How Important is Precautionary Labor Supply?
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Insurance Against Wage Uncertainty

Two components of future wages
determined by age, training, occupation, ... is uncertain, shocks only partially insured illness, bonus, promotions, health shocks
Self insurance through precautionary saving

Dynamic Labor Supply Equation

\[ \Delta \ln h_t = \beta_1 \Delta \ln w_t + \beta_2 \Delta X_t + \beta_3 \Delta \sigma_{w,t} + \varepsilon_t. \]  
(1)

With partial adjustment mechanism

\[ \Delta \ln h_t = a \Delta \ln h_{t-1} + \beta_1 \Delta \ln w_t + \beta_2 \Delta X_t + \beta_3 \Delta \sigma_{w,t} + \varepsilon_t. \]  
(2)

- Average precautionary savings due to precautionary labor supply are 59 Euro per month
- How large is precautionary labor supply?
- How much would self-employed work, if they had the certainty of civil servants?
- How large is overall precautionary saving?
- How large is precautionary belt-tightening?
- What structural parameter values can generate the empirical results?

Precautionary saving through

- extra hours
- less consumption

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Measure of Expected Future Wages

\[ \sigma_{w,t} = \frac{1}{4} \sum_{j=1}^{4} \sqrt{(\ln w_j - \ln \overline{w})^2}. \]

- Variation of past individual wages similar to [1]
- Standard deviation of detrended log wages \( \ln \overline{w} \)

Precautionary hours of work are about 2.5% of total hours for married men in Germany
- About 1/4 of precautionary savings are due to extra work hours
- About 3/4 of precautionary savings are due to consumption cuts
- If self-employed had the same wage certainty as civil servants, their hours of work would reduce by about 4%

Precautionary savings: 58 Euro; Precautionary labor supply: 1.19 h

A Calibration Exercise

- Are the estimated results in line with theoretical predictions?
- We calibrate a simple two period model with CRRA utility similar to [2].
- Flexible labor supply and savings
- 1st period wage: 13 Euro
- 2nd period wage: 8 or 18 Euro with equal probability
- \( U = c_{1}^{\alpha} - \frac{1}{\alpha} \ln c_{1} + \frac{1}{\gamma} \ln w_{1} \)
- Frisch elasticity = -0.2
- Scaling factor
- Risk aversion = -1.67
- Precautionary savings: 58 Euro; Precautionary labor supply: 1.19 h

How much is saved by belt-tightening, how much by extra hours?

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- Hourly wages constructed using income and hours information
- Measurement error in hours leads to a downward (denominator) bias of the wage coefficient
- Instrument wages with lags of monthly labor income
- IV valid even if measurement error correlated over time

References


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