

# Would a Flat Tax Stimulate Entrepreneurship in Germany? A Behavioural Microsimulation Analysis Allowing for Risk

Frank Fossen, DIW Berlin

## **Motivation**

Evidence for positive spillover effects of entrepreneurial firms (Van Praag and Versloot, IZA 2007)

What is the impact of tax reforms on entrepreneurship? Theoretically, progressive taxes...

- ...decrease net expected returns from self-employment
- ...decrease the variation of net incomes, and thus the risk associated with self-employment

Empirical evidence scarce (Schuetze and Bruce 2004) Contribution:

Estimated structural models of entry and exit under risk are used for ex-ante evaluations of hypothetical tax reforms for Germany.

## **Methodological Overview**

Estimation of  $\mu_y$  and  $\sigma_y^2$  for each individual and year in both self-employment and dependent employment

Mincer-type earnings regressions

Estimation of earnings variance

Controlling for selection

Calculation of net incomes (tax-benefit model STSM)

Calculation of lifetime annuities

Estimation of the structural models of entry into and exit out of self-employment

Calculation of net incomes in alternative tax scenarios (STSM) Prediction of transition rates in baseline and altern. scenarios Effects of reforms are given by difference in predicted rates

## **Structural Transition Models**

Individuals *i* can choose between the two states selfemployment (*s*=1) and dependent employment (*s*=2) Utility function with constant relative risk aversion (CRRA):

$$U_{\rm s}(y_{i\rm s},x_i,d_{i\rm s},\varepsilon_{i\rm s}) = \alpha \frac{y_{i\rm s}^{1-\rho}}{1-\rho} + x_i'\beta_{\rm s} + f_{\rm s}(d_{i\rm s}) + \varepsilon_{i\rm s}; \qquad \rho \neq 1$$

Expected utility with respect to income *y* (Taylor approx.):

$$E(U_s(Y_{is}, X_i, d_{is}, \varepsilon_{is})) = \alpha \left(\frac{\mu_{y_a}^{1-\rho}}{1-\rho} - \frac{1}{2}\rho\mu_{y_a}^{-\rho-1}\sigma^2_{y_a}\right) + X_i'\beta_s + f_s(d_{is}) + \varepsilon_{is}; \ \rho \neq 1$$

$$\longrightarrow V(y_{is})$$

Probability that agent i decides to be self-employed:  $Prob(E(U_1)>E(U_2)) = F(\alpha(V(y_{i1})-V(y_{i2})) + x_i'\beta + f(d_{is})),$ Random utility model (McFadden 1974): Logit specification

# **Simulated Tax Reforms**

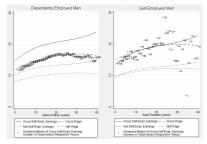
Scenario	Basic Allowance (€)	Marginal Tax Rate* (%)
Legislation of 2005 (baseline scen.)	7,664	15 – 42
Repeal of Tax Reform 2000	6,902	22.9 – 51
Flat Tax LL	7,664	26.9
Flat Tax HH	10,700	31.9

<sup>\*</sup> plus solidarity surcharge in all scenarios.

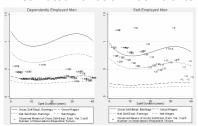
The flat tax scenarios are revenue neutral.

# Results

### **Estimated Hourly Earnings**



#### **Estimated Variation Coefficients**



Source: SOEP 1984-2005, author's calculations

#### **Estimated Structural Parameters**

Structural	Estimated Value (Sd Error)		
Parameter	Entry	Exit	
ho (coeff. of	0.470	0.155	
RRA)	(0.114)	(0.059)	
lpha (coeff. of	0.174	-0.209	
risk adj. inc.)	(0.026)	(0.044)	
N	16,390	1,555	

All significant at 1% level.

Source: SOEP 2002-2006, author's calc.

moderate risk aversion!

#### **Predicted Transition Rates in 2005**

i redicted fransition rates in 2005				
Scenario	Transition Rate in %			
	Entry	Exit		
Baseline scen.	0.858***	4.577***		
Repeal of Tax Reform 2000	0.877***	4.265***		
Reform 2000				
Relative change	+2.2%*** 👚	-6.8% 👢		
Flat Tax LL	0.814***	4.596***		
Relative change	-5.1%*** 👃	+0.4%		
Flat Tax HH	0.836***	4.521***		
Relative change	-2.5%*** 👃	-1.2% 💳		
*** cignificant at 1% level				

\*\*\* significant at 1% level.

## **Conclusions**

The tax reform 2000 made self-employment less attractive. A repeal would increase the entry rate into self-employment, and decrease the exit rate.

Flat tax policies would decrease the entry rate.

The flatter the tax, the less attractive is self-employment.

The decision to become and remain an entrepreneur is a trade-off between  $\mu_y$  and  $\sigma_y^2$ . The insurance effect of progressive taxes dominates behaviour in these scenarios.

Flat taxes do not seem to be suitable to stimulate entrepreneurship.