

What else?

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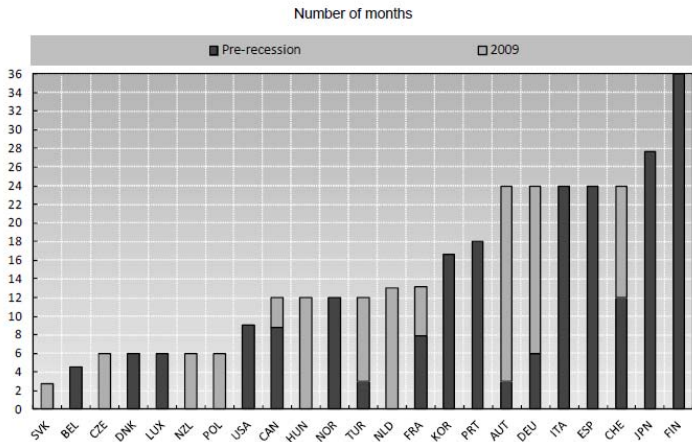
September, 22nd 2012, EALE Conference, Bonn

The case for Short-time Work as first pillar of Unemployment Insurance during *bad* recessions

- It is already cyclically adjusted!
- What does STW do?
- Does it reduce excess layoffs?
- Can it be really temporary?

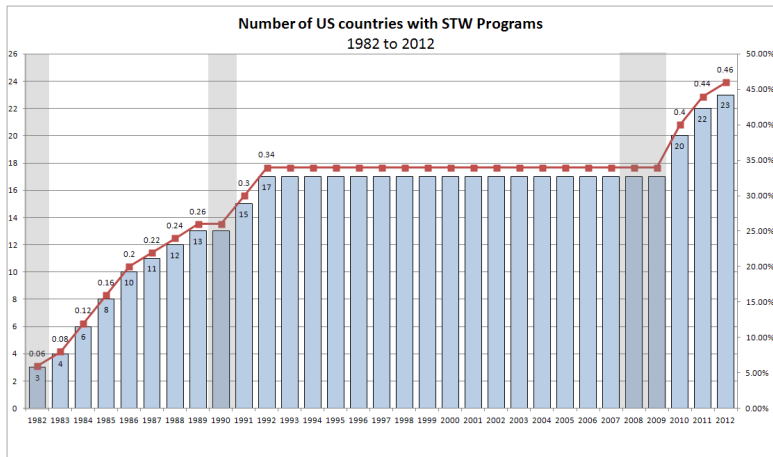
Already cyclically adjusted! 1. STW Duration

Figure 3. Maximum duration of short-time work



Source: Hijzen A. and Venn D. (2011), *The Role of Short-Time Work Schemes during the 2008-09 Recession*, OECD Social, Employment and Migration Working Papers, No. 115, OECD Publishing.

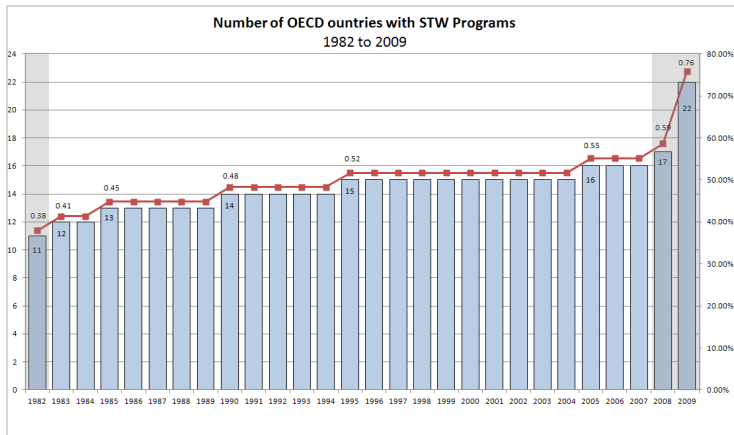
Already cyclically adjusted: 2. US states with STW



Notes: Shaded areas represent recession years (two consecutive quarters of negative GDP growth)

Source: Vroman W. (2010)

Already cyclically adjusted: 3. OECD countries with STW



Notes:

Countries included: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.

Intensive vs. Extensive Margin

Suppose that firms produce output, y , using only labour which requires some combination of workers, n , and hours of work, h . In particular, consider a multiplicatively separable production function

$$y = nh^\eta, \text{ where } 0 < \eta \leq 1$$

Labour costs include variable costs (the hourly wage is w) and recurrent fixed costs per worker, F , i.e.:

$$C = (wh + \omega w(h - \bar{h})d + F)n, \quad (1)$$

where C is the total labor costs of the firm, ω is the hourly overtime premium, \bar{h} is the standard workweek, d is a binary variable that has a value of 1 if $h \geq \bar{h}$ and a value of 0 otherwise,

Without STW

Cost minimization over h and n subject to

$$\bar{y} = Lh^\eta \quad (2)$$

yields the (conditional) demands for hours and workers:

$$h = \frac{\eta(F - \omega w \bar{h} d)}{(1 - \eta)w(1 + \omega d)}, \quad (3)$$

and the optimal number of workers,

$$n = \bar{y} \left(\frac{\eta(F - \omega w \bar{h} d)}{(1 - \eta)w(1 + \omega d)} \right)^{-\eta}. \quad (4)$$

STW distorts adjustment towards intensive

From these conditional demands it follows that

- 1 $\frac{\partial h}{\partial \bar{y}} = 0$ $\frac{\partial L}{\partial \bar{y}} > 0$ that is, working **hours are unaffected by changes in the scale of production** while all adjustment to \bar{y} falls on the extensive margin.
- 2 STW is isomorphic to a reduction in the standard number of working hours
- 3 $\frac{\partial h}{\partial \bar{h}} < 0$ $\frac{\partial L}{\partial \bar{h}} > 0$ because part of the wage is paid by the the scheme conditional on working *less* than standard hours

Arguments for STW

- Prevents *excess layoffs* during recessions. Old literature refreshed
- Employers do not internalize the social (and fiscal) costs of layoffs.
- If experience-rated UB-EPL (Blanchard and Tirole, 2007) is not possible, good to combine UB with STW
- Even more so if *monthly* wages are downward rigid, so that declines in h induce increases in w .

However

- STW is distortionary as it induces suboptimal adjustment towards the intensive margin
- Especially in normal times is plagued by the same moral hazard problems than UBs
- It favors insiders vs. outsiders
- It may inhibit reallocation and restructuring
- Thus STW should be *temporary*.

STW during the Great Recession

Boeri and Bruecker (2011): two sets of estimates:

- *macro* responsiveness of employment to changes in STW take-up rates. Capture general equilibrium effects of STW, but neglect cross-country differences in the design of STW.
- *micro* establishment-level employment adjustment in Germany, drawing on the IAB establishment panel.

Macro Effects on Employment-to-Output Elasticities

Estimated equation in all countries with quarterly series on employment, value added and STW take-up rates:

$$de_{it} = \alpha_j + \beta dy_{it} + \gamma_1 STWR_{it} + \gamma_2 STWR_{it} dy_{it} + \delta_{it} EPL_{it} + u_{it}$$

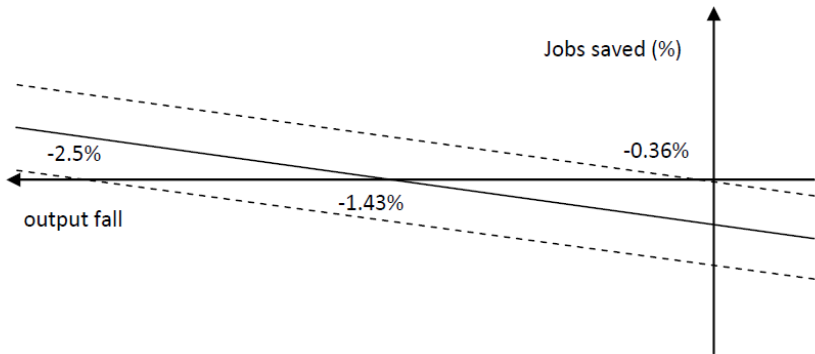
- γ_1 measures the contribution of STW to employment variation when there is zero output growth.
- γ_2 captures the way in which short-time work affects the elasticity of employment variation to output changes.
- We use as instruments the time elapsed since the first introduction of a STW scheme in any given country or a subsequent reform of this program (learning process unrelated to employment adjustment) as IVs for STW take-up rates.

Regression Results (unbalanced panel)

	Dep. Variable: delta (dependent) employment	
	OLS	IV (2sls)
GDP Growth	0.1778 (0.220)	0.262 (0.216)
Employment Protection	0.711 (1.184)	0.402 (1.185)
GDP Growth x EPL	0.070 (0.098)	0.093 (0.104)
STW take-up rate	-0.058 (0.085)	-0.321*** (0.123)
GDP Growth x STW take-up rate	-0.111** (0.053)	-0.225** (0.093)
Constant	-1.251 (2.565)	-0.548 (2.565)
Country Fixed Effects	Yes	Yes
Observations	162	162
Number of countries	13	13
R-squared	0.262	0.195

Note: standard errors in parenthesis. Regressions include countries with no STW scheme (Australia, Greece, Iceland, Sweden and UK) and Austria, Belgium, Canada, Czech Republic, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Spain and Switzerland.

Implied % of Jobs "saved" by STW depending on size output fall



Implied macro estimates of jobs saved

	Average STW take-up (2008-2009)	Cumulative GDP Decline (2008-2009)	Jobs Saved as % 2008Q4 Employment (IV)	Number of Jobs Saved (IV)	STW participants*
Austria	0.41	-5.23	0,35	12,482	37,844
Belgium	4.73	-4.28	3,04	116,334	279,643
Canada	0.13	-3.30	0,06	8,191	59,160
Denmark	0.19	-7.09	0,25	6,472	11,825
Finland	1.07	-10.10	2,10	45,619	39,466
France	0.49	-3.93	0,27	63,453	252,000
Germany	0.77	-6.76	0,92	321,583	1,478,388
Ireland	0.60	-15.14	1,86	31,351	17,671
Italy	1.58	-6.95	1,96	344,191	748,327
Japan	0.04	-8.93	0,07	35,953	2,547,006
Luxembourg	0.37	-5.31	0,32	594	7,829
Norway	0.66	-1.68	0,04	876	18,152
Portugal	0.02	-3.89	0,01	391	6,144

Note: the third column displays the product $(\alpha + \beta \gamma) \times STW$, (IV estimates), while the fifth multiplies this by the number of

Micro: Firm level evidence on STW and WTA

IAB panel. Annual survey of

- 16,000 firms
- covering about 1% of all firms and 7% of the employees (no self-employed)
- 4.8% of firms and 2.1 of workforce participate in STW, 50% of workforce in firms using STW is covered

Effects of STW

- Explaining the log change of employment in 2009/2008 by:

$$\Delta \log(e_{it}) = \alpha_0 + \gamma_1 STW_{it} + \gamma_2 WTA_{it} + \beta \eta_i + u_{it}$$

- where e_{it} is employment, STW_{it} is share of workers participating in STW in the workforce of the firm, WTA_{it} is share of workers in WTA, η is vector of controls, and i indexes firms.
- Since STW take-up is endogenous, data on past utilisation of STW as IVs (learning process unrelated to employment change).
- No correlation between firms affected by past business shocks and firms affected by the 2009 shock
- The Cragg-Donald Wald-F-Test proves that IVs are not weak, the Kleibergen-Pap rK LM-statistics rejects Null of underidentification

How many jobs saved?

IV regression results suggest that STW (and WTA) scheme saved about 400.000 and 320.000 jobs respectively.

	Dep. Var.: log change employment june 2008-2009					
	(1)		(2)		(3)	
	OLS	IV	OLS	IV	OLS	IV
STW share	0.071*** (0.017)	0.369** (0.167)			0.070*** (0.017)	0.350** (0.166)
WTA share			0.018*** (0.007)	0.051*** (0.0199)	0.017** (0.007)	0.042** (0.021)
Observations	7969	7969	8053	8031	7920	7920
R-squared	0.166	0.126	0.167	0.164	0.166	0.128
Instrument		STW experience		WTA experience		STW-WTA experience
Cragg-Donald Wald-F stat.		35.4**		313.4***		11.6**
Kleibergen-Pap rK LM stat.		13.2***		511.0***		13.03***

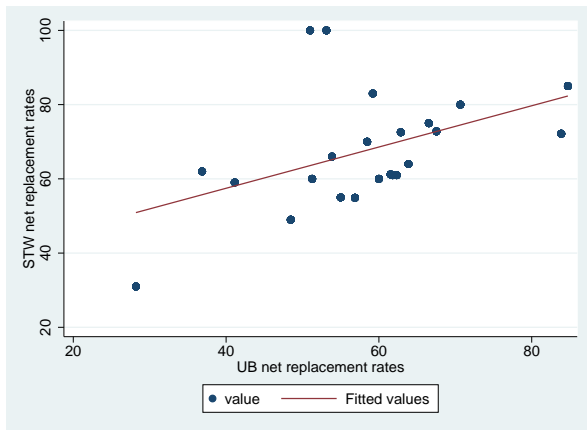
Note: heteroskedastic robust standard errors in parentheses

More than macro estimates. Why?

- Macro imposes same coefficient for STW on countries having much different STW in place
- Macro estimates point to significant deadweight costs; the number of jobs saved is always smaller than the number of full-time equivalents involved in the schemes.
- Macro estimates suggest that STW works only under severe recessions: additional reason to make it temporary

It should be less generous than UBs

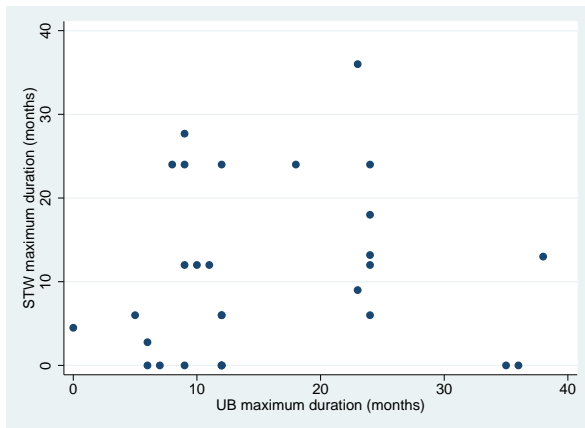
Replacement rates of STW and UBs.



$$STW_{nrr} = 35.23^{***} + 0.56^{***} UB_{nrr} \quad (5)$$

For values of UB nrr less than 80, STW nrr is higher than UB nrr

Should be of shorter duration than UBs



Average duration (in months)	
STW	UB
15.58	16.25

Take-up inversely related to UB generosity, positively to EPL

	1	2	3	4	5
	STW take-up rate				
GDP Growth [t-1]	-0.139*** (0.0492)	-0.139*** (0.0527)	-0.177*** (0.0482)	-0.220*** (0.0485)	
Employment Protection Index		0.294** (0.138)	1.035*** (0.219)	2.159*** (0.275)	2.415*** (0.220)
UB net replacement rate		-0.0179** (0.0086)	-0.0504*** (0.0099)	-0.1144*** (0.0170)	-0.144*** (0.0144)
Bargaining centralization index		0.346*** (0.0085)	0.265*** (0.0762)	0.220** (0.0871)	0.339*** (0.0758)
Strictness of eligibility criteria			-1.495*** (0.379)	1.089* (0.571)	1.909* (0.493)
Strictness of entitlement criteria			-6.200*** (0.809)	-7.318*** (0.827)	-8.274*** (0.708)
Cost to employer				-0.314*** (0.0037)	-0.344*** (0.0031)
STW net replacement rate				0.0379*** (0.0128)	0.0338*** (0.0109)
STW elasticity to hours				1.292** (0.576)	2.039*** (0.481)
Constant	0.874*** (0.0692)	0.551 (0.501)	3.008*** (0.545)	2.682*** (0.713)	1.684 (0.695)
Quarterly x Year Fixed Effects	No	No	No	No	Yes
Observations	349	325	322	285	292
R-squared	0.023	0.162	0.348	0.550	0.721

Note: regressions include Austria, Belgium, Canada, Czech Republic, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Switzerland, Turkey and US.

Source: Hijzen and Venn (2010), OECD and Visser (2009)

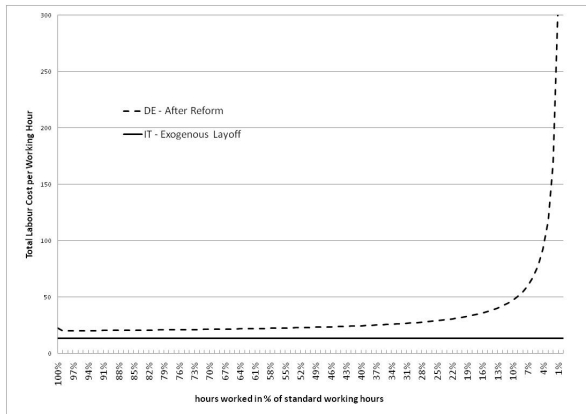
Behavior over the cycle: Germany vs. Italy

The Italian and German STW are the two largest schemes in the OECD area.

- the German scheme is explicitly designed for temporary shocks, while the Italian system allows for STW in case of structural adjustment (CIGS)
- the German system involves higher degree of experience-rating
- both involve job search requirements, but better enforced in Germany
- the German system unlike the Italian system discourages reduction of hours to zero

Costs at zero hours

Hourly labour cost of STW schemes in Germany (reformed Kurzarbeit) and Italy (CIGS with exogenous layoffs)

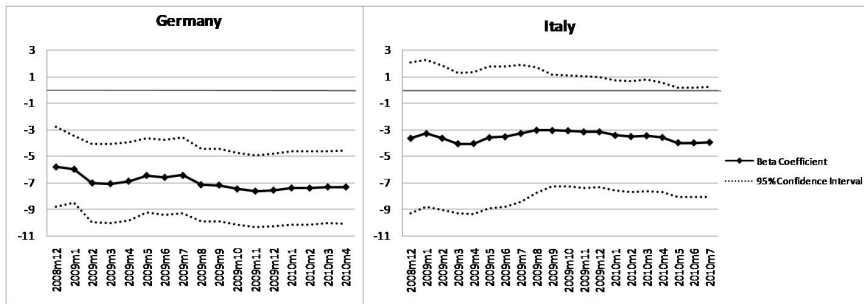


Source: for Italy, INPS (Istituto Nazionale Previdenza Sociale); for Germany, Statistik der BA, Zeitreihen - Zeitreihe zu Kurzarbeiter Deutschland.

Elasticity of take-up rates to Economic Activity

Rolling regressions: $\Delta \log(STW) = \alpha + \beta \log(IPI) + \varepsilon$, where STW is in terms of hours in the industrial sector and IPI is the industrial production index.

In Italy, no decline since Q2 2009. Focus on Italy



Source: for Italy, INPS (Istituto Nazionale Previdenza Sociale); for Germany, Statistik der BA, Zeitreihen - Zeitreihe zu Kurzarbeiter Deutschland.

STW Concentration Indexes

Sectoral and regional concentration of STW before (2007) and during (2009) the Great Recession. Herfindahl index across 19 sectors, top 30 to bottom 30 per cent ratio across 20 Italian regions and 15 German Landers.

	Herfindahl Index (sector)		Region Top/Bottom	
	Q1 2005 - Q2 2008	Q3 2008 - Q2 2009	2007	2009
Italy	0.19 (1.18)	0.23 (0.74)	1.61 (0.49)	3.03 (0.30)
Germany	0.15 (5.24)	0.15 -	1.28 (0.21)	1.76 (0.75)

Note: in parentheses, coefficient of variation of percentage change of valued added by sector in 2007 and 2009 (a 2008 for Germany) and of regional GDP decline in 2007 and 2009.

Source: for Italy, INPS (Istituto Nazionale Previdenza Sociale); for Germany, Statistik der BA, Zeitreihen - Zeitreihe Kurzarbeiter in Deutschland. Regional GDP for Italy, ISTAT, and valued added from Eurostat.

Cyclically adjusted contributions?

- STW works better when employers internalize its costs
- but experience-rating increases burden on firms that may be liquidity constrained during downturns.
- Possible to have cyclically adjusted contribution rates: higher during upturns accumulating a surplus to be used during downturns (like collective Working Time Accounts).

Working time accounts (WTA)

- Another mechanism promoting adjustment along the intensive margin introduced in the mid 1990s in Germany
- employees receive a credit for over-time work, which can be used later on to reduce working time or acquire additional holidays
- It reduced employers' costs during the 2005-8 expansion where large surpluses of WTA were accumulated.
- WTA can be used in firms where collective bargaining does not take place (e.g., small firms).

The coverage of STW

- Some Governments formally extended coverage of STW to fixed-term contract holders.
- However, STW are rarely used to cover temporary workers during downturns and there is no evidence that STW reduced job losses among temporary workers.
- Employers have no incentives to use STW for TEMPAs as they know that these workers can be fired at will at the expiration of their contract.
- Dualism should be dealt with other policy instruments.

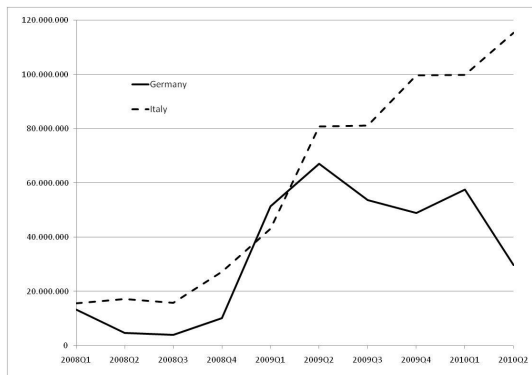
Short-time work

Germany's jobs miracle hasn't received much attention in this country - but it's real, it's striking. Germany came into the Great Recession with strong employment protection legislation. This has been supplemented with a "short-time work scheme", which provides subsidies to employers who reduce workers' hours rather than laying them off. These measures didn't prevent a nasty recession, but Germany got through the recession with remarkably few job losses.
(Paul Krugman, NYT, 12 November 2009)

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STW Hours

Total STW hours (monthly average) in Italy and Germany:

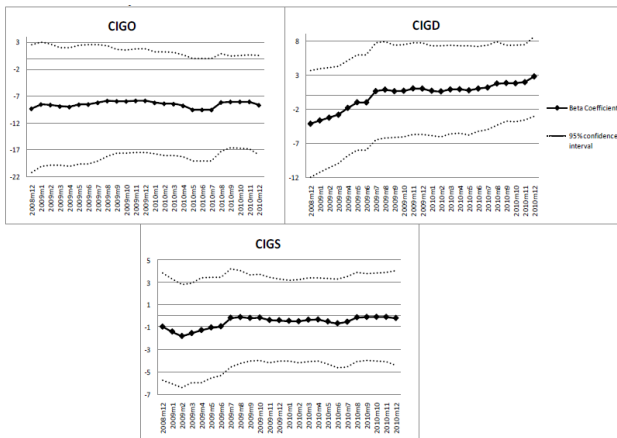


Note: value for 2010Q2 refers to april-may 2010.

Source: for Italy, INPS (Istituto Nazionale Previdenza Sociale); for Germany, Statistik der BA, Zeitreihen - Zeitreihe zu Kurzarbeiter Deutschland.

Focus on Italy

Elasticity of different types of STW take-up rates to Economic Activity



Notes: Source: INPS

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