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# **Apprenticeship Training in Germany**

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## **Is there a change from an investment- towards a production-oriented strategy?**

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# Outline

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- Research Question “Why do firms train?”
- Data Source Cost-benefit-studies 2000 and 2007
- Indicators of Motives Net-costs and retention
- Results of Analysis Are there changes in the training motive of firms?
- Conclusion and Outlook What have we learned and what is to come?



# Why do firms train

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What are motives for firms to train?

- Apprenticeship training as **production factor** (Lindley, 1975)
- Apprenticeship training as an **investment** in the skills of future employees (Merrilees, 1983)
- Apprenticeship training as a **screening device**  
(z.B. Franz & Zimmermann, 2002)
- Apprenticeship training as a **reputation factor**  
(z.B. Niederalt, 2004)
- Apprenticeship training as **social responsibility**  
(z.B. Beicht et al, 2004)

→ We focus on *Production Motive* vs. *Investment Motive*  
and analyse whether there has been a change over time



## Cost-benefit-studies 2000 and 2007

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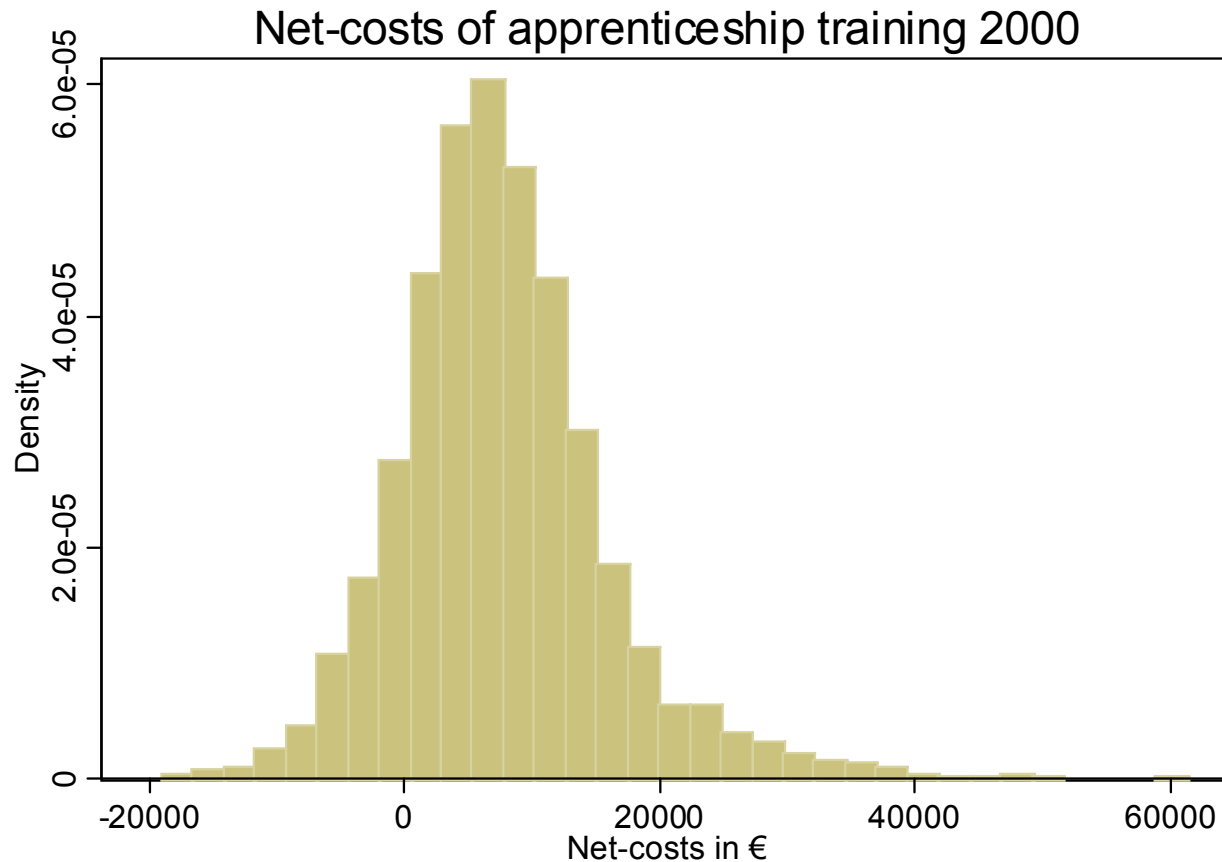
- Representative surveys of training firms across Germany
- Personal interviews (in 2000 PAPI, in 2007 CAPI)
- Identical concepts of measuring costs and benefits (based on “Edding-Comission” 1974)
- Large pool of information also with respect to
  - recruitment costs
  - retention of apprentices
  - labour and product market environment
  - revenue situation
- Sample: around 5.000 training firms





# Results of Analysis

## Descriptive Analysis: Net-costs

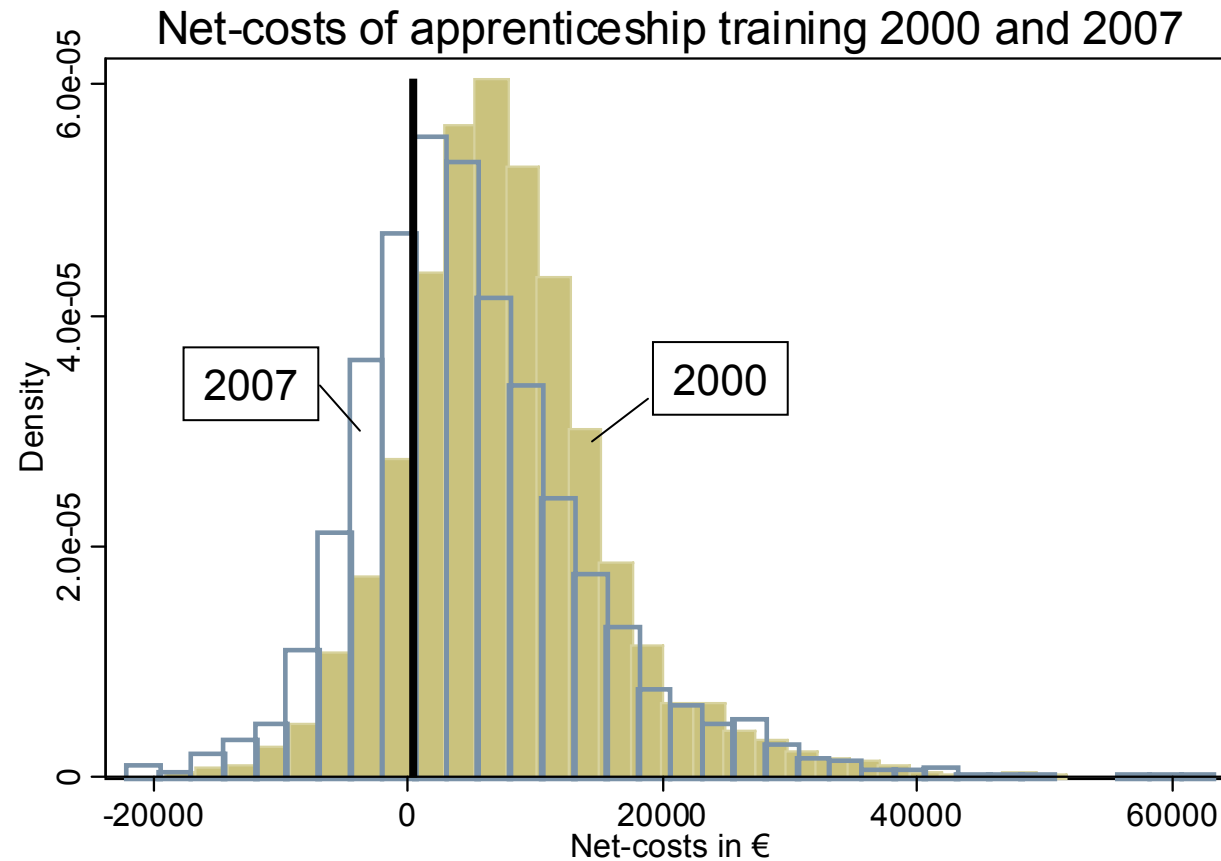


Source: Cost-Benefit-Surveys 2000 and 2007



# Results of Analysis

## Descriptive Analysis: Net-costs



Source: Cost-Benefit-Surveys 2000 and 2007



# Retention

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## Indicator of Retention:

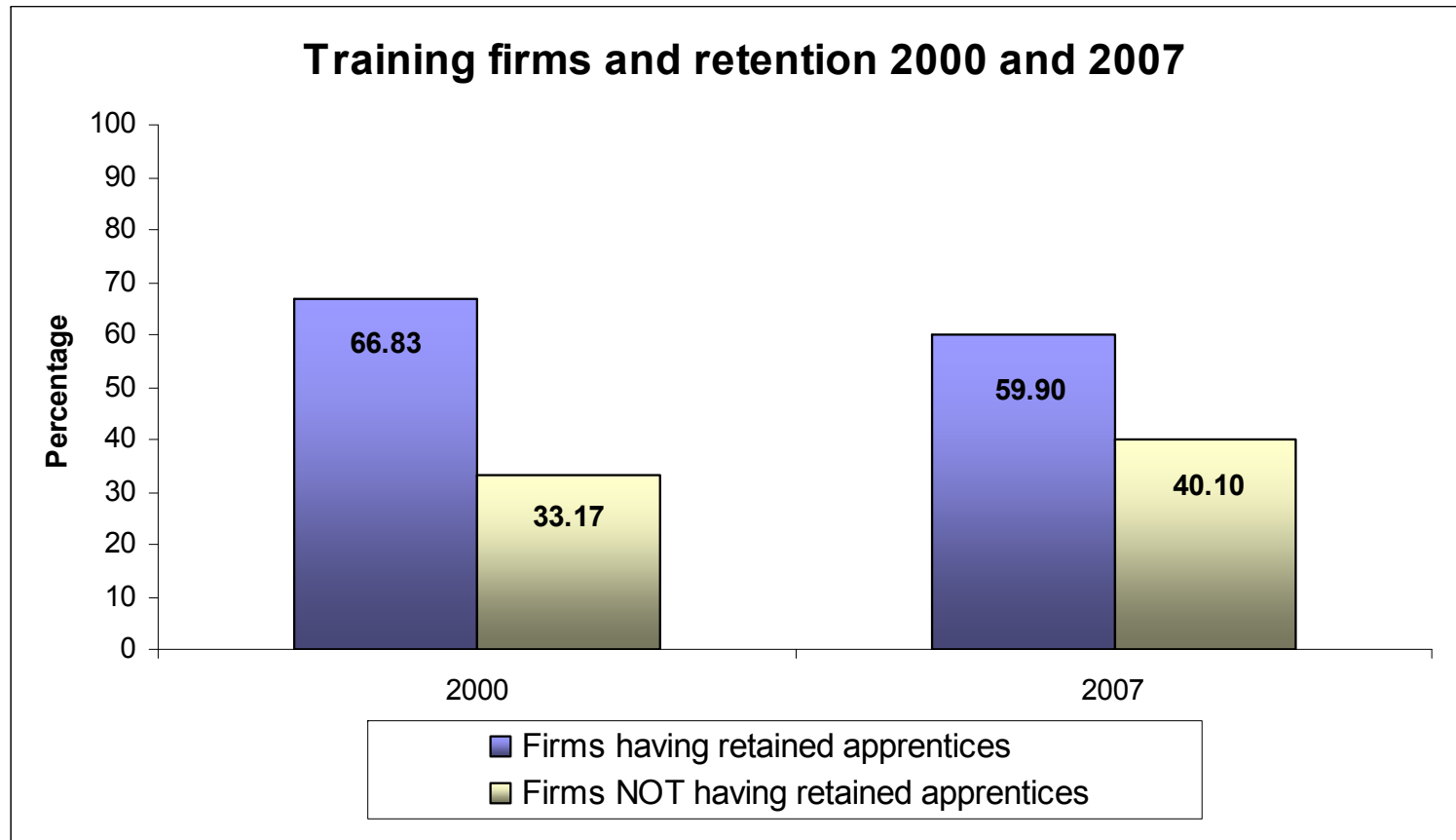
- If a firm has retained one or more apprentices during the last three years, we assume **investment motive**
- If a firm has not retained any apprentice during the last three years, we assume **production** motive

→ Dummy variable indicator: 1 for investment motive  
0 for production motive



# Results of Analysis

## Descriptive Analysis: Retention and training motives



Source: Cost-Benefit-Surveys 2000 and 2007



# Results of Analysis

Probit regression

Dependent variable: Dummy derived from Net-costs

	Model I		Model II	
	dF/dx	Standard error	dF/dx	Standard error
<b>Dummy for 2007</b>	-0.510	(0.047)***	-0.284	(0.099)***
Availability of workers on external market	0.037	(0.022)*	-0.010	(0.033)
Matching of workers from the external market	0.022	(0.025)	0.020	(0.025)
Current revenue situation	-0.006	(0.026)	-0.003	(0.026)
Expected revenue situation	-0.020	(0.033)	-0.021	(0.034)
Percentage of apprentices with "Abitur"	0.002	(0.001)**	0.002	(0.001)**
Region West	0.137	(0.050)***	0.411	(0.083)***
Training center	1.050	(0.132)***	1.035	(0.132)***
Duration of apprenticeship 3 years	-0.349	(0.060)***	-0.364	(0.060)***
Number of apprentices in vocation	-0.004	(0.002)**	-0.004	(0.002)**
Firm size	Yes		Yes	
Occupational Field	Yes		Yes	
Industry	Yes		Yes	
Inclusion of interaction terms	No		Yes	
Constant	1.386	(0.090)***	1.247	(0.104)***
N	4412		4412	
pseudo R-sq	0.089		0.100	

Significance: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01



# Results of Analysis

Probit regression

Dependent variable: Dummy derived from Retention

	Model I		Model II	
	dF/dx	Standard error	dF/dx	Standard error
<b>Dummy for 2007</b>	-0.012	(0.054)	0.169	(0.115)
Availability of workers on external market	0.021	(0.025)	0.023	(0.025)
Matching of workers from the external market	0.010	(0.028)	0.007	(0.028)
Current revenue situation	-0.059	(0.030)**	0.040	(0.046)
Expected revenue situation	-0.119	(0.039)***	-0.105	(0.039)***
Percentage of apprentices with "Abitur"	0.002	(0.001)**	0.002	(0.001)**
Region West	-0.064	(0.060)	0.174	(0.095)*
Training center	0.178	(0.116)	0.172	(0.117)
Duration of apprenticeship 3 years	-0.109	(0.068)	-0.098	(0.069)
Number of apprentices in vocation	0.092	(0.013)***	0.097	(0.013)***
Firm size	Yes		Yes	
Occupational Field	Yes		Yes	
Industry	Yes		Yes	
Inclusion of interaction terms	No		Yes	
Constant	-0.096	(0.106)	-0.233	(0.125)*
N	3315		3315	
pseudo R-sq	0.154		0.165	

Significance: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01



# Results of Analysis

## Net Costs vs. Retention

2000		
	No retention	Retention
Net-benefit	4.58	11.46
Net-costs	28.59	55.37
2007		
	No retention	Retention
Net-benefit	13.38	16.22
Net-costs	26.72	43.68

- Well over ¼ of firms had net-costs but have not retained apprentices in the last 3 years
- Possible reasons:
  - Benefits other than those measured (e.g. reputation, screening)
  - Investment in training as a „risky“ investment?



# Results of Analysis

## Regression Analysis: Firms with net-costs and no retention

	Model I		Model II	
	dF/dx	Standard error	dF/dx	Standard error
<b>Dummy for 2007</b>	-0.186	(0.056)***	-0.304	(0.117)***
Availability of workers on external market	0.017	(0.026)	0.056	(0.037)
Matching of workers from the external market	0.019	(0.030)	0.021	(0.030)
Current revenue situation	0.071	(0.031)**	-0.016	(0.047)
Expected revenue situation	0.108	(0.040)***	0.093	(0.041)**
Percentage of apprentices with "Abitur"	-0.001	(0.001)*	-0.001	(0.001)*
Region West	0.043	(0.063)	-0.162	(0.100)
Training center	-0.035	(0.118)	-0.018	(0.119)
Duration of apprenticeship 3 years	-0.068	(0.071)	-0.086	(0.072)
Number of apprentices in vocation	-0.106	(0.014)***	-0.110	(0.015)***
Firm size	Yes		Yes	
Occupational Field	Yes		Yes	
Industry	Yes		Yes	
Inclusion of interaction terms	No		Yes	
Constant	0.016	(0.112)	0.130	(0.128)
N	3315		3315	
pseudo R-sq	0.124		0.131	

Significance: \* p<0.10, \*\* p<0.05, \*\*\* p<0.01



# Conclusion and Outlook

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## Main Results

- Investment motive still dominant in Germany
- However, change to more “cost-efficient” training organisation
- A large number of firms seems to behave “irrational”, but the share of these firms is shrinking

## Outlook

- Further Analysis of seemingly “irrational” firms
- More elaborate scheme for training motives to take into account mixed motives
- Linking survey results with administrative data to observe career of former apprentices / effects for firms



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# Thank you for your attention!

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