

Short-Time Work and Unemployment in and after the Great Recession

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Motivation

- Danger that recessions have **scarring effects** (Davis and von Waechter 2011, Yagan 2017, Lachowska et al. 2017), with negative consequences for individuals and governments.
 - Can policies mitigate effects of recessions on unemployment?
- Policy instrument heavily used during the Great Recession and the COVID recession in many OECD countries: **short-time work (STW) programs**
 - STW schemes provide income support to workers whose working hours are reduced due to a temporary drop in demand.
 - Goal: Induce firms to reduce working hours instead of dismissing workers (work sharing).
 - The few prior micro-level studies are sceptical about effectiveness of STW:
 - Are **layoffs only postponed**?
 - Are there deadweight effects (firms get subsidies for hours they would have reduced anyway)?

Research questions

- **Did the Swiss short-time work program prevent layoffs, unemployment, and establishment closures?**
- **Were the effects on dismissals temporary or permanent?**
- **Did the savings in terms of unemployment benefit payments compensate the costs of the STW program?**

The Swiss short-time work scheme

- In order to prevent layoffs, firms with STW can **temporarily reduce hours** of work of some or all of their workers.
- **Workers are compensated** for 80% of their income losses in the form of STW benefits paid by the unemployment insurance.
- Co-payment: firms have to cover STW benefits for the first two (three) days of every month (and hours actually worked).
- **Maximum duration:** 24 (12, 18) months within two years
- 90'000 workers ($\approx 2\%$ of workforce) were covered mid-2009
- Particularity: Firms that wish to introduce STW have to **apply** for STW benefits **at cantonal employment agencies**.

Data

- We link data on **applications for STW 2008–2014** with
 - the Swiss **business censuses** (BC) 2001, 2005, 2008, 2011–2015
 - the **unemployment register** (via the establishment identifier of the last employer)
- We construct a quarterly panel dataset containing **16'243 cases** (new STW applications) that started between 2009 and 2015
- Main outcome variable is the **net share of dismissed workers** in the quarters before and after STW application:
 - (# new unemployed from an establishment that applied for STW
 - – # unemployed hired by an establishment that applied for STW)
 - / FTE employment at application

The empirical challenge: Firms' self-selection into STW

Firms that take up STW are likely hit by a negative shock. If we compare firms with and without STW, we compare unhealthy apples (economically distressed firms) with healthy oranges.

This is the likely explanation why previous studies found that STW does *not* prevent dismissals.



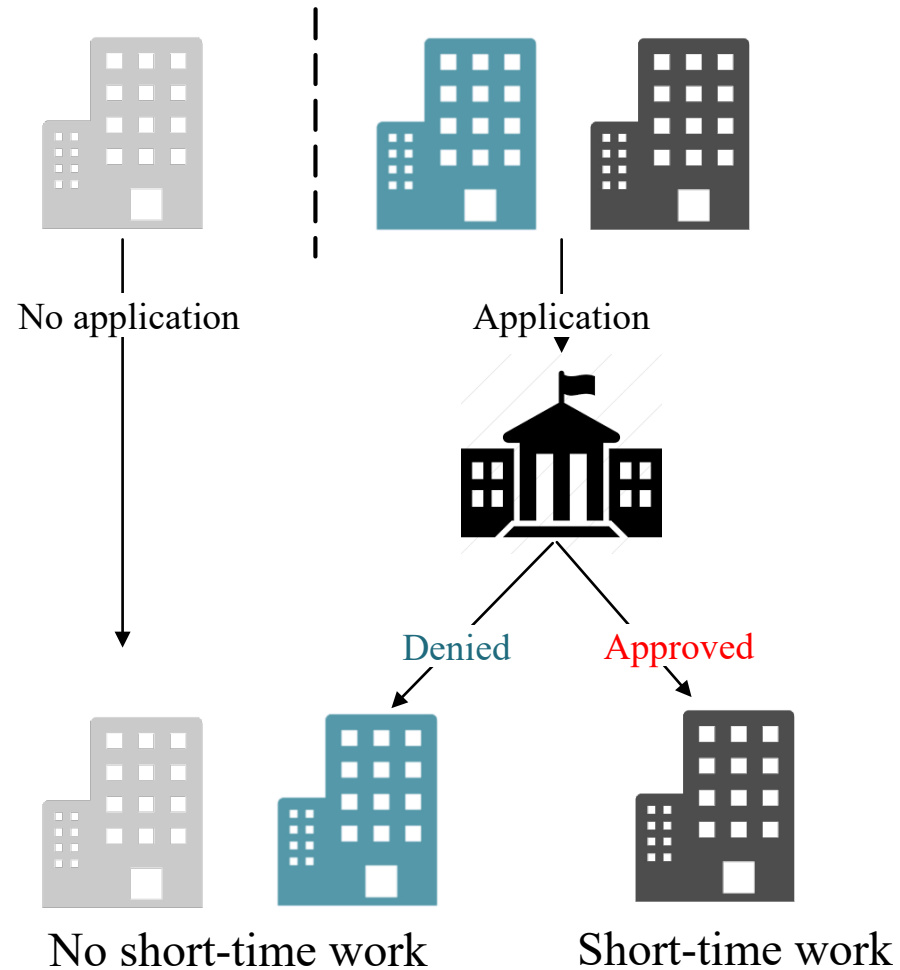
No short-time work



Short-time work

Our approach: Focus on firms that wanted to introduce STW

Some of them could not because cantons denied their application for STW.

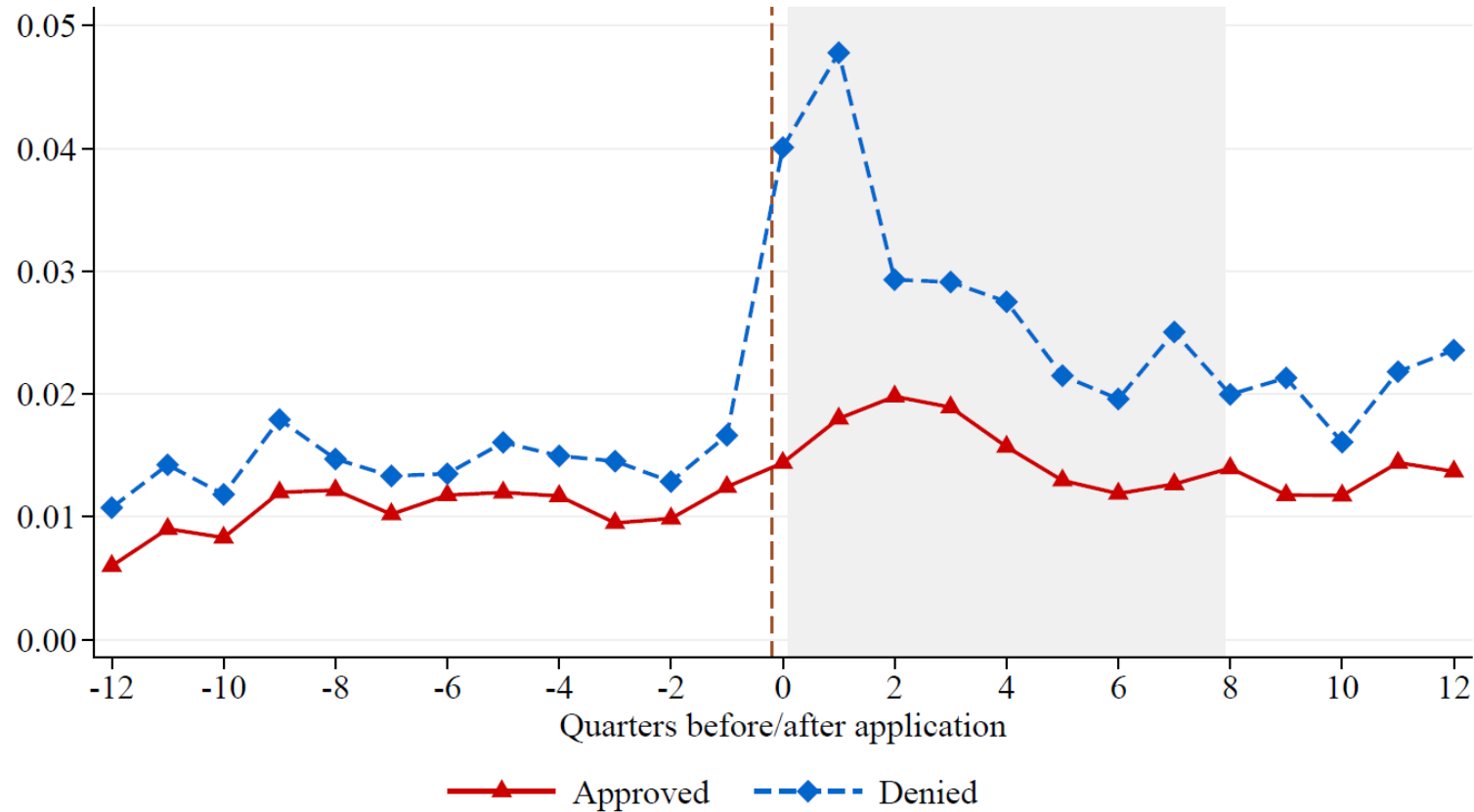


Research Design

- Cantons do not approve STW randomly...
 - ... but decisions turn out to be unrelated to pre-crisis (short- and long-run) **trends** in outcomes.
- This has two reasons.
 - Idiosyncracies in cantonal decisions
 - Approval rates range from 55% to 100%. Differences cannot be explained by applicant characteristics.
 - Cantons deny STW if they deem firms' problems as structural rather than temporary, but also if they deem them as too small.
 - “Unhealthy” and “healthy” firms overrepresented among firms with unsuccessful application
- **Difference-in-Differences approach**: compare *changes in outcomes* of firms with successful to firms with unsuccessful application

Dismissals around application for STW

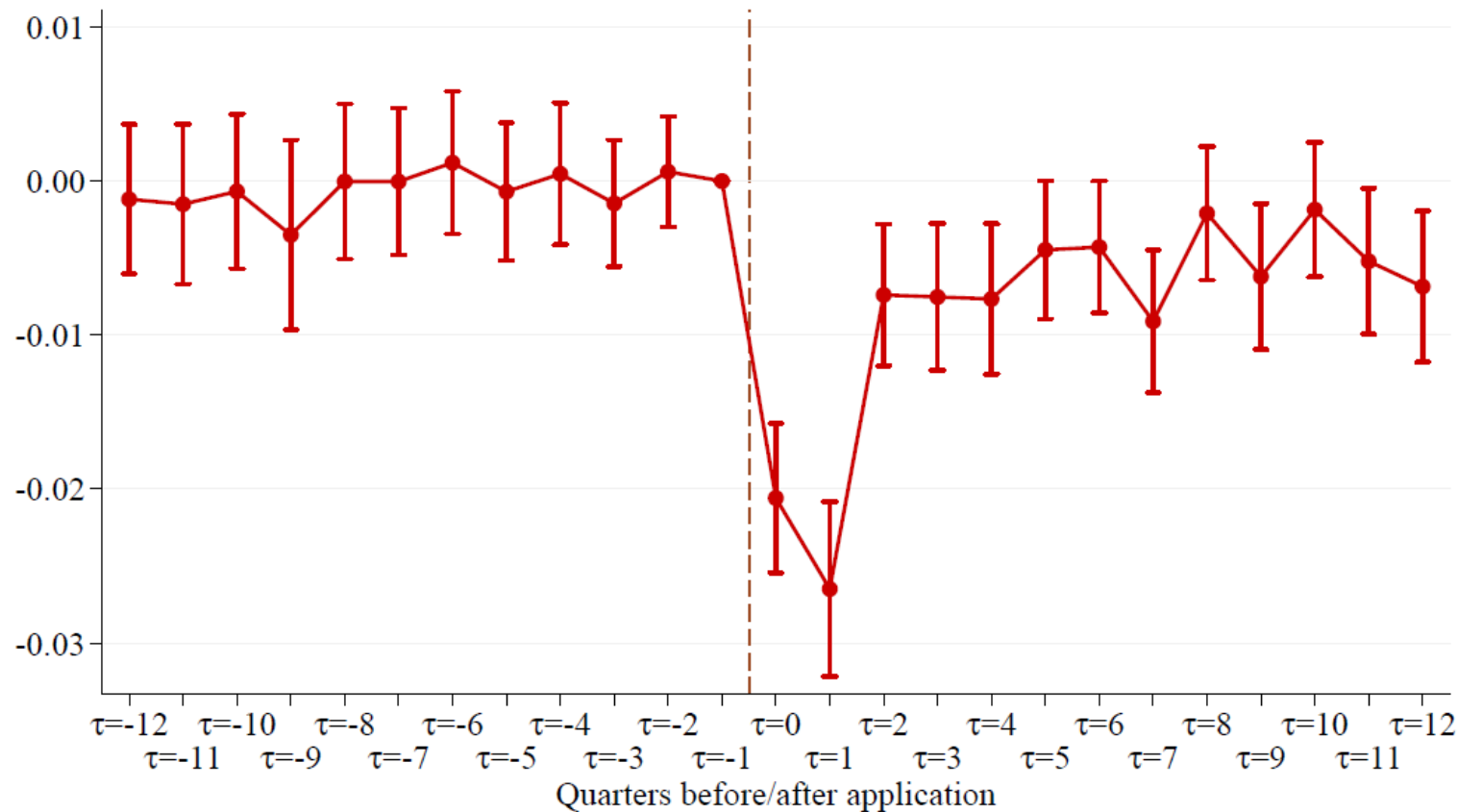
Large spike in dismissals if STW is denied. Pre-trends in dismissals are similar in the two groups.



A. Net share of dismissed workers (all establishments)

Regression estimates

Approval of STW clearly reduces dismissals in quarters after application. Effect pertains for 3 years although maximum benefit duration is 8 quarters.



A. Effect on net share of dismissed workers

Regression estimates

Cumulative effect is 10.5% of initial employment after 12 quarters (column 1).

Effects similar if we estimate it using a control group containing only untreated establishments matched to treated establishments based on nearest-neighbor matching (column 2).

	(1) Unmatched (baseline)	(2) Matched control ATET	(3) Matched control fitted	(4) Matched control omitting 2 covariates	(5) Matched control ATUT
STW $\tau - 8$ to $\tau - 5$	-0.001 (0.008)	0.012 (0.024)	0.017 (0.028)	0.009 (0.020)	-0.017 (0.018)
STW $\tau - 4$ to $\tau - 1$	0.000 (0.006)	-0.006 (0.008)	-0.004 (0.009)	-0.008 (0.007)	-0.014 (0.013)
STW τ to $\tau + 3$	-0.060*** (0.008)	-0.047*** (0.013)	-0.047*** (0.013)	-0.047*** (0.013)	-0.051*** (0.016)
STW $\tau + 4$ to $\tau + 8$	-0.025** (0.010)	-0.039* (0.022)	-0.040* (0.022)	-0.046** (0.019)	-0.034* (0.020)
STW $\tau + 9$ to $\tau + 12$	-0.019** (0.008)	-0.030* (0.017)	-0.029* (0.017)	-0.018 (0.014)	-0.018 (0.018)
STW τ to $\tau + 12$	-0.105*** (0.024)	-0.116*** (0.043)	-0.115*** (0.042)	-0.112*** (0.036)	-0.102** (0.050)
<i>N</i>	380942	323609	263434	324202	92807
Period FE	Yes	Yes	Yes	Yes	Yes
Event time FE	Yes	Yes	Yes	Yes	Yes
Case FE	Yes	Yes	Yes	Yes	Yes

Determinants of fiscal costs and benefits of STW

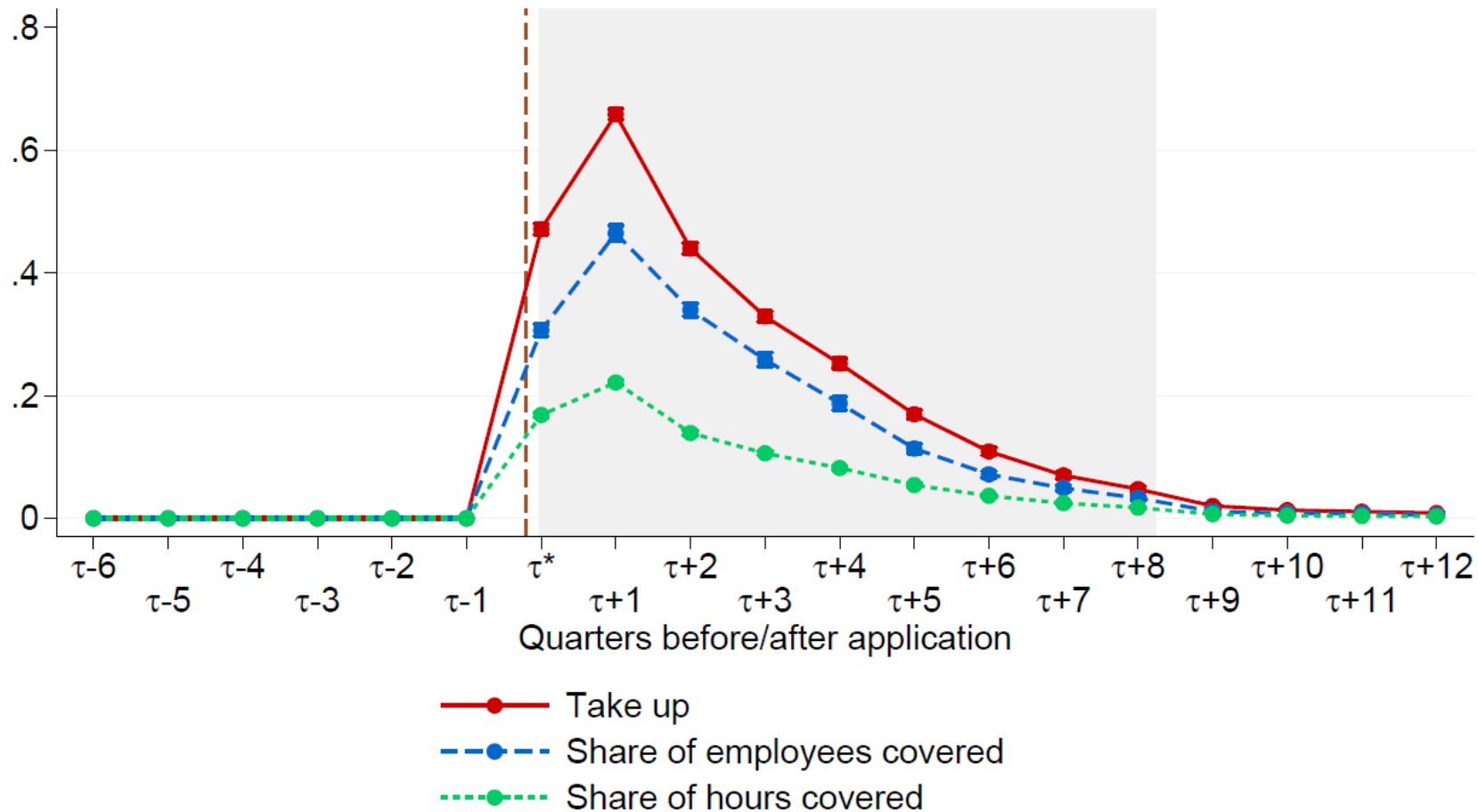
STW lowers unemployment (in the short-run) and thus saves costs for UI benefits.

- **Generosity** of STW relative to UI and other programs
 - Despite a generous STW scheme in Switzerland, savings in terms of UI benefits alone may have compensated the spending on STW benefits in last crisis
- The **number of jobs saved** due to STW
 - In Switzerland, 0.21-0.34 full-time jobs per worker on STW
- **Selection of workers** whose jobs are saved
 - In Switzerland in 2009, STW primarily saved jobs of low-qualified, male, full-time workers in the manufacturing sector
 - These workers would have faced comparatively long unemployment spells
- Whether dismissals are **postponed or prevented**
 - In 98.5% of Swiss firms that stopped STW voluntarily, most jobs were saved *permanently*

Cost-benefit considerations

In 2009, Swiss firms stopped collecting STW voluntarily

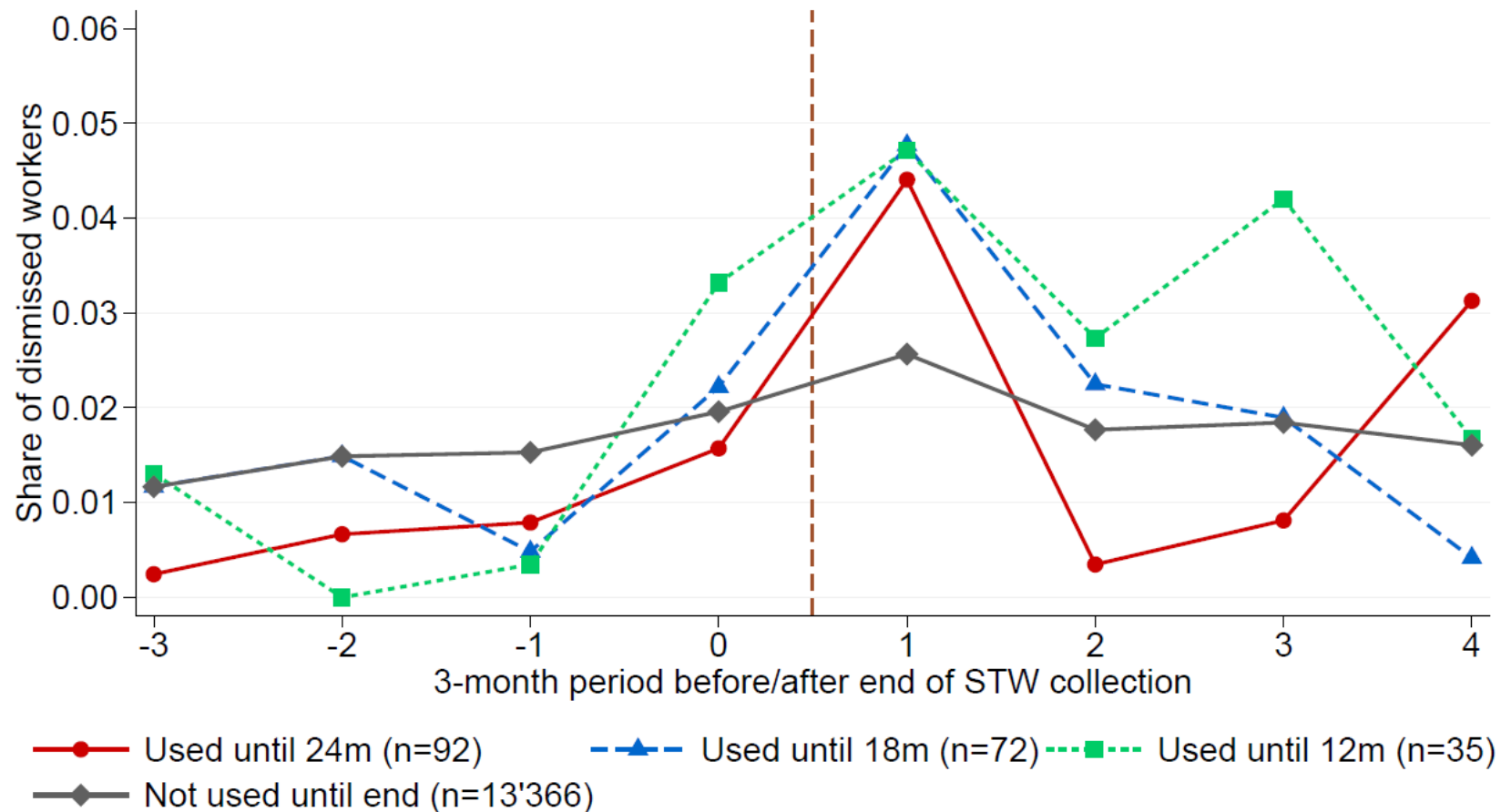
Figure 3: Take-up and intensity of short-time work use



Cost-benefit considerations

If firms used short-time work until the maximum, STW postpones dismissals only

Figure B.5: Share of dismissed workers at short-time work benefit exhaustion



Cost-benefit analysis of the Swiss STW scheme in 2009

The savings on unemployment benefits may have compensated for the spending on STW benefits.

	DiD	DiD Matched	DiD Matched weighted	IV
Financial benefits				
Decrease in daily allowances per employee	26.2	28	23.9	36.7
Allowance per employee when unemployed	167	167	167	167
Average number of employees per case	25	25	25	25
Cost savings per case	109'385	116'900	99'783	153'223
Total cost savings in 2009	859 million	918 million	784 million	1'204 million
Financial costs				
Costs per case	159'300	159'300	159'300	159'300
Total costs in 2009	1'252 million	1'252 million	1'252 million	1'252 million
Net financial benefits of STW				
Net financial benefits per case	-49'915	-42'400	-59'518	-6'078
Net financial benefits in 2009	-392 million	-333 million	-468 million	-48 million

Notes: This table compares the financial costs and benefits of the Swiss STW program for the unemployment insurance (in CHF). The estimated decrease in the number of daily allowances per employee and the costs of STW stem from the baseline DiD event study (column 6 of Table 3), the unweighted and the weighted DiD with the matched control sample (columns 5 and 6 of Table A.3), and the IV regressions (column 7 of Table 7). We calculate the reduction in UI benefits per case by multiplying the estimated decrease in daily allowances per employee by the cost of a daily allowance and the average number of employees per case. Multiplying this value by the number of cases that started in 2009 (7,857), we get the gross financial benefit of STW in 2009. The financial costs of STW are calculated from data on STW benefit payments to cases starting in 2009. 1 CHF \approx 1.036 USD (2009–2014).