is true for both furlough and overall UI, but the phenomenon is stronger with furloughs. Further, with furloughs the differences are largely driven by some individuals having a high number of distinct, repeated spells, rather than differences in the duration of the longest spell per individual. Appendix O plots further Lorenz curves for spell counts and durations and for different types of spells.

Broadly speaking, furlough-prone individuals are significantly more likely than others to work in certain manufacturing industries or construction, and only rarely work in the services sectors. The most common industries per these groups are listed in the appendix O, while the industry-level patterns are explored further in subsection 5.2.

[16]For a Lorenz curve, a population is first ordered by their share of a total: in this case, individuals are ordered by the amount of unemployment benefits they claimed. The curve then plots cumulative shares of individuals on the horizontal axis, and the corresponding cumulative shares of benefits on the vertical axis.

Figure 9: Furlough event probability per year, 1999–2021. The panel labels refer to the subgroups of individuals that the sample was divided to.

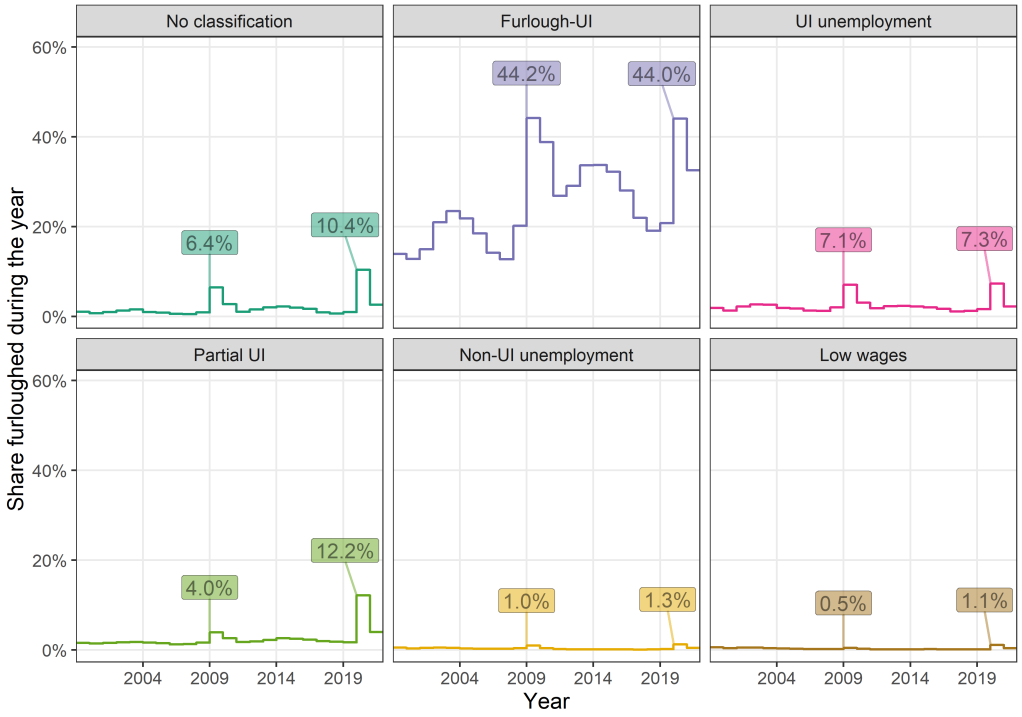


Figure 10: Difference between transfers paid and transfers received, 1999–2019. Individual taxes only. A positive amount means that the group paid more taxes on average than they received in transfers. Note that the series ends in 2019, as comprehensive data were not available for later years.

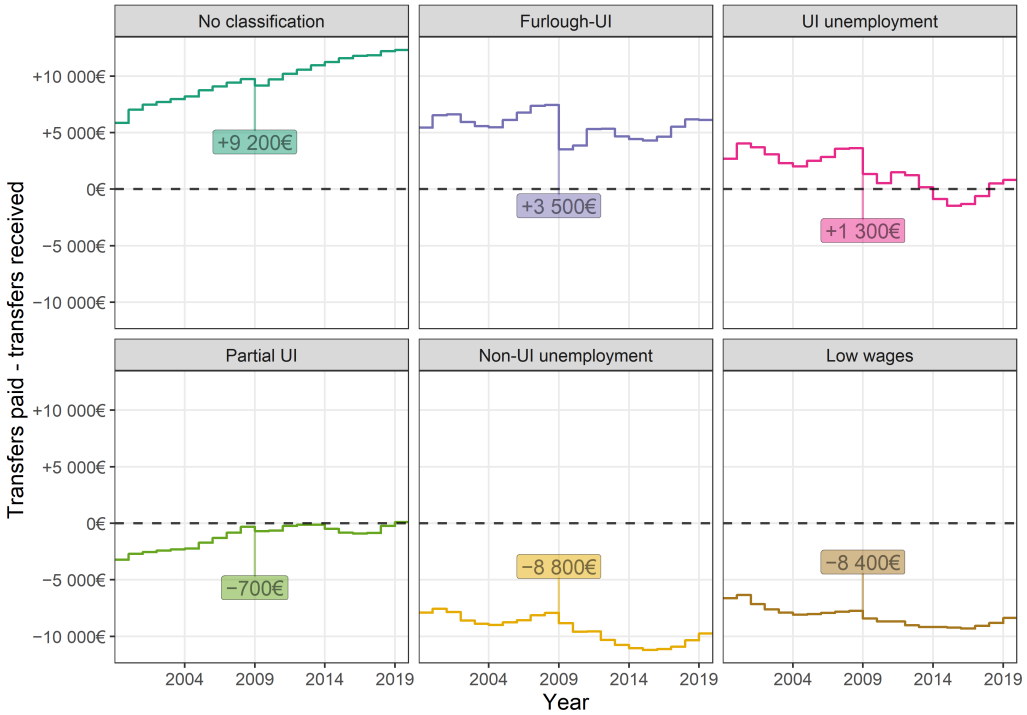


Figure 11: Lorenz curves for furloughs, 1999–2021. The panel labels indicate the base population used on the horizontal axis.

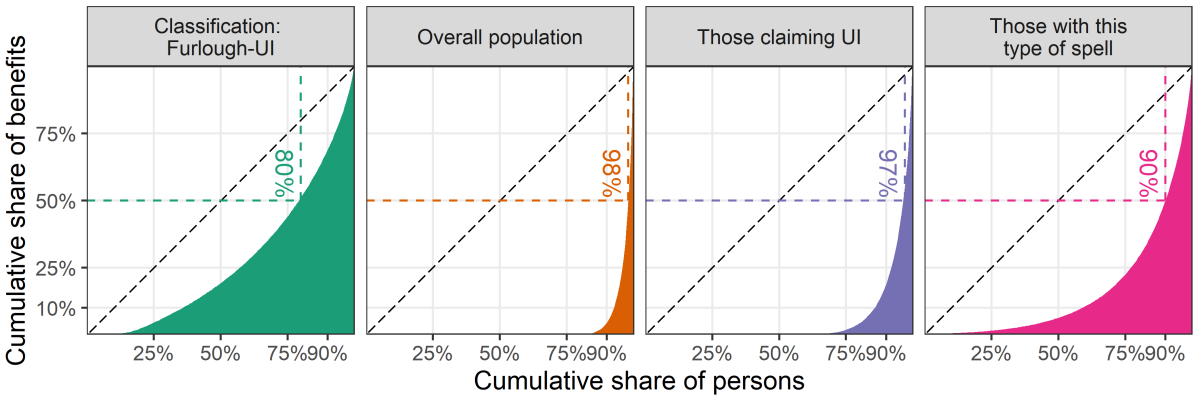


Figure 12: Lorenz curves for overall UI, 1999–2021

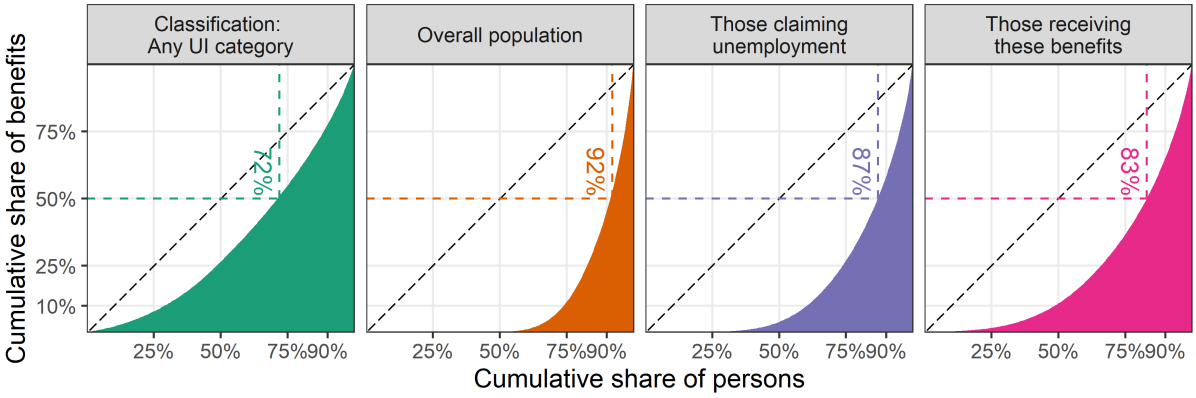


Figure 13: Lorenz curves for overall unemployment benefits, 1999–2021.

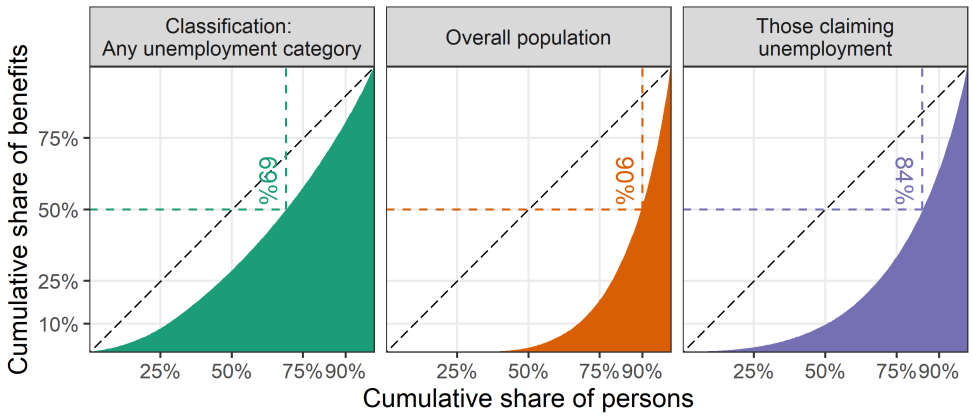


Table 4: Descriptives for a panel of individuals over 1999–2021.

	Classification					
	No classification	Furlough-UI	UI unemployment	Partial UI	Non-UI unemployment	Low wages
N	738,963	59,439	37,171	23,160	55,762	95,118
Average wage 1999–2021	39,094 € (19,594 €)	30,828 € (16,247 €)	24,981 € (17,243 €)	21,281 € (14,305 €)	5,208 € (6,042 €)	3,343 € (3,379 €)
Wage and UI per year worked	44,001 € (19,238 €)	42,763 € (18,198 €)	44,170 € (21,781 €)	33,517 € (17,604 €)	24,181 € (15,954 €)	22,455 € (20,390 €)
Years with normal wages	19.1 (4.4)	17.0 (5.7)	12.6 (4.7)	11.7 (6.1)	2.2 (3.2)	1.5 (2.0)
Years with furloughs	0.4 (1.0)	5.8 (3.8)	0.5 (1.0)	0.6 (1.2)	0.1 (0.4)	0.1 (0.4)
Years with non-furlough UI	1.2 (2.0)	3.4 (3.9)	10.1 (4.2)	10.6 (4.8)	2.3 (3.2)	2.1 (4.0)
At least one furlough event	23.7%	100.0%	30.2%	29.5%	5.5%	4.7%
Male (2019)	46.8%	77.1%	48.6%	18.2%	56.7%	44.3%
Unmarried (2019)	22.2%	31.9%	30.9%	27.2%	44.6%	43.8%
Foreign background	2.1%	2.8%	2.4%	2.7%	13.9%	5.1%
Years with low wages	2.6 (3.5)	4.1 (4.7)	7.1 (3.7)	6.5 (4.9)	18.8 (4.0)	19.9 (3.4)
Has children (2020)	81.7%	75.7%	74.9%	80.4%	61.4%	54.7%
Lives in an urban area (2019)	74.1%	61.0%	68.5%	61.2%	71.9%	60.2%
Furlough benefits	31.04 € (81.91 €)	1,317.08 € (1,059.52 €)	48.57 € (104.94 €)	41.60 € (94.34 €)	8.95 € (48.93 €)	7.14 € (43.01 €)
Non-furlough UI benefits	362 € (687 €)	1,164 € (1,574 €)	4,406 € (1,444 €)	3,015 € (1,896 €)	904 € (1,286 €)	732 € (1,478 €)
Consecutive years with unempl. benefits	1.9 (2.9)	9.0 (5.7)	11.9 (4.8)	12.0 (5.4)	17.3 (4.2)	4.8 (5.8)
UI-to-contributions ratio (group)	1.3	10.2	23.5	18.1	23.4	27.9

All values are counts or means, except for the group-level ratio of UI collected to employee UI tax contributions. Standard deviations in parentheses. For definitions and complementary descriptives, see appendix O.

5.1 Matched individuals

According to table 4, the furlough-prone population receives very similar compensation, in terms of the sum of wage and UI, per person-year actually worked (i.e., excluding time furloughed).

However, the furloughed clearly differ from other workers in terms of their education, work experience and occupation. For a better comparison, furlough-prone individuals were matched at the early stages of their careers, in 2007, to their less-prone counterparts. Using an early base-year also allows one to examine the evolution of wages over time when otherwise similar individuals experience either many or few furloughs. However, the purely descriptive nature of this analysis must be emphasised. The propensity of individuals to be furloughed may be due to unobserved self-selection, and the designation is based on cumulative outcomes from 2021.

The furlough-prone group was matched using coarsened exact matching (CEM), by Iacus, King, and Porro (2012), on days actually worked over 1987–2007 (two-year brackets), age (two-year brackets), business and property income (three classes) and dummies for gender, urban residence, foreign background, and a 2-digit level of education. Details of matching, additional figures and a table of descriptives are left to appendix Q.

Figure 14 plots wages by months worked across the furlough-prone, matched units, and the overall sample followed. Figure 15 does the same for the sum of wage and UI per months worked. The total compensation per year is quite similar across the furlough-prone and matched units; in cumulative terms, the furlough-prone earn slightly more (+5%) per month worked. In contrast, the rest of the population initially has lower wages, but later more than catches up. This is likely to be related to additional educational attainment, which continues to increase at a faster pace in the overall sample (figure 16). Overall, the differences in compensation per day worked appear to be quite small between the often furloughed and comparable individuals.

Figure 14: Wage per month actually worked. To avoid outliers in the denumenator distorting the mean, the sample plotted for each year was limited to those who worked at least half of that year. Thus, the differences in cumulative compensation per month worked is smaller between the groups than the sum of annual differences.

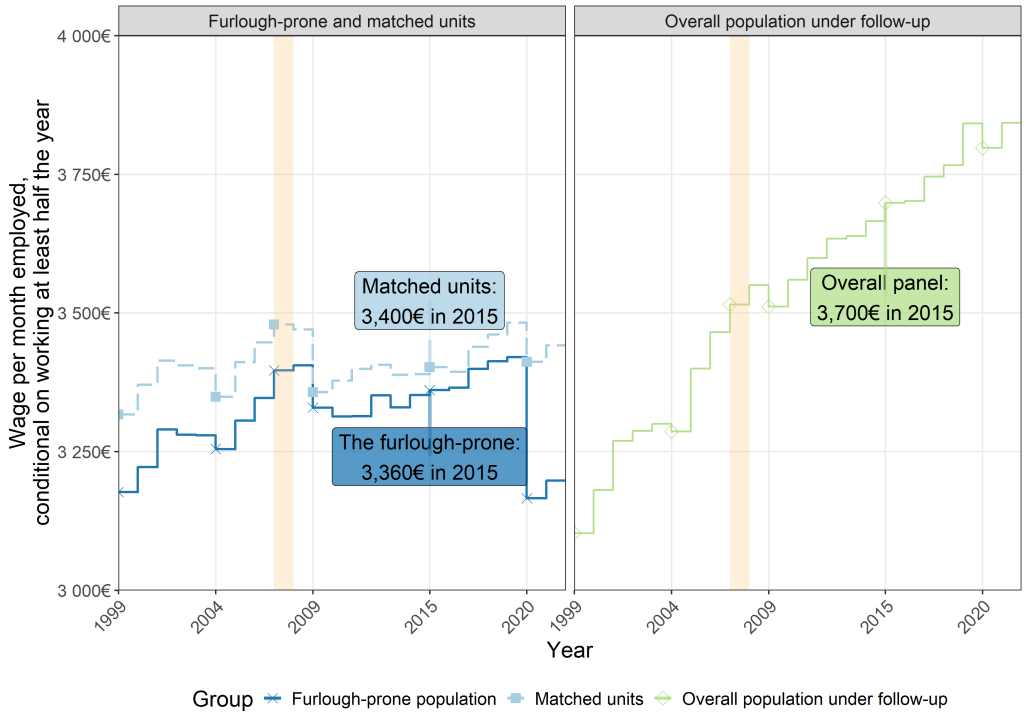


Figure 15: Sum of wage and UI per month actually worked

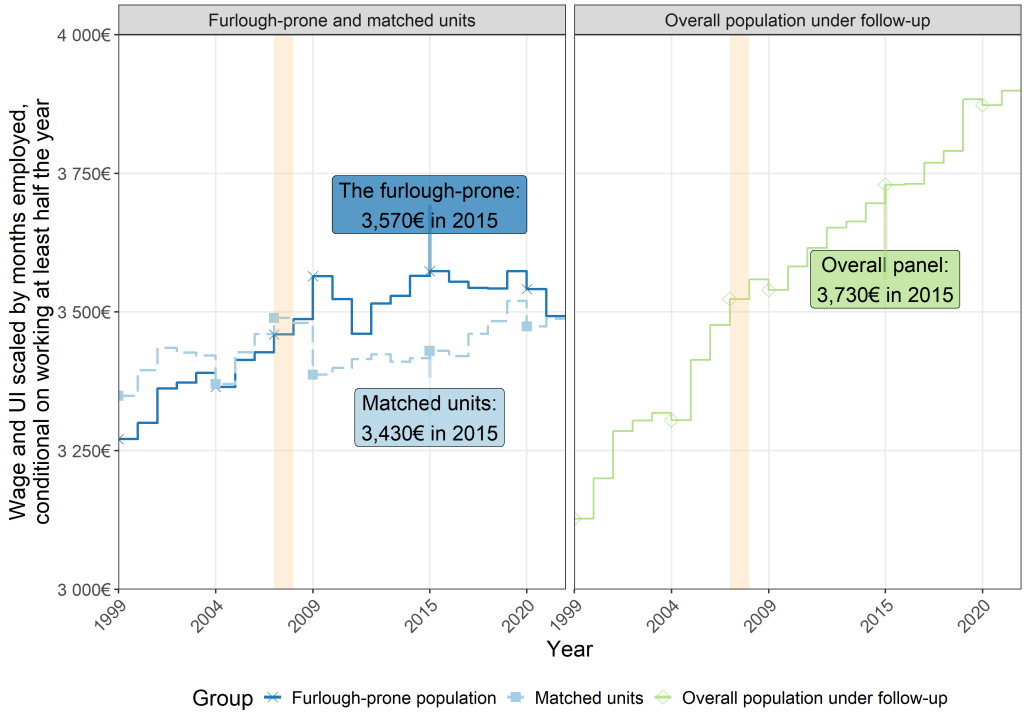
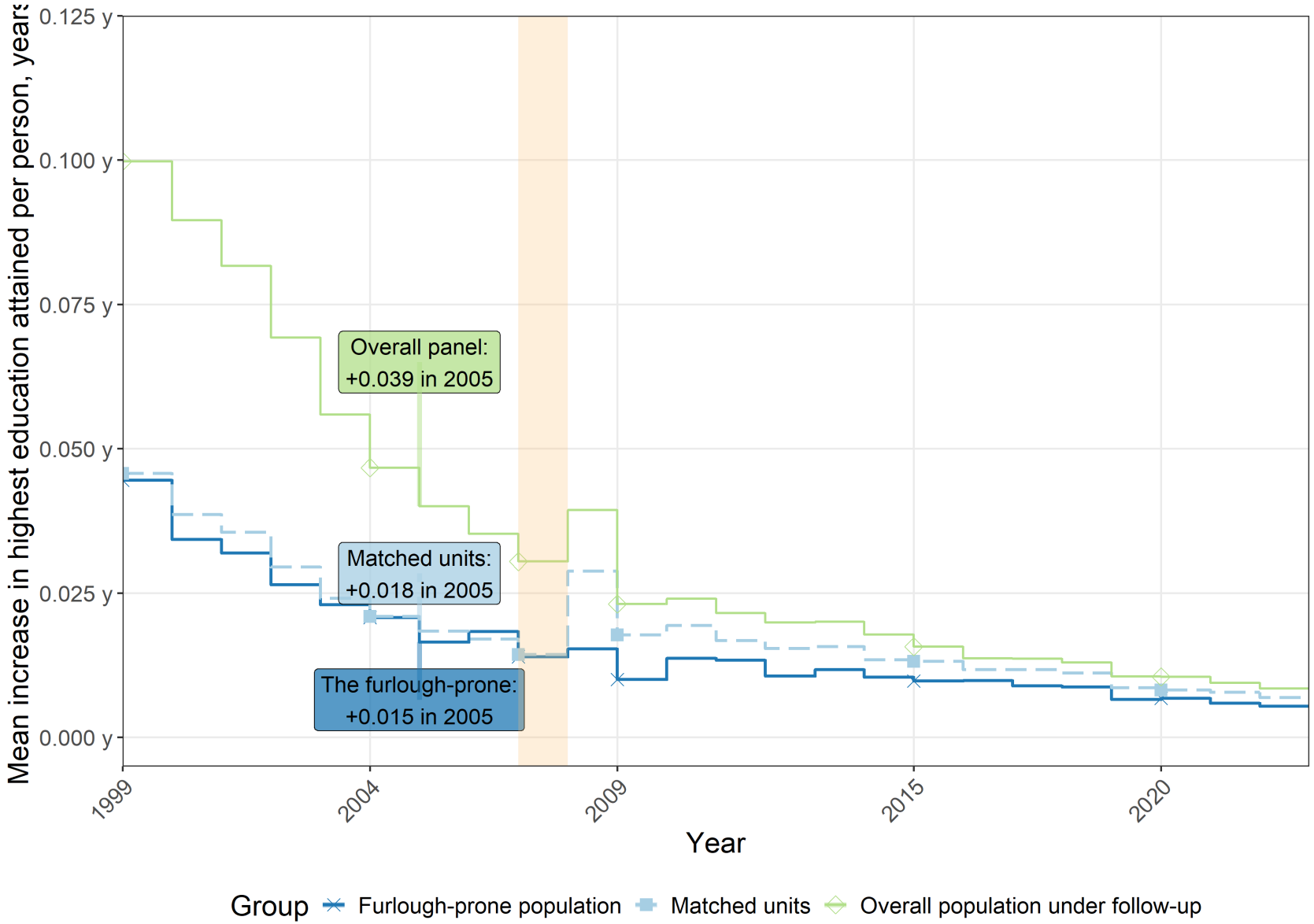


Figure 16: Annual increase in highest education attained. If a person finished an education in 2000 that is *expected* to take 3 years to complete, that counts as a 3 unit increase for the individual.



5.2 Furlough-prone industries

For estimating furlough use by industry, industries were determined by an (individual, workplace) pair[17]. An employer operating in different industries at separate places of business may be associated with several industries.

To keep the number of different industries manageable, industries were coarsened from a 4-digit level, highlighting industries with substantial shares of employment, recall unemployment, furloughs, or partial UI. Three industries, responsible for less than 2% of employment, were excluded due to concerns regarding the reliability of the industry designation. The coarsening procedure and the mapping from base labels to coarsened groups appears in appendix N.

Figure 17 illustrates annual furloughing patterns for a number of selected industries. Some industries, especially in construction, exhibit high but relatively stable furloughing frequencies, with employers responsible for between 20% and 40% of the industry's wages furloughing at least 5% of their average headcount per year. Certain manufacturing industries show cyclical volatility, with sharp increases in furlough probability in 2009 and 2020; however, industries differ in whether these increases persisted beyond the initial shock. Many of the services industries furloughed extremely rarely over the entire period. A few, such as food and beverage services, only responded strongly to the COVID-19 crisis.

Put differently, it seems that furloughing has a dual role in the Finnish system. In some industries, furloughs tend to be only triggered under extreme financial stress, such as the financial crisis. For others, it is a more integral part of their annual business.

In most industries, the various mechanisms for reducing workforce appear to substitute one another. Non-furlough recall unemployment, as well as part-time UI, is common in education, food and beverage services, and temporary employment agencies. While the annual probability of furloughs is very high in some industries, this somewhat overstates the role of furloughs when compared to other mechanisms. Typically, only a minority of personnel is furloughed, and the median furlough duration is shorter than a median UI spell for other recall unemployment.

Table 5 presents a summary statistic to account for these differences: the ratio of different UI benefits to wages. The table covers those UI spells where unemployed persons retain some observable attachment to an employer, either through recall unemployment or by working part-time during their unemployment. The motivation is that such employees plausibly constitute a worker reserve that allows employers to reduce their hiring costs, while shifting worker incomes to be covered from public funds. Appendix N presents some complementary details, including the coarsening used for industries and Lorenz curves for benefit use within industries and across all employers.

[17] For years 2019–2021, this information was not available. For those years, industry is determined by an employer's primary industry.

Figure 17: Share with significant furloughs in selected industries. A significant furlough means an employer furloughed 5% of their mean headcount or more. The plot measures the wage share for such employers of that year's wages in the industry.

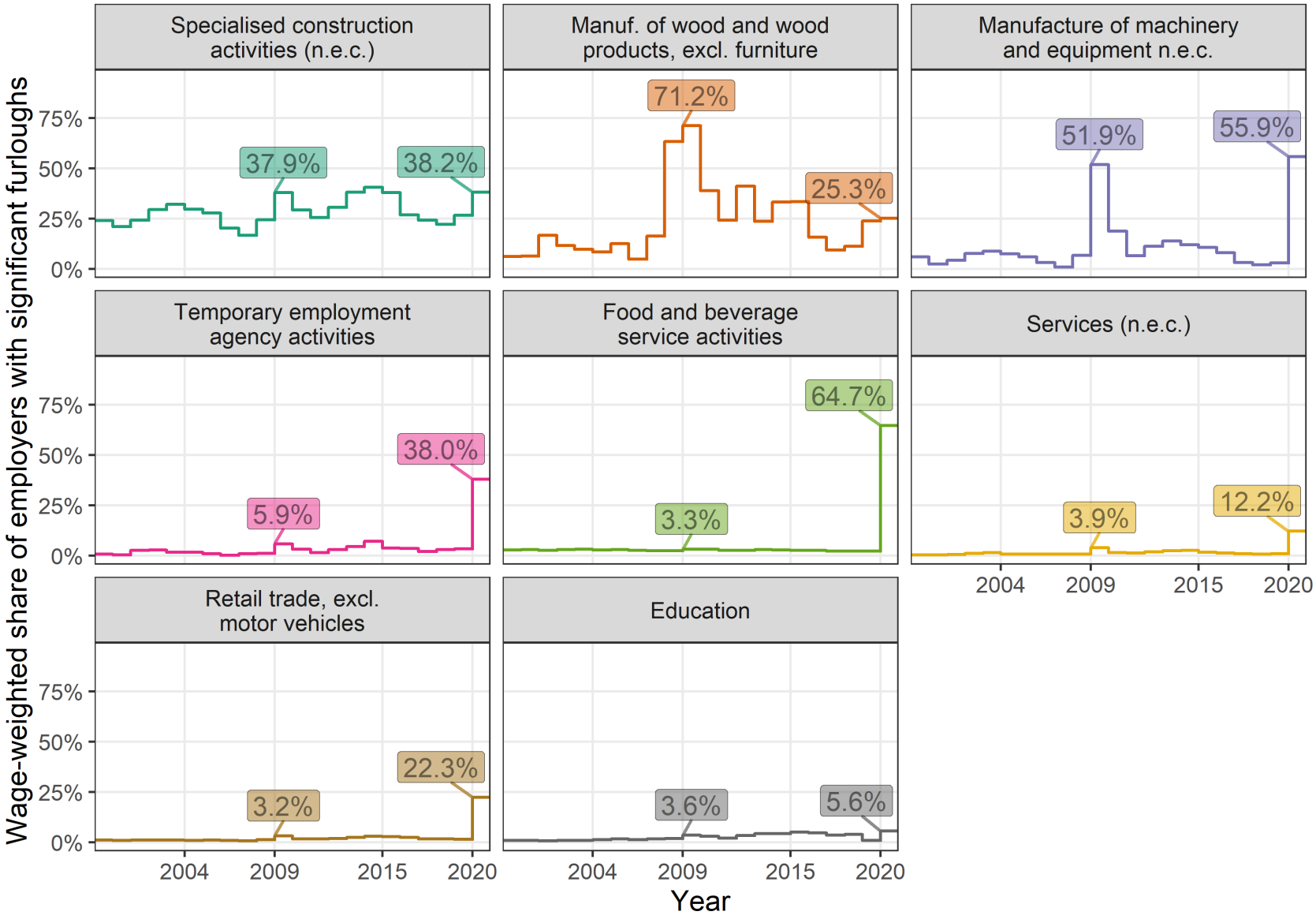


Table 5: Patterns of recall unemployment by industry.

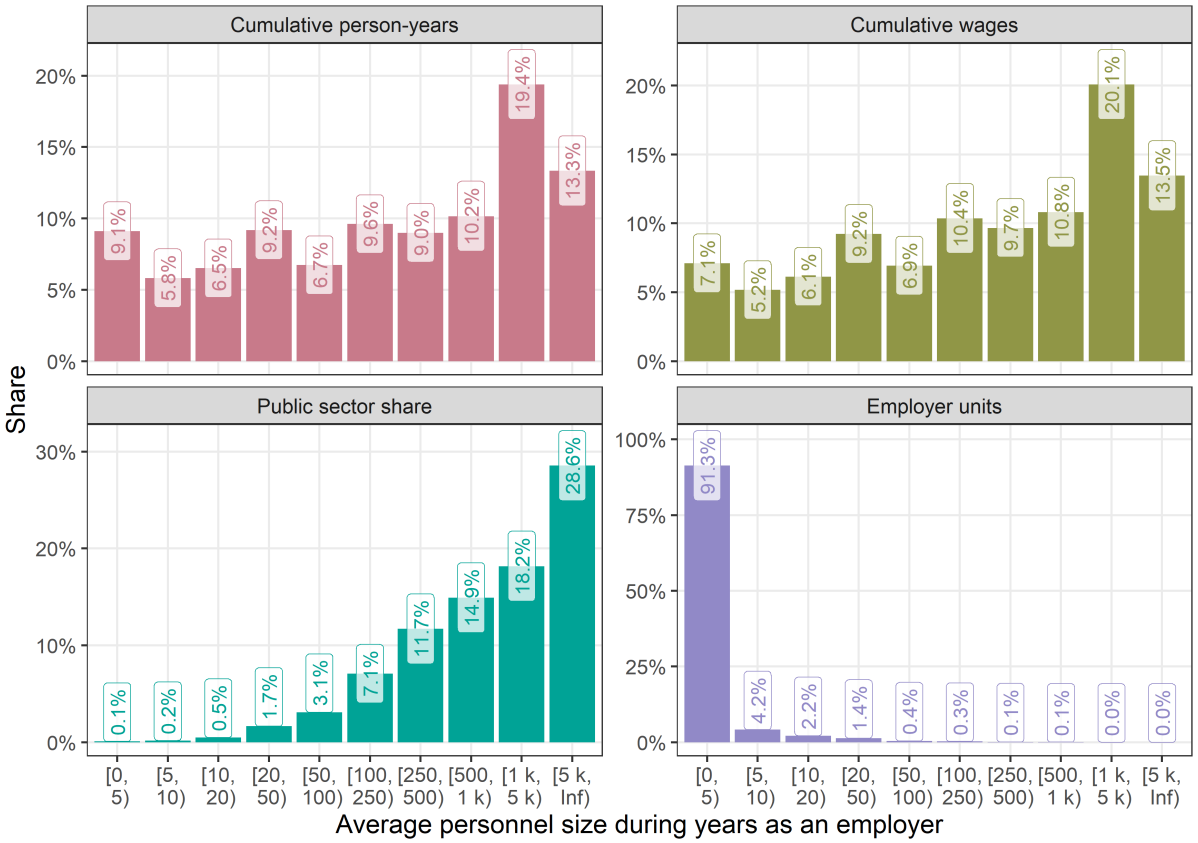
Coarsened industry	Share, employment	Ratio, furloughs	Ratio, other recalls	Ratio, partial UI	Ratio, total
Temporary employment agency activities	1.6%	0.28%	0.72%	1.52%	2.52%
Specialised construction activities (n.e.c.)	1.7%	1.58%	0.42%	0.12%	2.12%
Building construction	2.2%	1.32%	0.25%	0.09%	1.66%
Food and beverage service activities	2.6%	0.41%	0.35%	0.60%	1.32%
Other service activities	2.3%	0.12%	0.59%	0.44%	1.15%
Manuf. of wood and wood products, excl. furniture	1.1%	0.95%	0.13%	0.05%	1.14%
Services to buildings and landscape activities	2.7%	0.16%	0.48%	0.50%	1.13%
Manuf. of fabr. metal products, excl. machinery	1.9%	0.90%	0.12%	0.06%	1.08%
Electrical, plumbing and other constr. install.	1.6%	0.87%	0.12%	0.07%	1.05%
Other social work without accomm.	3.5%	0.04%	0.56%	0.34%	0.94%
Residential care activities	3.5%	0.02%	0.44%	0.42%	0.88%
Industrial or construction (n.e.c.)	2.2%	0.39%	0.37%	0.04%	0.80%
Education	7.2%	0.05%	0.36%	0.29%	0.71%
Transportation and storage	5.9%	0.28%	0.17%	0.24%	0.69%
Retail trade, excl. motor vehicles	6.2%	0.13%	0.19%	0.31%	0.63%
Manufacture of machinery and equipment n.e.c.	2.2%	0.46%	0.07%	0.03%	0.56%
Manufacturing (n.e.c.)	11.1%	0.35%	0.13%	0.05%	0.53%
Services (n.e.c.)	11.7%	0.11%	0.17%	0.21%	0.49%
Professional, scientific and technical activities	5.2%	0.21%	0.13%	0.15%	0.49%
Human health activities	7.6%	0.02%	0.17%	0.14%	0.33%
Trade; repair of motor vehicles (n.e.c.)	5.4%	0.14%	0.09%	0.07%	0.30%
Public admin. and defence, social security	5.7%	0.01%	0.16%	0.06%	0.22%
Employer or industry unknown	3.7%				

The ratio numbers correspond to cumulative benefits paid to furloughed, temporarily dismissed or partially unemployed persons, divided by cumulative wages in the industry.

6 Furloughing employers

Similarly to individuals, all employers between 1999 and 2021 were classified to groups. Many employers have short lifecycles, which may also be related to their furloughing or dismissals. Thus, no employers are excluded, and the panel is not balanced. Because employers also have very different sizes, in most cases, most of the descriptive statistics were scaled by wages paid. Figures 18-19 illustrate the cumulative shares of wages, employer units and different types of UI spells across employers of different sizes.

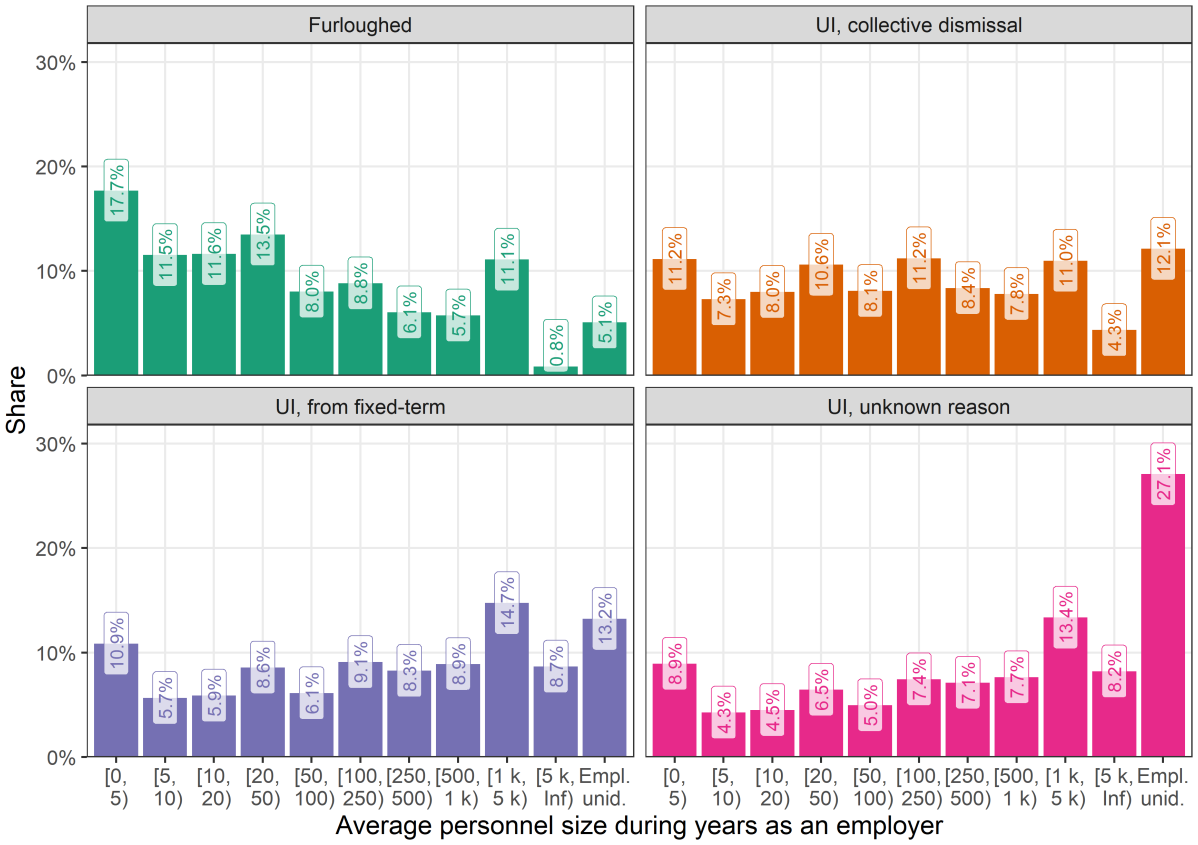
Figure 18: Wage, public sector and employer-unit shares by employer size



The ratio of UI costs to wages was used to classify employers. Since a large number of furloughs or dismissals mechanically reduces wages, the wages were normalised to headcounts multiplied by the median full-time wage. As some spells have highly variable durations, over which employers often have limited control, the UI costs were normalised to the median cost per spell. For partial UI, many part-time jobs are brief and have few hours, with the employee-employer attachment only extending to these brief spells. Thus, for partial UI, the wage during partial unemployment was used instead of the UI cost. The threshold for the ratio of UI to wages for all spell types was 0.5%.

Employers were then categorised into being prone to use (a) furloughs, (b) collective dismissals, (c) partial UI, (d) fixed-term spells, (e) other UI, or (f) none of these, hierar-

Figure 19: Share of UI costs by employer size. The panel labels refer to the type of unemployment spell.



chically in this order. Figures 20-21 illustrate the group-level frequency of furloughs and collective dismissals across the groups. Figure 22 shows the development of wages from 1999 to 2021. Additional figures for other spell types appear in appendix P.

Table 6 collects some cumulative outcomes for most private sector employers. Turnover and profit were indexed by the inflation index to 2019. Public sector employers were excluded, as well as a small group of employers where the financial indicators had been marked as unreliable. The findings suggest that furloughing employers are on average somewhat less profitable than other private sector firms, but their wages, turnover and profits coped much better with the financial crisis than firms that resorted to large-scale collective dismissals.

Figure 20: Furloughs by year and employer group. The panel labels refer to the classification of employers, as described in the text.

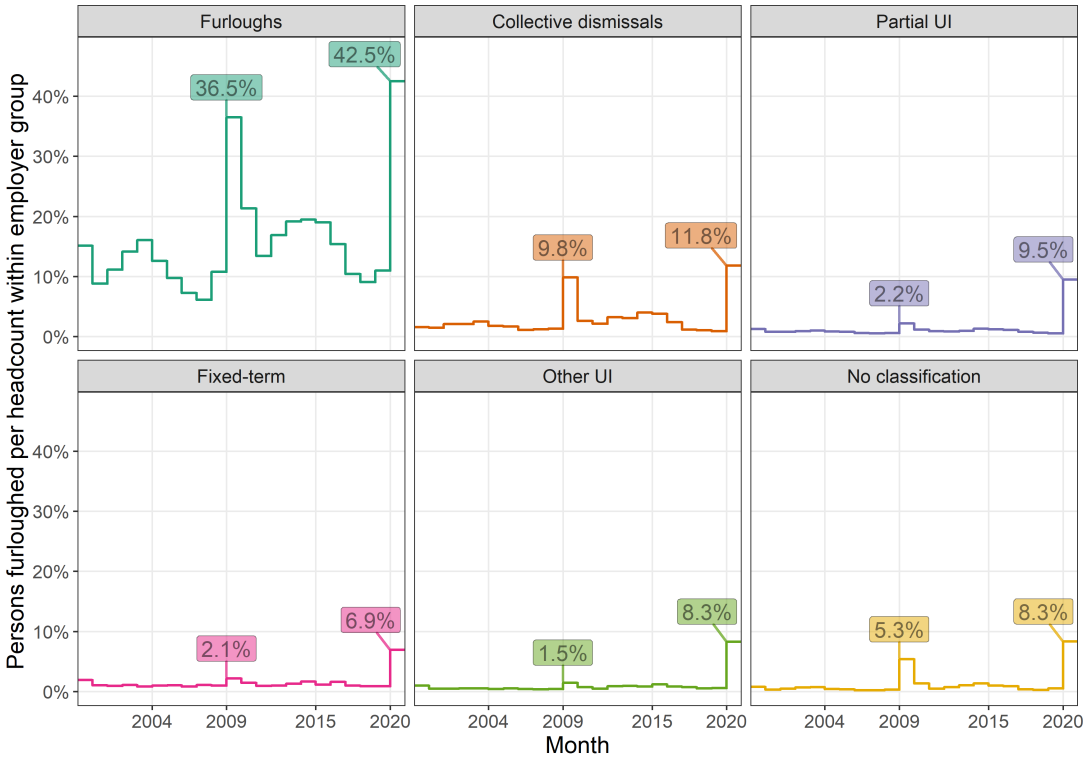


Figure 21: Collective dismissals by year and employer group

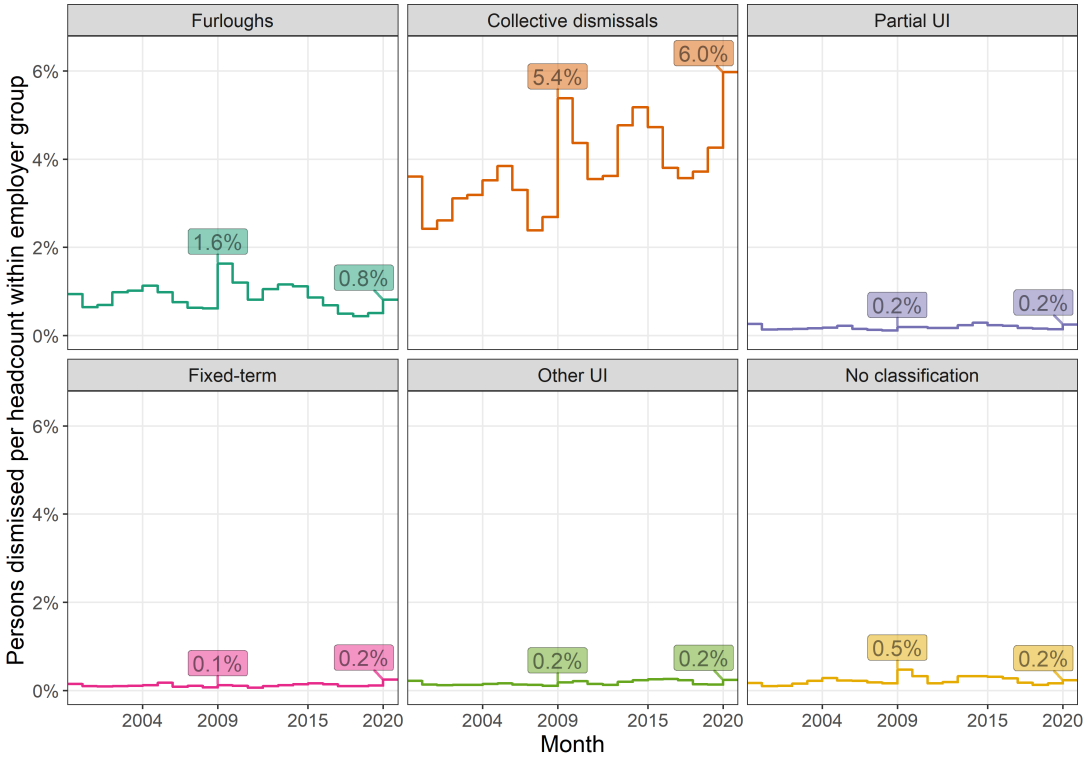


Figure 22: Monthly wages by employer group. The vertical scale is logarithmic. The percentage change label at the end of each series refers to the relative change from August 1999 to August 2021. The panel labels refer to the classification of employers, as described in the text.

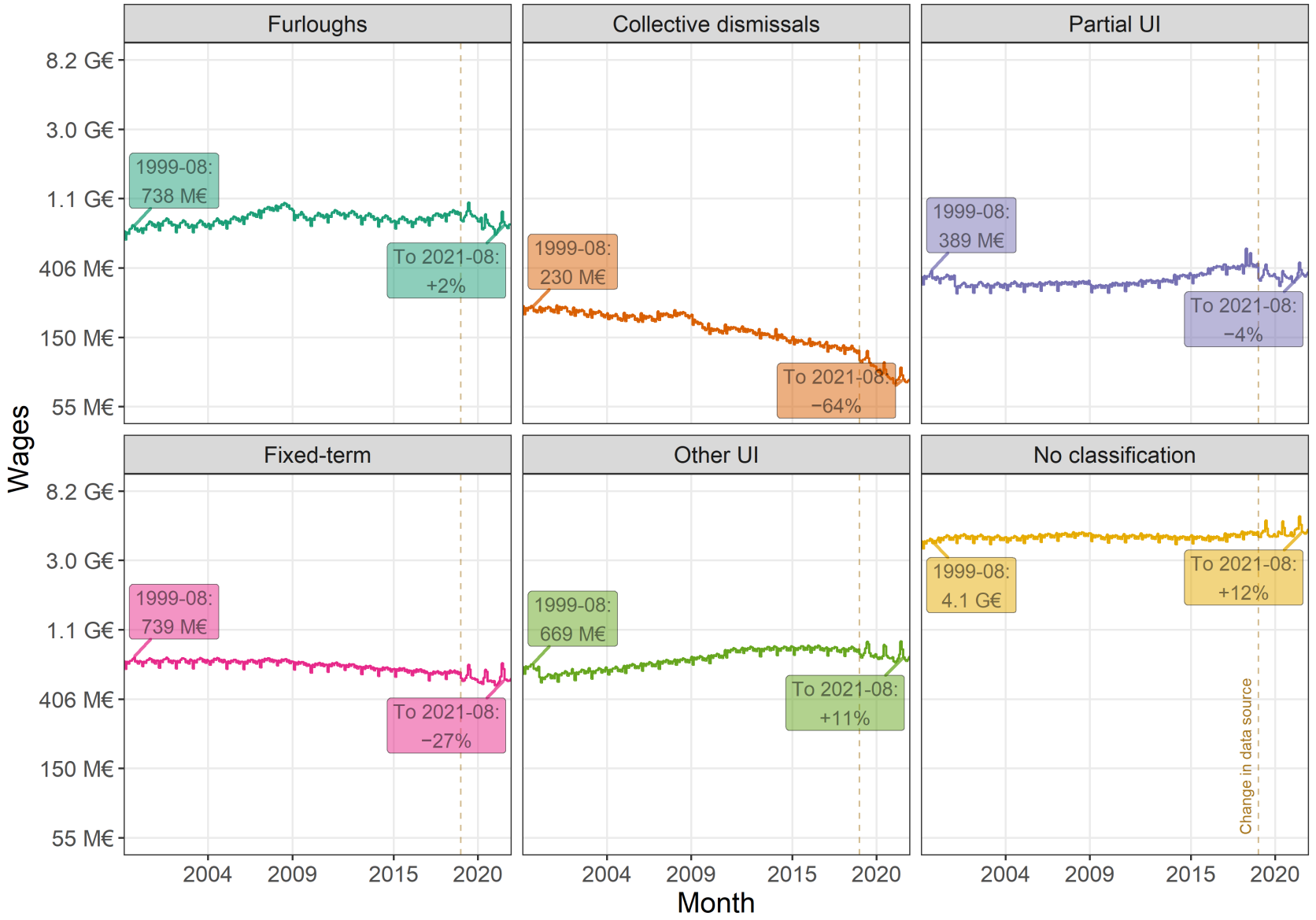


Table 6: Descriptives for employer groups over 1999–2020.

	Employer classification					
	Furloughs	Collective dismissals	Partial UI	Fixed-term	Other UI	No classification
Wages	227.2 G€	46.7 G€	95.2 G€	179.3 G€	200.9 G€	1170.3 G€
Turnover	1.1 T€	276 G€	238 G€	222 G€	482 G€	6.1 T€
Profit	9.17 G€	-4.23 G€	7.97 G€	7.52 G€	8.74 G€	261.08 G€
Furlough spells	1 137 353	44 103	67 628	104 992	88 737	394 934
Furlough costs	4 G€	72 M€	131 M€	156 M€	141 M€	660 M€
Total UI costs	9.67 G€	2.22 G€	3.18 G€	6.69 G€	4.31 G€	9.90 G€
UI tax contributions	4.10 G€	643 M€	1.75 G€	4.48 G€	4.79 G€	23.96 G€
Wages during partial unemployment	516 M€	165 M€	2.1 G€	812 M€	906 M€	1.1 G€
UI spells after a fixed-term job	163 435	31 398	119 447	422 165	151 205	291 118
Collective dismissals	61 973	59 796	8 515	8 632	14 060	72 693
Recall UI spells	149 982	36 085	296 388	458 409	280 529	276 139
Other UI spells	202 916	60 939	414 800	483 330	440 704	413 521
Years operating as employer	492 451	201 306	341 595	204 448	252 330	2 049 451
Employer units	50 639	25 647	51 881	34 568	38 065	582 291
Return on assets	5.1% (2.4%)	2.8% (1.6%)	10.8% (2.5%)	7.3% (1.5%)	6.4% (1.2%)	7.6% (2.1%)
Return on investment	8.5% (4.3%)	4.3% (2.6%)	16.6% (4.1%)	10.2% (2.1%)	9.7% (1.8%)	10.8% (3.1%)
Debt-to-equity ratio	58.2% (13.9%)	78.1% (21.2%)	50.6% (3.7%)	50.2% (4.1%)	54.4% (12.6%)	46.4% (6.5%)
Debt-to-turnover ratio	49.9% (6.4%)	57.3% (12.5%)	30.7% (1.8%)	50.0% (4.2%)	36.9% (3.4%)	64.8% (11.6%)
Financing costs	11.5% (2.0%)	12.1% (4.9%)	7.5% (1.7%)	9.3% (2.6%)	8.9% (1.9%)	11.5% (2.8%)
Change 2008–2019 in wages (units employing in 2008)	−4.39 G€ (−37.1%)	−1.89 G€ (−75.9%)	−804 M€ (−20.4%)	−2.81 G€ (−33.4%)	−1.37 G€ (−16.2%)	−13.03 G€ (−24.8%)
Change 2008–2019 in wages (all units)	−1.36 G€ (−11.5%)	−1.23 G€ (−49.1%)	+516 M€ (+13.1%)	−1.67 G€ (−19.9%)	+1.07 G€ (+12.7%)	+958 M€ (+1.8%)

All values are calculated at the group level. For returns on assets and investment, debt-to-equity and debt-to-turnover ratios, and financing costs, the numerators and denominators are calculated annually for each group and then divided. The value presented is the mean of the annual division results per group, with the standard deviation in parentheses.

6.1 Matched employers

Employers in the groups described above differ in many aspects. Further, what happens to *individual* firms after a furlough is of considerable interest. For a better comparison, firms in distinct categories were followed after a furlough event from two base years. Appendix R covers additional comparisons for typical and atypical furloughers, the latter referring to firms who furloughed in 2009 but rarely did so in other years. This subsection covers a comparison of furloughers vs. other firms starting from a base year of 2007. As before, the comparison is descriptive since the decision to furlough is endogenous.

The comparison contrasts two groups of firms that experience a similar drop in turnover in 2007 and had similar characteristics in 2006. Furloughs themselves tend to mechanically reduce turnover (ignoring inventory changes): someone who does not work does not produce. Thus, the comparison is motivated by the assumption that both groups experience a similar shock that reduces production, but one group simply fully absorbs this loss, while the other resorts to furloughs to mitigate it.

Besides the fall in turnover, employers were balanced by the sum of profits from 1999 to 2006, plus turnover, financing costs, equity, wages, liquid funds, short-term and long-term debt, and headcount in 2006. The firm populations were first restricted to the common empirical support for each variable (primarily, dropping some exceptionally large or atypical employers). Again, public sector employers are excluded.

Entropy balancing weights by Hainmueller (2012) were used to balance the furloughing and non-furloughing firms. This choice of the weighting method is further discussed in appendix R.

Figures 23–24 demonstrate the outcomes over 1999–2021 for the two groups. While the furloughing firms are relatively more likely to collectively dismiss employees and not renew fixed-term contracts, in absolute terms the differences are small. Long-term wages and profits are, on average, much lower for the furloughing firms. The difference in employer survival rates is small.

Figure 23: Wages, turnover and profits, furloughers vs. non-furloughers. The measures are weighted means. The weights balance an array of firm characteristics in 2006, plus the change in turnover in 2007.

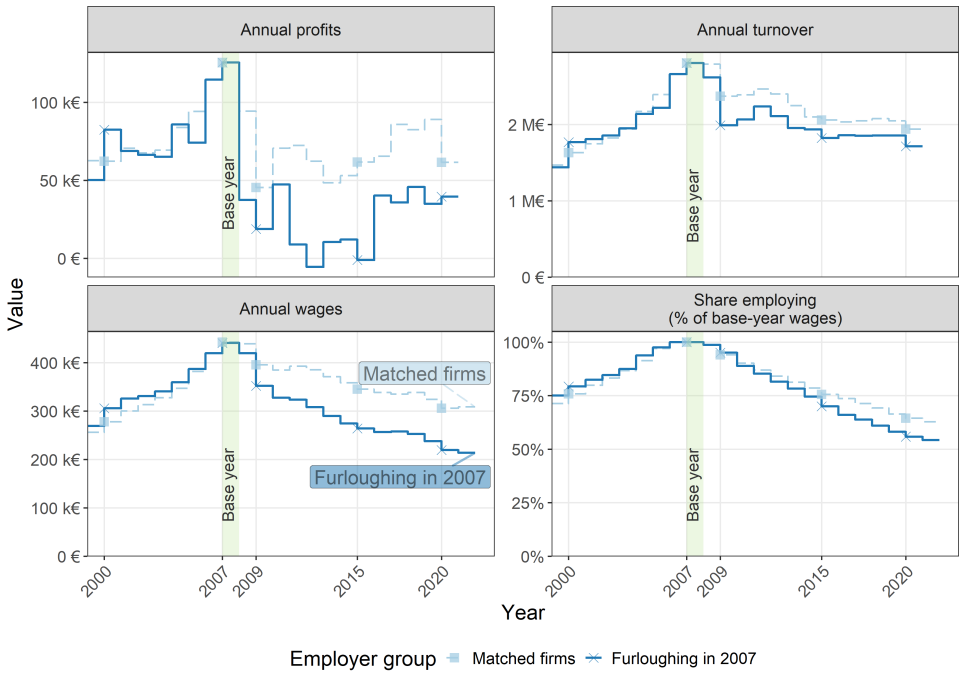
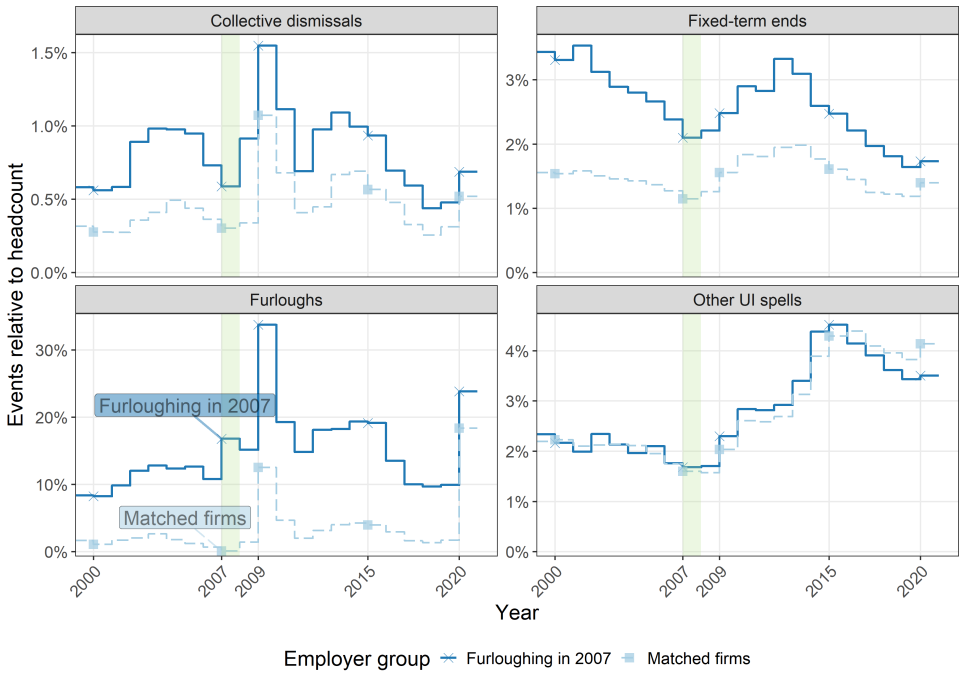


Figure 24: Unemployment events, furloughers vs. non-furloughers. The plotted measure is the ratio of events to the average annual headcount. A 10% number for furloughs means that a firm with 100 workers furloughed 10.



7 Discussion

This paper has presented long-term empirical patterns in the use of furloughs, a system of *formal* temporary unemployment, where employers can temporarily suspend work but retain the job contract.

The good news for the system is that furloughs do not appear to be feeding longer-term unemployment. The average furloughed individual quickly returns to regular work and has high overall employment rate for years afterwards. The average furloughing firm survives and continues to pay wages at roughly similar rates as other firms. In this respect, the furloughing firms clearly differ from firms that collectively dismiss workers: for the latter group, long-term survival rates and wages fall steeply over time.

The bad news is that many furloughs repeat many times, even at the level of individual employer-employee pairs. Some employers appear to be systematically using the UI system to maintain a labour reserve that can be quickly recalled, while the costs of the system are born by all employers and employees jointly. While in the reserve, workers are unlikely to become employed elsewhere. They are also less attached to the official system of unemployment, and probably search less.

In contrast to repeat users, much of the surges in furloughs in 2009 and 2020 were one-off events, by firms and industries that rarely furlough in other years. The role of the permanent furlough system may thus be very different during a severe, economy-wide shock than in other times.

Repeated recall unemployment is not limited to furloughs; employers with volatile labour demand will use the most convenient mechanisms allowed to them by the law. For example, municipalities in Finland use fixed-term contracts to shift thousands of teachers to the UI system every summer, only to rehire most of them in autumn. Furloughs differ from other such recall unemployment mainly in the explicitness of the recall expectation, scope, and between-industry dispersion.

This also implies that any safeguards against excessive use of temporary unemployment should ideally place all these mechanisms on an equal footing. Otherwise, trying to plug one hole in the system risks increasing leakage through others. Such a tension has previously been documented by Jost (2022) for Germany and by Alba-Ramírez, Arranz, and Muñoz-Bullón (2007) for Spain, in those cases between fixed-term contracts and other mechanisms for adjusting the demand for labour.

Subsidies tend to create rents, and subsidies for labour hoarding are no exception. Such rents may be extracted by workers (through wages and UI), firms (profits) or consumers (output prices), depending on their relative market power. Often-furloughed individuals receive roughly similar total compensation per month worked as other workers with similar education levels and work experience; often-furloughing firms appear to have lower profits than other firms. While these findings cannot be given a causal interpretation, they would

be consistent with the hypothesis that a subsidy is primarily extracted by the consumer markets in the subsidised industries.

The furlough system has little external monitoring; implicitly, it presumes that workers and unions will contest excessive use, either by legally contesting the furlough or by moving to other jobs. This choice may reduce costs and allocation errors that may come with external approval and monitoring of job retention schemes. Workers may often have better first-hand knowledge of their employer's situation than an outside administrator would.

However, internal monitoring also has potential drawbacks. First, if everyone *within* a competitive industry receives a subsidy, the subsidy may well be essential to keep the individual firm afloat, but still constitute a *between*-industry distortion. Workers contesting furloughs in such an environment risk losing their jobs when the firm goes under, and their best outside option may be another furlough-prone job in the same industry. Second, and related to the first, if workers have heterogenous preferences to leisure and unemployment risk, workers who prefer more leisure (even at the expense of some volatility of that leisure) will select into furlough-prone industries, and may accept more furloughs than would be socially optimal. Thus, additional safeguards may be warranted.

Furlough-prone workers typically stay with their furloughing employer for several years. This continues despite furloughs that repeat on many but not all years, and despite only an average compensation (per day worked and accounting for work experience and education). This is consistent with industry sorting by heterogenous leisure or risk preferences. An alternative explanation, also consistent with the observations, is that workers prefer these industries for other reasons, or face frictions when trying to switch.

The literature on temporary unemployment generally ends up recommending experience rating (ER) as a solution to excessive labour hoarding through the UI system. This is the conclusion reached by, for example, early research by Feldstein (1976) and Topel (1984) and more recent work by Del Bono and Weber (2008) and Albertini, Fairise, and Terriau (2023). While furloughs can also be targeted directly by general job retention scheme safeguards recommended in the literature by Boeri and Cahuc (2022) and Giupponi, Landais, and Lapeyre (2022), such as stricter duration limits and targeting, experience rating can treat all labour demand adjustment mechanisms equally while leaving decisions to the firm.

With full experience rating, employers directly internalise the UI costs in later taxes. Miller and Pavosevich (2019) suggest that a modern ER regime based on employment variation could be administratively lightweight, treat different methods of workforce reduction equally, and provide symmetrical incentives for workforce increases and disincentives for reductions. Even a weak such rating system might be an improvement over the distorted incentives in the current system. Among other things, the existing regime places substantial costs on collective dismissals but very few on non-renewal of fixed-term contracts. A

detailed examination of potential ER systems for Finland is, however, left as a subject for future research.

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