Progress on data and on estimation

J. Faltermeier, C. Lafuente

Universitat Pompeu Fabra
University of Edinburgh

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Contents

Outline

- ▶ Use German and Spanish employee-employer matched data to estimate many-to-one matching model to explain firm size

Number of observations

|	Number of workers	Number of firms
1996	2,472,655	8,292
2005	2,397,092	14,870
2010	1,629,542	14,359

- ▶ parallel employments possible, same person can appear several times in the dataset
- ▶ nearly 7 times as many firms in the dataset, but IAB survey (needed for profit) only available for small subset

Descriptive statistics

	No. of observations	mean	sd	min	max
daily wage	2517835	85.62	47.01	0	170.96
Log tentgelt	2503258	4.18	0.94	-4.605	5.141

- ► wage=0 means intermittance of employment (illness, sabbaticals, maternity leave), legally counted as employed
- ► Wage and employment benefit saved in same variable
- ► Right-censored: censoring at the annual Social Security earnings maximum
- ► Before 1999 left-censored: only includes wages above marginal earnings threshold

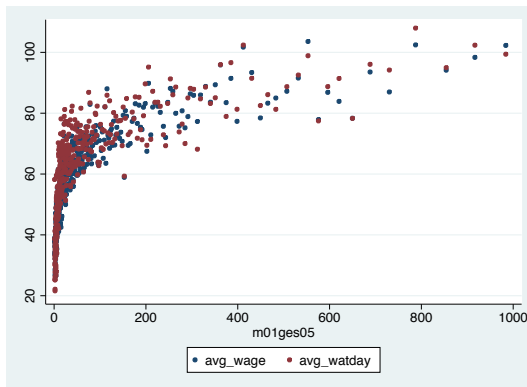## Daily wage distribution if > 0
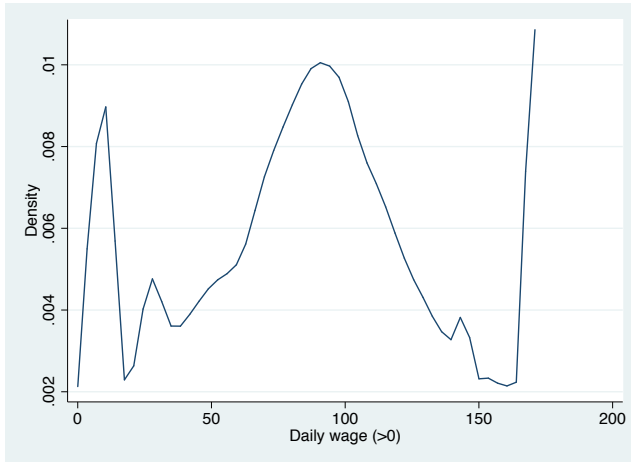
Graph still includes parallel employments and unemployment benefits

Alternative wage - for 2005

- ▶ Know total wage bill for month of June → self-reported, but not censored
- ▶ doesn't account for hours (part-time employment, on-leave)

Difference in average wage by estimation method

Education

	Number of obs	Avg. daily wage	Years
Only general school leaving certificate	392,302	60.138	9
General school leaving certificate + Apprenticeship	1,404,520	90.867	12
Abitur w/o Apprenticeship.	71,124	45.739	13
Abitur with Apprenticeship	130,793	104.170	15
Uni. of applied science	117,834	130.408	16
University degree	220,259	128.936	18
Missing	231,878	42.104	-

- ▶ Need to assume years of schooling to make education variable numerical
- ▶ Ranking? Is an apprenticeship less than Abitur?
- ▶ We don't know if worker completed school
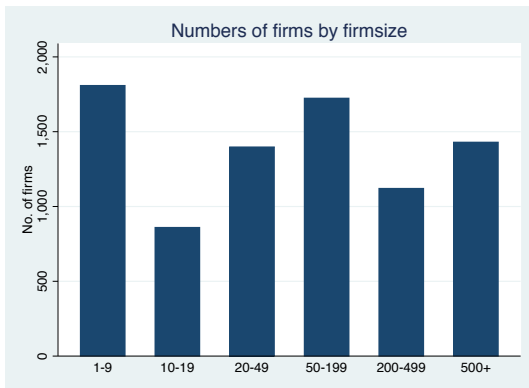- ▶ No info about apprenticeship before/ after uni degree
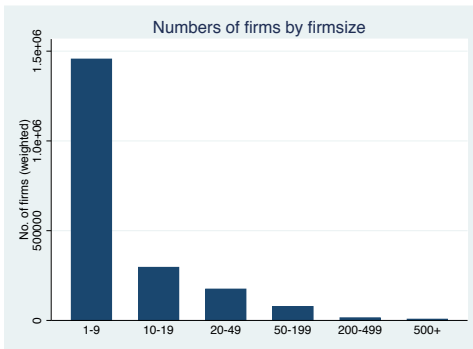
Schooling - 2005

Education
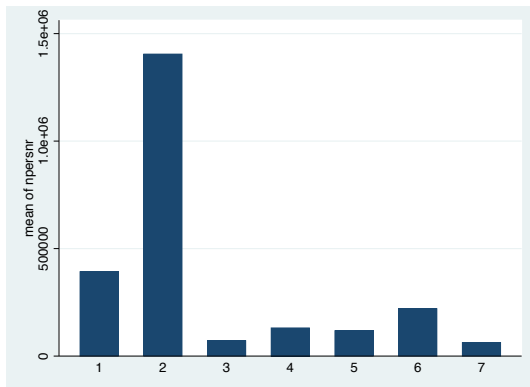
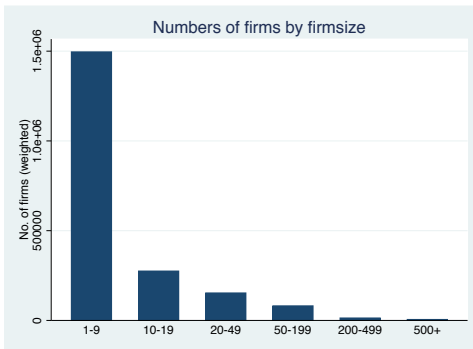# Firm size - 1996

Firm size distribution

Firm size - 1996

Firm size distribution - weighted

Numbers of firms by firmsize

- ▶ need to consider weights in estimation
- ▶ variables comes from IAB survey, does not differentiate part-time, full-time
- ▶ alternatively use number of employees in the sample, but not necessarily the same
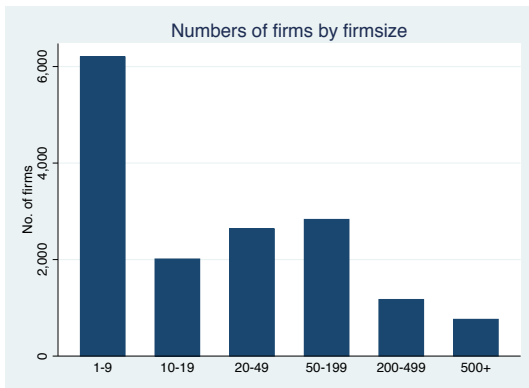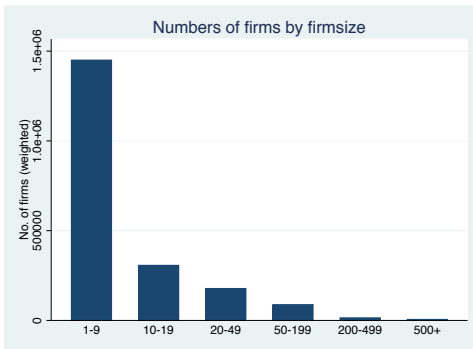
Firm size - 2005

Firm size distribution - weighted

Numbers of firms by firmsize

- ▶ need to consider weights in estimation
- ▶ variables comes from IAB survey, does not differentiate part-time, full-time
- ▶ alternatively use number of employees in the sample, but not necessarily the same

Firm size - 2010

Firm size distribution

Numbers of firms by firmsize

Firm size

Firm size distribution - weighted


Numbers of firms by firmsize

- ▶ need to consider weights in estimation
- ▶ variables comes from IAB survey, does not differentiate part-time, full-time
- ▶ alternatively use number of employees in the sample, but not necessarily the same

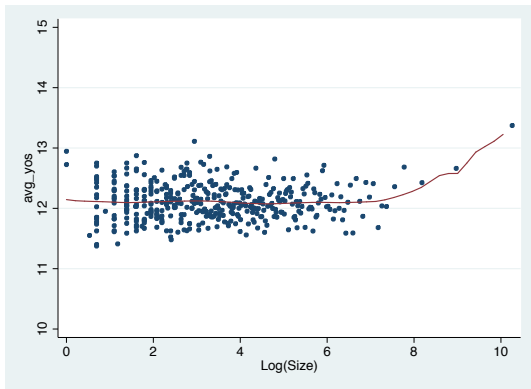|	Number of firms	Mean	s.d.	Min	Max
Revenue	13266	1.55e+08	4.06e+09	1000	3.40e+11
Profit per worker	9854	59153.99	158495	-88800	1.24e+07
Total profit	9854	1.22e+07	9.76e+07	-5720000	4.79e+09

Profit

Distribution of profits across firms
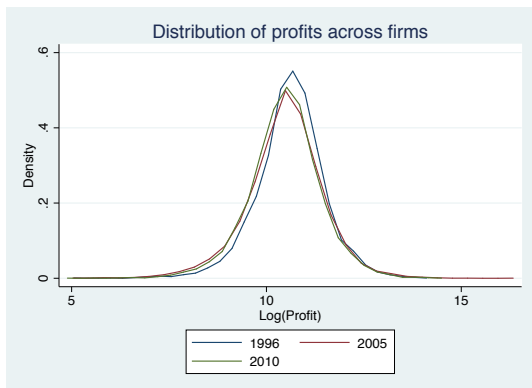
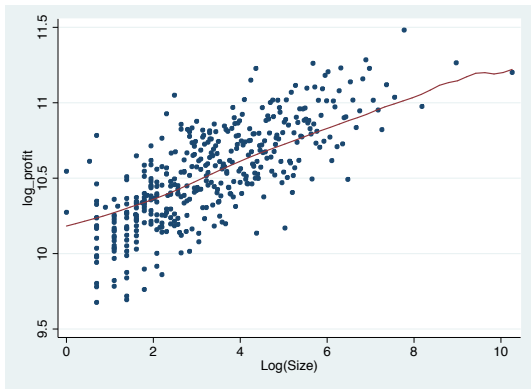# Firm size and wage - 2005
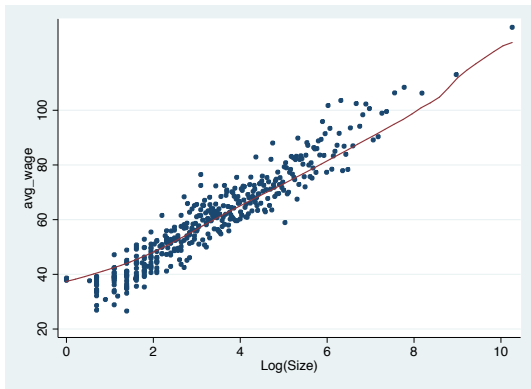
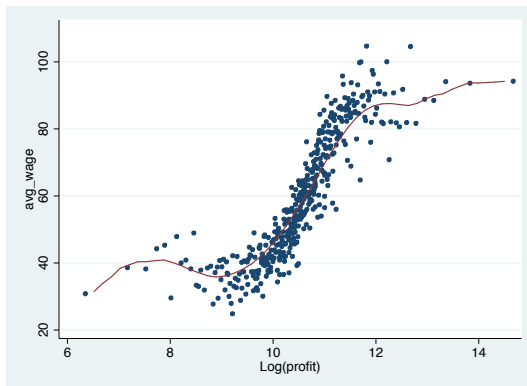# Firm size and wage - 2005
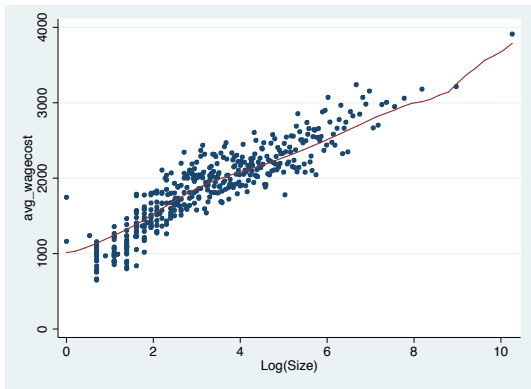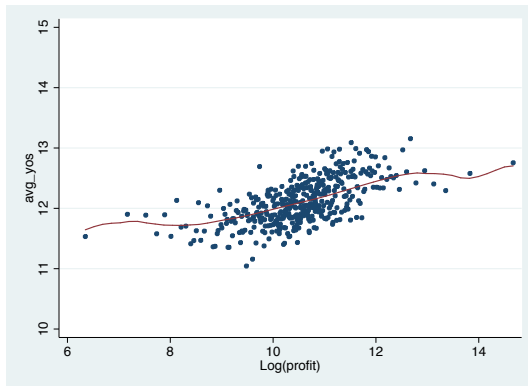
Firm size and education - 2005

Firm size and profit - 2005

Profit and wage - 2005

Profit and education - 2005

Wage and Education - 2005