

# How to Train an Aging Workforce? Evidence from Company Data

Sophie Guthmuller<sup>a</sup>, Grit Muehler<sup>b</sup>

<sup>a</sup>University of Frankfurt and University of Paris, Dauphine

<sup>b</sup>Centre for European Economic Research (ZEW), Mannheim and University of  
Freiburg

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# Agenda

- 1 Motivation
- 2 Training Literature
- 3 Contribution
- 4 Data
- 5 Results
- 6 Conclusion

# 1. Motivation

- companies will/must train older workers
  - market shortages for young and qualified staff
  - customers, suppliers, and partners are also getting older
  - prevent the obsolescence in skills and therefore a decline in productivity
- main motivating factors for participation in training
  - increase in wages
  - better career perspectives
  - decreasing risk of unemployment
- amortization period tickles off when workers get older
- especially industry and/or company specific knowledge becomes worthless when retirement starts

## 2. Training literature

### Training literature by level of analysis and number of studied firms

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	single-firm studies	multi-firm studies
individual level	Medoff (1980) Flabbi & Ichino (2001) Lazear (1992) Baker, Gibbs & Holmstrom (1994)	Booth (1999) Frazis (1998) Asplund (2004)
organizational level	Ichniowski & Shaw (2003) Bartel (2004)	Dearden (2000) Barrett & O'Connell (2001) Hansson (2007)

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The overview of the studies is not exclusive.

### 3. Contribution

Do senior workers differ systematically from their younger colleagues?

- older workers participate less in training
- decrease in participation starts at age 50
- general training is more appealing than firm-specific training
- might prefer individual teaching styles rather than classroom trainings

## 4. Data

- large German company from financial industry
- administrative personnel data on all employees (2004-2006)
- training data for the participants (2004-2006)
- final data set:  $N=30,064$  in 2005,  $N=28,621$  in 2006

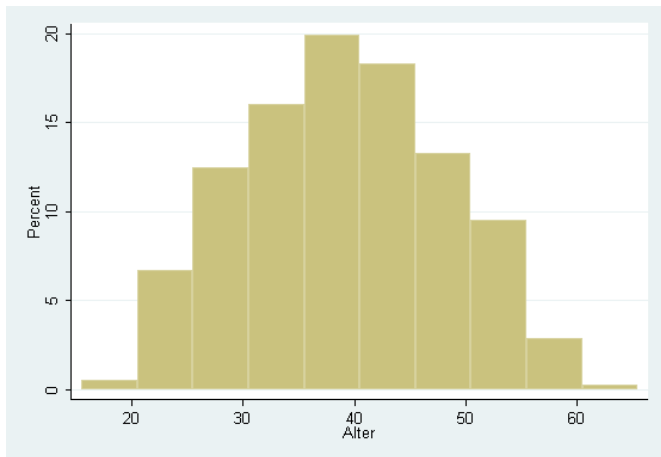
## 4. Data

Table: Variables of interest

individual characteristics	professional characteristics	course characteristics
gender	corporate title	training incidence
age	fulltime/parttime work	number of courses taken
formal education	wage	duration
	tenure	teaching style

## 4. Data

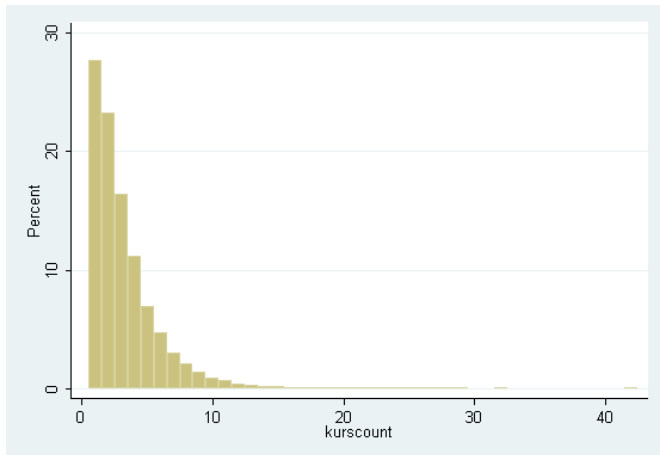
### Age distribution of the employees (2006)





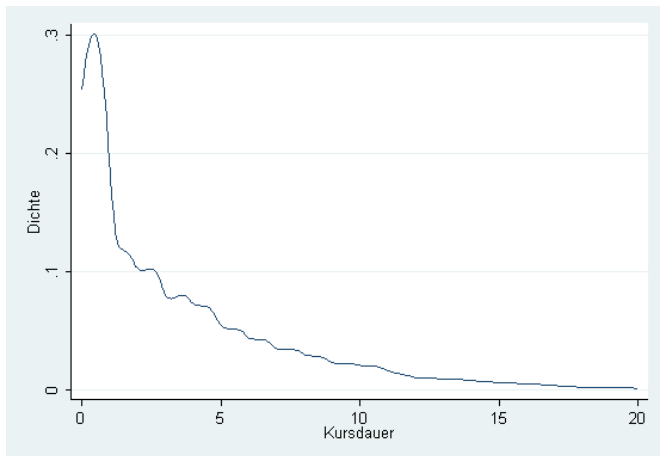
## 4. Data

Number of trainings per year (2006)



## 4. Data

Length of trainings per year (2006)



## 4.Data

### Means of variables (2006)

variables	training participants	non-participants
female	0.492	0.572
age	38.9	40.2
high school	0.032	0.022
vocational training	0.661	0.703
university	0.161	0.132
wage	50,444	43,174
share of working time	0.933	0.857
union wage	0.526	0.609
corporate title	0.459	0.336
tenure	14.92	14.75

## 5. Results

### Probit model for training participation

Variable	Coefficient	(Std. Err.)
female 17-20	0.081*	(0.031)
female 21-35	-0.007	(0.007)
female 36-67	0.021***	(0.005)
age 20-25	0.031	(0.038)
age 26-30	0.015	(0.041)
age 31-35	-0.009	(0.045)
age 36-40	-0.051	(0.050)
age 41-45	-0.053	(0.050)
age 46-50	-0.096*	(0.057)
age 51-55	-0.140**	(0.063)
age 56-60	-0.186***	(0.072)
age 61-67	-0.302***	(0.097)
<i>N</i>	28,621	

Significance levels: \* 10%, \*\* 5%, \*\*\* 1%. Further controls: see following slide plus dummies for missing values.

## 5. Results

Variable	Coefficient	(Std. Err.)
hauptschule	0.010	(0.021)
realschule	-0.019	(0.014)
abitur	0.031**	(0.012)
fachhochschule	-0.002	(0.008)
university	0.003	(0.007)
wage	0.003***	(0.000)
full-time	0.084***	(0.007)
union wage	0.030***	(0.010)
tenure	0.001	(0.000)
department	0.002***	(0.000)
corporate title	0.074***	(0.010)
<i>N</i>	<i>28,621</i>	

Significance levels: \* 10%, \*\* 5%, \*\*\* 1%. Further controls: dummies for missing values.

## 5. Results

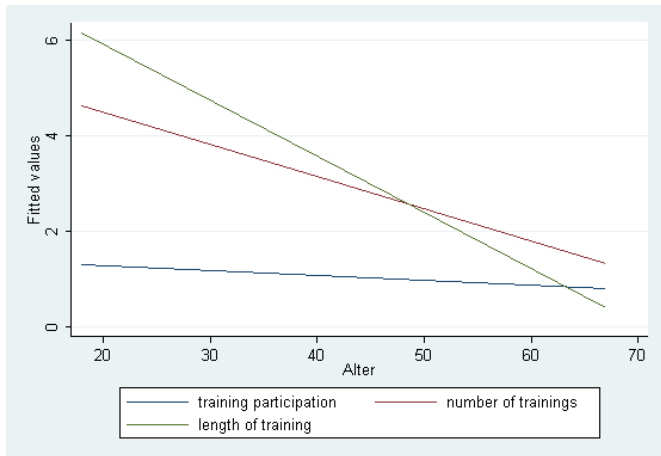
### Probit model for industry specific training

Variable	Coefficient	(Std. Err.)
female 17-20	0.098	(0.094)
female 21-35	0.001	(0.010)
female 36-67	0.024***	(0.009)
age 20-25	-0.010	(0.073)
age 26-30	-0.145**	(0.066)
age 31-35	-0.222***	(0.060)
age 36-40	-0.270***	(0.058)
age 41-45	-0.285***	(0.056)
age 46-50	-0.311***	(0.049)
age 51-55	-0.353***	(0.039)
age 56-60	-0.380***	(0.023)
age 61-67	-0.396***	(0.016)
<i>N</i>	28,579	

Significance levels: \* 10%, \*\* 5%, \*\*\* 1%. Further controls: individual and job characteristics, plus dummies for missing values.

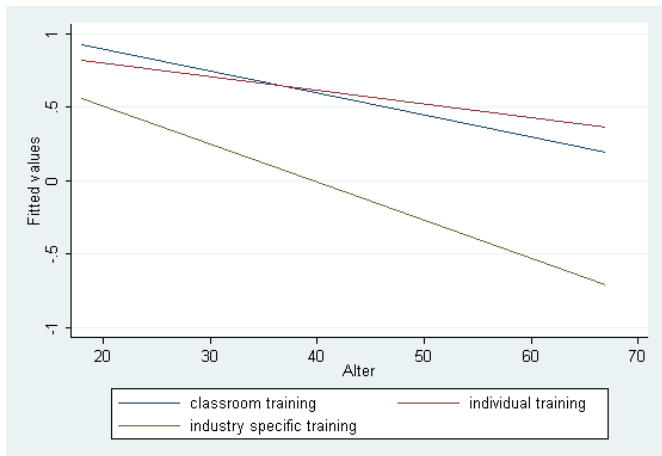
## 5. Results

Relation between various training measures and age



## 5. Results

Relation between various training measures and age (participants)





## 6. Conclusion

- training participation differs between men and women
- participation in training (as well as number of courses and duration) significantly decreases with age
- industry specific training participation already decrease from age 30 on
- employees prefer classroom training rather than self-paced learning techniques

# Thanks for your attention!

Grit Muehler  
Centre for European Economic Research (ZEW)  
L 7, 1  
D-68161 Mannheim  
Email: [muehler@zew.de](mailto:muehler@zew.de)