

# Short-time work and precautionary savings

Thomas Dengler and Britta Gehrke

Humboldt University Berlin and University of Rostock, IAB, IZA, Germany

## Contributions

Short-time work (STW) is a labor market policy that subsidizes firms that reduce their employees' hours worked instead of firing them.

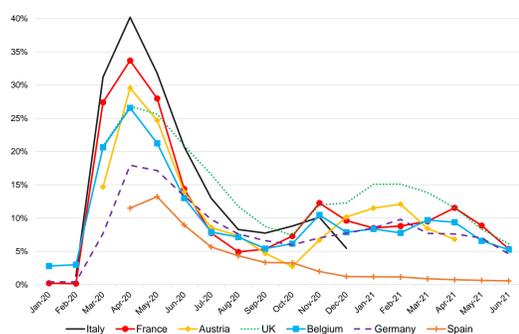
- We show that this policy stabilizes employment by 29% over the business cycle.
- In particular, we take into account that STW stabilizes precautionary savings and aggregate demand in recessions.
- In household survey data, we document that the consumption risk of unemployment is considerably larger compared to STW.
- Using a New Keynesian model with incomplete asset markets and labor market frictions, we show that the demand channel can increase the stabilization potential of STW over the business cycle by 40%, even more when monetary policy is constrained by the zero lower bound.

## Introduction

STW has been used heavily in the Covid-19 crisis and in the Great Recession.

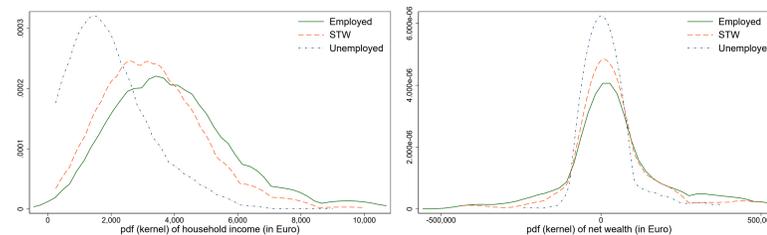
At least 2 business cycle stabilization mechanisms:

- **Firm channel:** With frictions in the labor market, firms have incentives to keep temporarily unproductive workers. This reduces firing directly and boosts hiring indirectly (Balleer et al., 2016).
- **Demand channel:** STW can potentially reduce unemployment risk and precautionary savings (Ravn and Sterk, 2021) in a recession.



## Empirical evidence

- Idea: Shed light on the consumption-saving behavior of households in different labor market states
- Bundesbank Online Panel-Households (BOP-HH): monthly online survey of 2,000-7,500 German households, runs continuously since April 2020



Empirical distributions of net wealth and household income by labor market state in Germany. Source: Bundesbank Household Online Panel, 2021 waves. Weighted according to sampling weights.

	(1)	(2)	(3)	(4)	(5)
$\gamma_u$	-0.47*** (-8.61)	-0.44*** (-8.07)	-0.43*** (-7.82)	-0.42*** (-7.76)	-0.37*** (-4.87)
$\gamma_{stw}$	-0.08*** (-2.64)	-0.05* (-1.69)	-0.04 (-1.51)	-0.05 (-1.56)	-0.07 (-1.46)
Skill		×	×	×	×
Homeown			×	×	×
Homeown × city size				×	×
Wealth/debt					×
Observations	9,476	9,468	9,464	9,464	4,924

Dependent variable is log consumption expenditure.  $t$ -statistics are in parentheses, standard errors are clustered at household level, \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

## Quantitative analysis

- Idea: Quantify the business cycle stabilization of STW
- New Keynesian model with search and matching frictions, endogenous separations, STW, heterogeneous workers and incomplete asset markets, nominal price and real wage rigidities, monetary policy follows Taylor rule, fiscal authority issues fixed stock of government bond, lump-sum taxes for fiscal spending

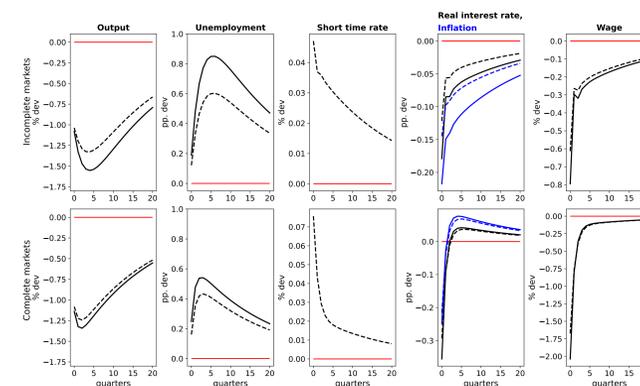
## The main mechanism

- Heterogeneous workers save in a government bond: (1) full-time employed, (2) STW, (3) short-term unemployed, (4) long-term unemployed
- In a simplified version following Ravn and Sterk (2021) all households consume their income period-by-period and the real interest rate satisfies the Euler equation of the full-time employed workers:

$$\beta \mathbb{E}_t \left[ R_t \left( 1 - \phi_{t+1} - \chi_{t+1} \right) \left( \frac{w_{f,t+1}}{w_{f,t}} \right)^{-\sigma} + \chi_{t+1} \left( \frac{w_{stw,t+1}}{w_{f,t}} \right)^{-\sigma} + \phi_{t+1} \left( \frac{ub}{w_{f,t}} \right)^{-\sigma} \right] = 1$$

- As  $w_{f,t+1} \geq w_{stw,t+1} \geq ub$ , it follows that  $R_{stw,t} \geq R_{nostw,t}$
- With STW, full-time workers face lower risk, save less and aggregate demand rises.

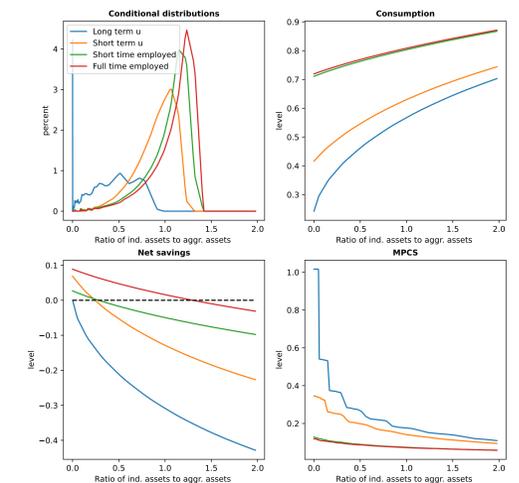
## Simulation results



IRFs to a negative one percent productivity shock ( $\rho = 0.95$ ). Dashed line with STW, solid lines w/o STW.

	Difference of standard dev. in % (STW vs. no STW)	
	Incomplete markets	Complete markets
Output	-13.73	-8.68
Unemployment	-29.36	-21.11

## Steady state properties



## Conclusions and outlook

STW stabilizes the business cycle: A shock that increases the unemployment rate by 4.2 pp's, would only increase unemployment by 3 pp's with STW, 1/3 from demand stabilization.

Outlook: Monetary policy at the ZLB, stabilization of demand shocks, discretionary STW policy

## References

- Balleer, A., Gehrke, B., Lechthaler, W., and Merkl, C. (2016). Does short-time work save jobs? a business cycle analysis. *European Economic Review*, 84:99–122.
- Ravn, M. O. and Sterk, V. (2021). Macroeconomic fluctuations with hank & sam: An analytical approach. *Journal of the European Economic Association*, 19(2):1162–1202.

## Contact Information

- Web: [www.vwl.uni-rostock.de/makro](http://www.vwl.uni-rostock.de/makro)
- Email: [thomas.dengler@hu-berlin.de](mailto:thomas.dengler@hu-berlin.de), [britta.gehrke@uni-rostock.de](mailto:britta.gehrke@uni-rostock.de)