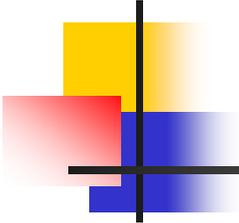


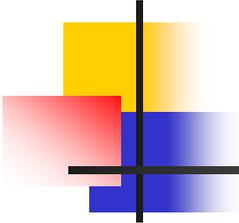
Early Growth and Long-run Survival of Male and Female Businesses in East and West Germany

Rolf Ziegler
Institute of Sociology
Ludwig-Maximilians-University Munich



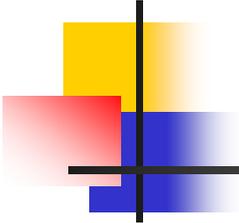
Research Question:

Are there differences in early growth and long-run chances of survival between newly founded businesses of women and men in East (Leipzig) and West (Upper Bavaria) and how may they be explained?



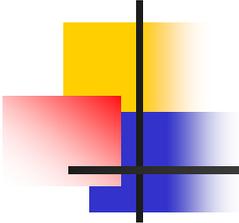
Early Growth and Long-run Survival of Male and Female Businesses in East and West Germany

- The Database



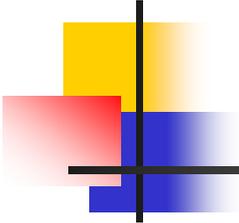
Early Growth and Long-run Survival of Male and Female Businesses in East and West Germany

- The Database
- Differences in Early Growth of Male and Female Businesses



Early Growth and Long-run Survival of Male and Female Businesses in East and West Germany

- The Database
- Differences in Early Growth of Male and Female Businesses
- Differences in Long-run Rates of Survival Between Male and Female Businesses

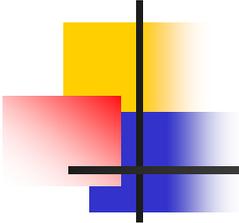


Early Growth and Long-run Survival of Male and Female Businesses in East and West Germany

- The Database
- Differences in Early Growth of Male and Female Businesses
- Differences in Long-run Rates of Survival Between Male and Female Businesses
- **Brief Summary**

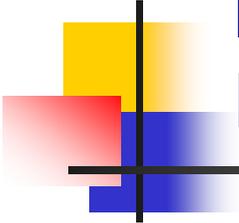
Munich and Leipzig Founder Studies

Region	Chamber of Commerce (IHK) Munich and Upper Bavaria	Chamber of Commerce (IHK)Leipzig
Founding Cohort	1985 and 1986 N = 28.646	1991 N = 3.416
Panel design	Retrospective	Prospective
Date of Interviewing	1990	1992 and 1995
Number of Respondents	N = 1710	N = 518
Date of Check with Register	Spring 1997	End 2002
Maximal Number of Cases for Multivariate Analyses	1669	430
Institution	Institute of Sociology LMU Munich	Institute of Sociology LMU Munich Institute of Sociology University of Leipzig
Financing	Deutsche Forschungsgemeinschaft IHK Munich and Upper Bavaria	Deutsche Forschungsgemeinschaft IHK and HWK Leipzig

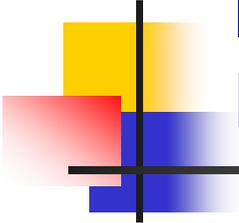


Question 1:

**Are there differences in early growth
of male and female businesses?**



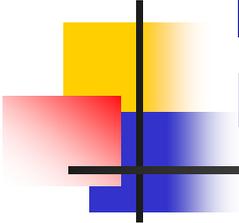
Indicators of Growth During the First Three Years After Founding



Indicators of Growth

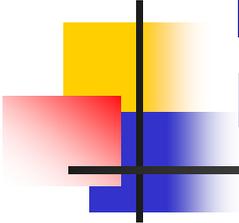
During the First Three Years After Founding

- **Growth of Employment**



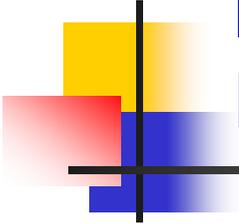
Indicators of Growth During the First Three Years After Founding

- **Growth of Employment**
- **More than 10% Annual Growth of Turnover**



Indicators of Growth During the First Three Years After Founding

- **Growth of Employment**
- **More than 10% Annual Growth of Turnover**
- **Enlargement of Business Site**



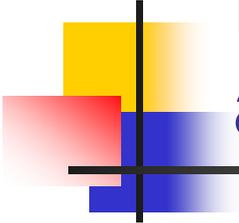
Indicators of Growth During the First Three Years After Founding

- **Growth of Employment**
- **More than 10% Annual Growth of Turnover**
- **Enlargement of Business Site**
- **Growth of Capital Investment**

Cumulative Index of Early Growth

	Munich		Leipzig	
	women	men	women	men
no item of growth	61	50	43	30
1 item of growth	26	25	27	19
2 items of growth	8	14	11	19
3 items of growth	4	7	14	15
4 items of growth	1	4	5	17
N =	539	1156	164	297
at least 2 items of growth	13%	25%	30%	51%

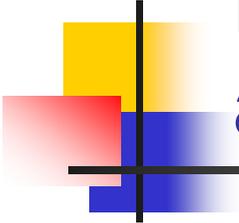
weighted data; figures in %



How may these differences be accounted for?

- **Human Capital Theory: Resources of Founder**

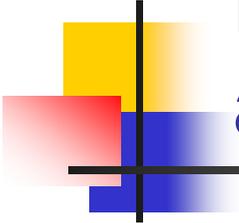
	Munich		Leipzig	
	women	men	women	men
Years of Schooling	12,3	13,5	13,7	14,6
Years of Work Experience	13,2	15,1	19,5	20,2
Industry-specific Experience	51%	59%	56%	48%
Self-employment Experience	18%	35%	11%	17%
Leadership Experience	41%	57%	36%	54%



How may these differences be accounted for?

- Human Capital Theory: Resources of Founder
- **Organizational Ecology: Firm Characteristics**

	Munich		Leipzig	
	women	men	women	men
Years of Schooling	12,3	13,5	13,7	14,6
Years of Work Experience	13,2	15,1	19,5	20,2
Industry-specific Experience	51%	59%	56%	48%
Self-employment Experience	18%	35%	11%	17%
Leadership Experience	41%	57%	36%	54%
Follower Business	24%	24%	21%	10%
Amount of Capital Invested				
mean	37	104	72	159
median	2	20	20	25
No. of Employees at Founding	1,8	2,6	1,8	4,1
Registered Company (1=Yes)	7%	22%	4%	14%



How may these differences be accounted for?

- **Human Capital Theory: Resources of Founder**
- **Organizational Ecology: Firm Characteristics**
- **Environmental Conditions: Branch of Industry**

	Munich		Leipzig	
	women	men	women	men
Years of Schooling	12,3	13,5	13,7	14,6
Years of Work Experience	13,2	15,1	19,5	20,2
Industry-specific Experience	51%	59%	56%	48%
Self-employment Experience	18%	35%	11%	17%
Leadership Experience	41%	57%	36%	54%
Follower Business	24%	24%	21%	10%
Amount of Capital Invested				
mean	37	104	72	159
median	2	20	20	25
No. of Employees at Founding	1,8	2,6	1,8	4,1
Registered Company	7%	22%	4%	14%
Branch of Industry				
Retail Trade	32%	22%	50%	36%
Manufacturing, Construction	2%	5%	3%	7%
Wholesale	8%	19%	7%	10%
Transportation	6%	10%	4%	9%
Insurances	3%	9%	9%	13%
Restaurants	12%	7%	16%	7%
Person-Related Services	14%	12%	7%	11%
Firm-Related Services	22%	16%	4%	7%

Effects of Gender Without and With Control of Determinants of Early Growth

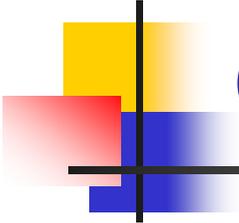
Chances of Early Growth of ...	Munich	Leipzig
Firms of Women (Without Control of Determinants of Growth)	,39***	,38***

Unit effects $\exp(\beta)$ on odds-ratio in a logistic regression;
dependent variable: at least 2 indicators of growth present;
significance level .001***

Effects of Gender Without and With Control of Determinants of Early Growth

Chances of Early Growth of ...	Munich	Leipzig
Firms of Women (Without Control of Determinants of Growth)	,39***	,38***
Firms of Women (With Control of Determinants of Growth)	,59***	,46***

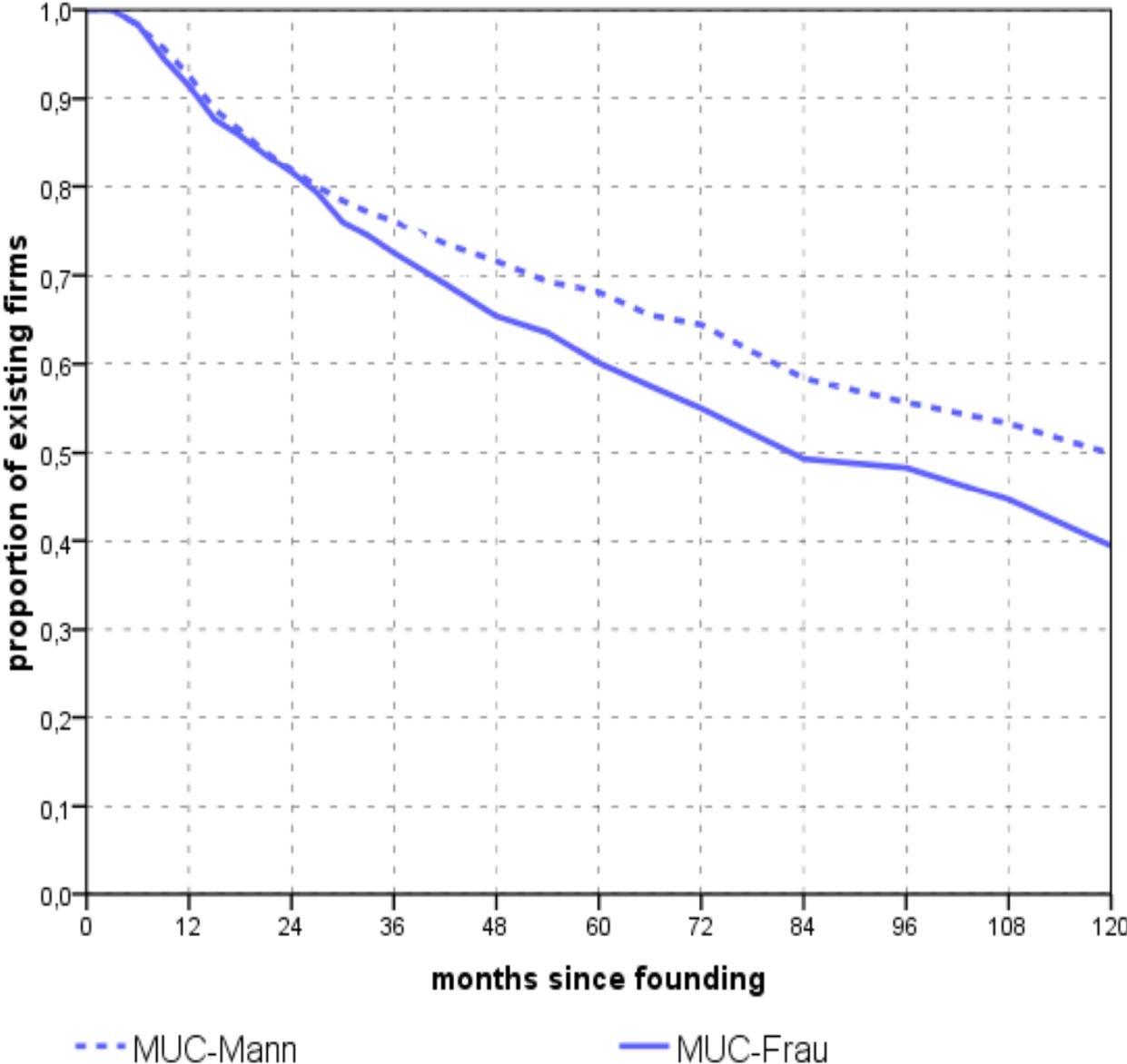
Unit effects $\exp(\beta)$ on odds-ratio in a logistic regression;
dependent variable: at least 2 indicators of growth present;
significance level .001***



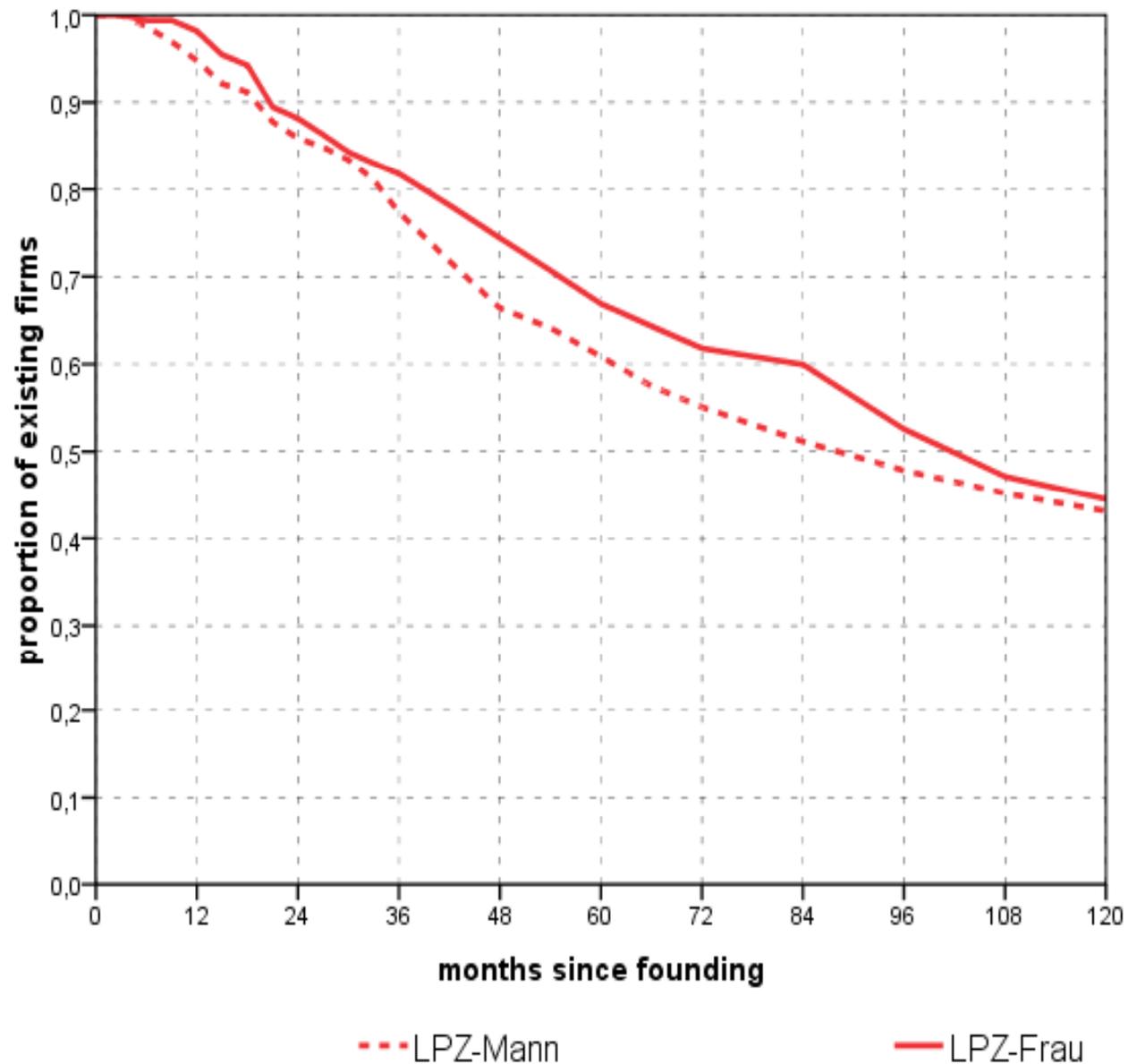
Question 2:

Are there differences in long-run rates of survival between male and female businesses?

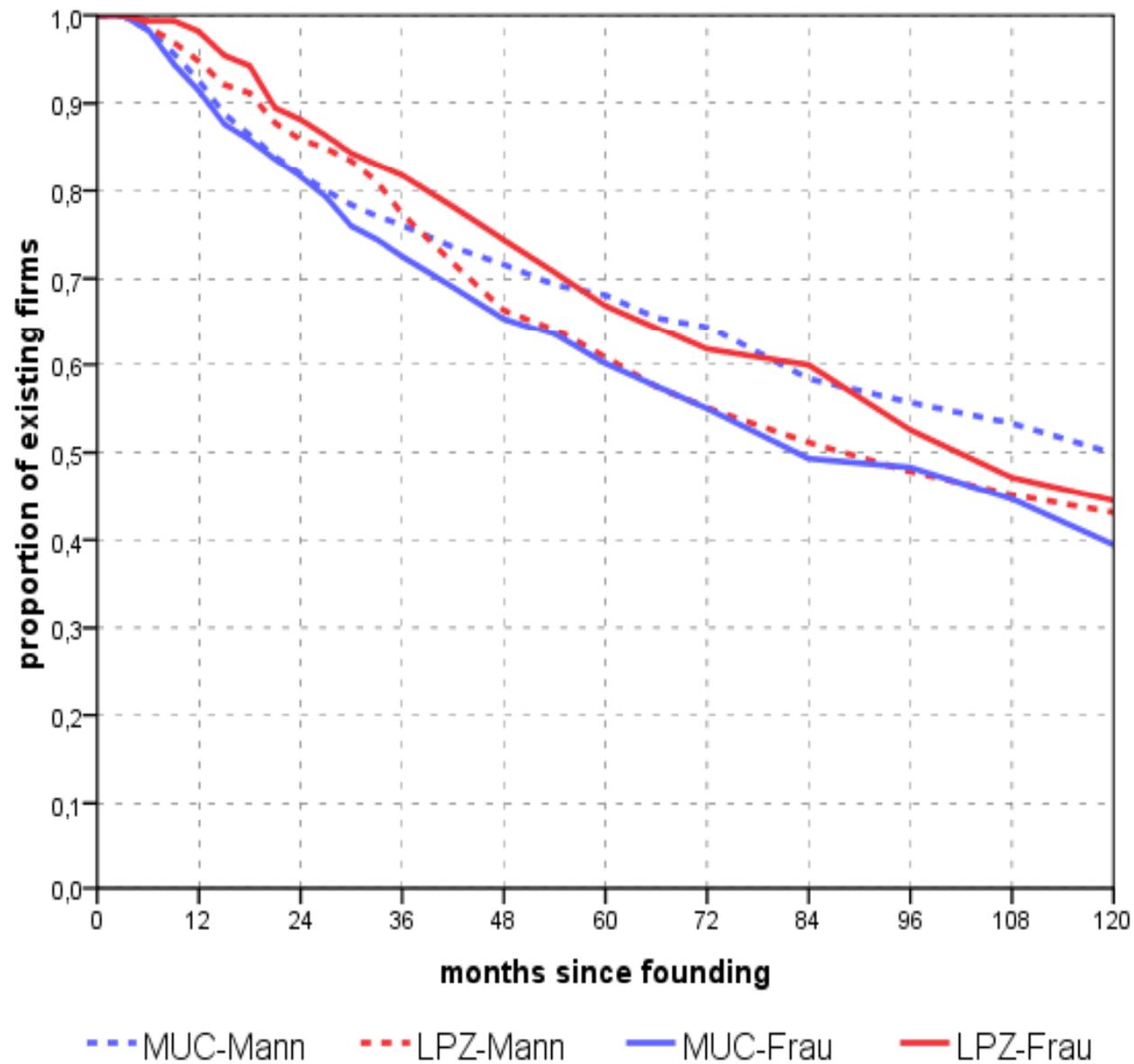
Survival of Newly Founded Businesses During the First 10 Years



Survival of Newly Founded Businesses During the First 10 Years



Survival of Newly Founded Businesses During the First 10 Years



Long-run Survival Rates

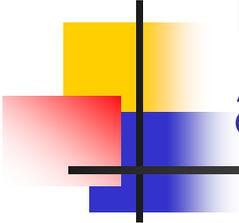
Percentage of surviving businesses after	Munich		Leipzig	
	women	men	women	men
5 years	73%	76%	82%	77%
8 years	48%	56%	53%	48%
10 years	39%	50%	44%	43%
N =	539	1156	164	297

Life table analysis with weighted data

Long-run Survival Rates

Percentage of surviving businesses after	Munich		Leipzig	
	women	men	women	men
5 years	73%	76%	82%	77%
8 years	48%	56%	53%	48%
10 years	39%	50%	44%	43%
N =	539	1156	164	297
Median number of years surviving	6,9	10	8,5	7,4

Life table analysis with weighted data



How may these differences be accounted for?

- **Resources of Founder:**

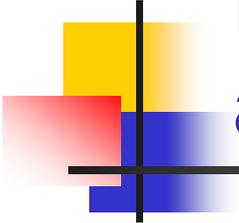
Years of Schooling, Years of Work Experience, Industry-specific Experience, Self-employment Experience, Leadership Experience

- **Firm Characteristics:**

Follower Business, Amount of Capital Invested, No. of Employees at Founding, Registered Company

- **Environmental Conditions:**

Branch of Industry



How may these differences be accounted for?

- **Resources of Founder:**

Years of Schooling, Years of Work Experience, Industry-specific Experience, Self-employment Experience, Leadership Experience

- **Firm Characteristics:**

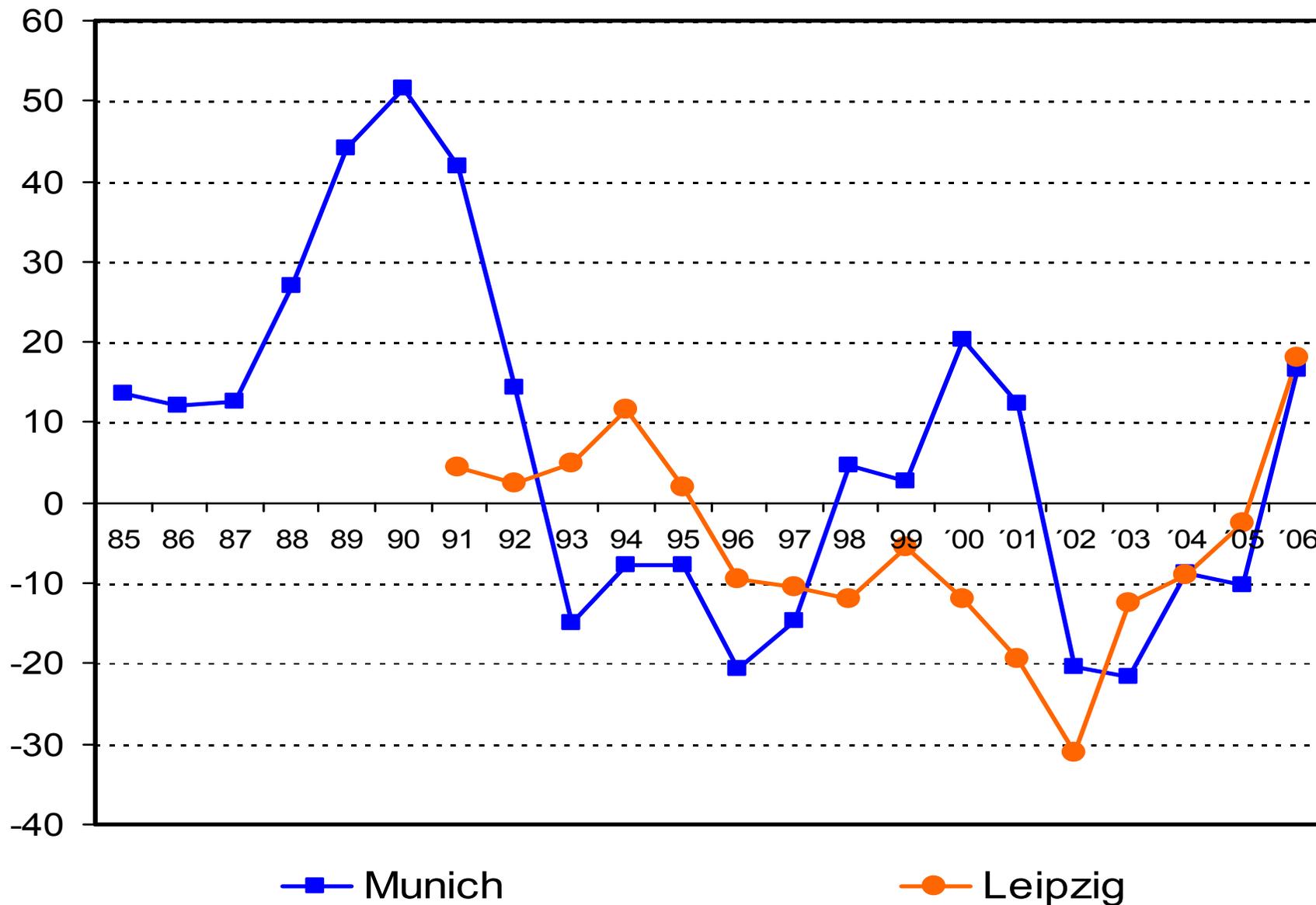
Follower Business, Amount of Capital Invested, No. of Employees at Founding, Registered Company

- **Environmental Conditions:**

Branch of Industry

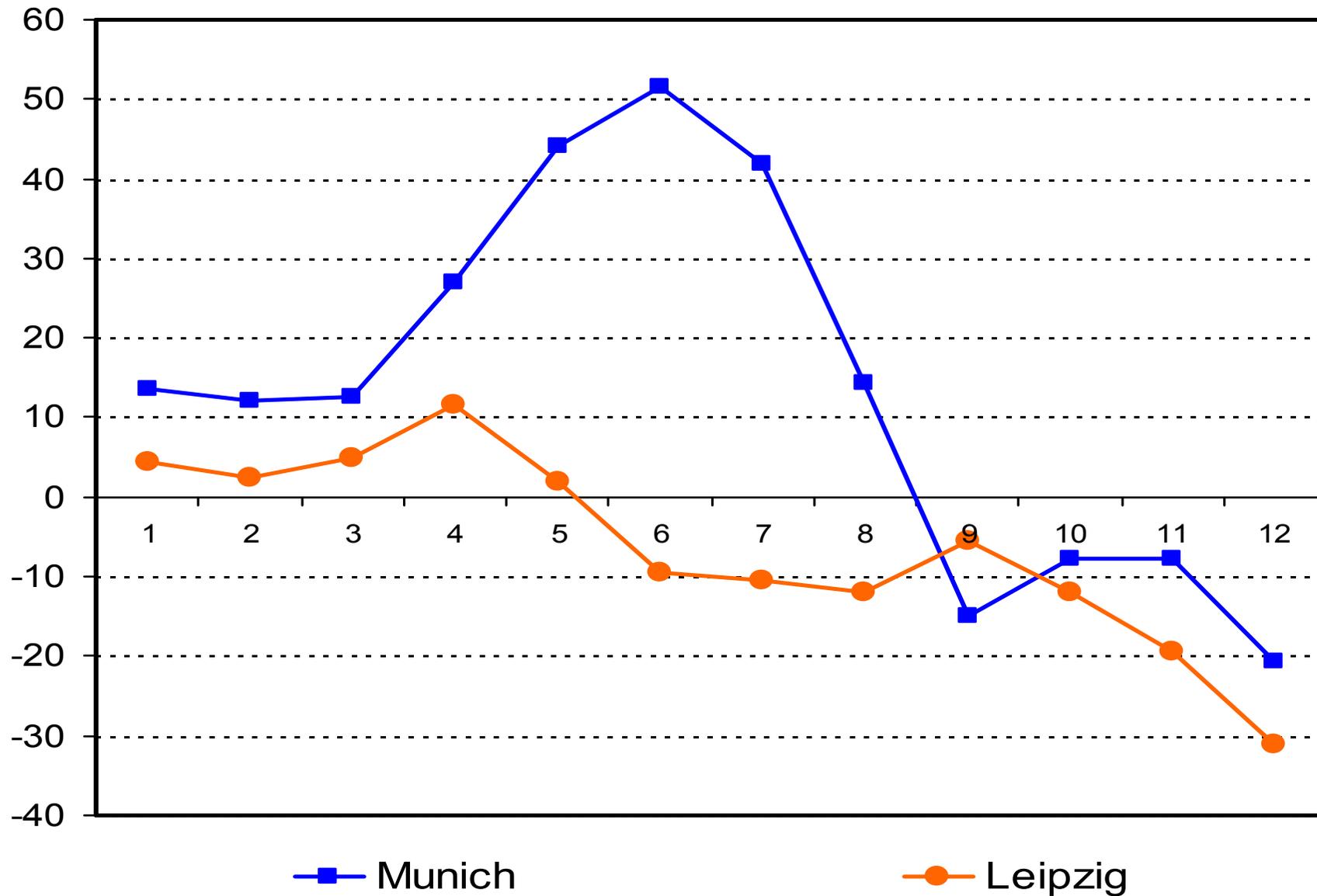
- **Economic Development:**

early growth
business cycles



Business cycles between 1985 and 2006 in Munich and Leipzig

Source: „Konjunkturbarometer“ of IHK München und Oberbayern and of IHK Leipzig



Business cycles during the first 12 years after founding

Source: „Konjunkturbarometer“ of IHK München und Oberbayern and of IHK Leipzig

- To test these hypotheses Cox-regression with constant and with time-dependent covariates were run.

- To test these hypotheses Cox-regression with constant and with time-dependent covariates were run.
- The coefficients in the following tables describe the percentage change of the monthly mortality rate of firms founded by women as compared with businesses founded by men.

- To test these hypotheses Cox-regression with constant and with time-dependent covariates were run.
- The coefficients in the following tables describe the percentage change of the monthly mortality rate of firms founded by women as compared with businesses founded by men.
- Positive signs indicate an increase of the mortality rate, i.e. a *negative* effect on survival; on the other hand, negative signs indicate a *positive* effect on survival.

- To test these hypotheses Cox-regression with constant and with time-dependent covariates were run.
- The coefficients in the following tables describe the percentage change of the monthly mortality rate of firms founded by women as compared with businesses founded by men.
- Positive signs indicate an increase of the mortality rate, i.e. a *negative* effect on survival; on the other hand, negative signs indicate a *positive* effect on survival.
- Significance levels are: .01* and .001**

Effects of Gender Without and With Control of Independent Variables

Percent Change of Long-run Monthly Mortality Rate of Firms of Women as compared with Firms of Men ...	Munich	Leipzig

Effects of Gender Without and With Control of Independent Variables

Percent Change of Long-run Monthly Mortality Rate of Firms of Women as compared with Firms of Men ...	Munich	Leipzig
without Control of Covariates	+ 42 **	+ 2

Effects of Gender Without and With Control of Independent Variables

Percent Change of Long-run Monthly Mortality Rate of Firms of Women as compared with Firms of Men ...	Munich	Leipzig
without Control of Covariates	+ 42 **	+ 2
with only Control of Resources of Founder: Years of Schooling, Years of Work Experience, Industry-specific Experience, Self-employment Experience, Leadership Experience	+ 7	- 5

Effects of Gender Without and With Control of Independent Variables

Percent Change of Long-run Monthly Mortality Rate of Firms of Women as compared with Firms of Men ...	Munich	Leipzig
without Control of Covariates	+ 42 **	+ 2
with only Control of Resources of Founder: Years of Schooling, Years of Work Experience, Industry-specific Experience, Self-employment Experience, Leadership Experience	+ 7	- 5
with only Control of Firm Characteristics: Follower Business, Amount of Capital Invested, No. of Employees at Founding, Registered Company	+ 8	- 4

Effects of Gender Without and With Control of Independent Variables

Percent Change of Long-run Monthly Mortality Rate of Firms of Women as compared with Firms of Men ...	Munich	Leipzig
without Control of Covariates	+ 42 **	+ 2
with only Control of Resources of Founder: Years of Schooling, Years of Work Experience, Industry-specific Experience, Self-employment Experience, Leadership Experience	+ 7	- 5
with only Control of Firm Characteristics: Follower Business, Amount of Capital Invested, No. of Employees at Founding, Registered Company	+ 8	- 4
with only Control of Environmental Conditions: Branch of Industry	+ 33 **	+ 1

Effects of Gender Without and With Control of Independent Variables

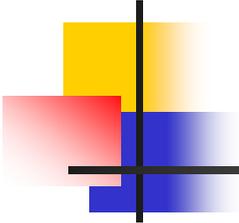
Percent Change of Long-run Monthly Mortality Rate of Firms of Women as compared with Firms of Men ...	Munich	Leipzig
without Control of Covariates	+ 42 **	+ 2
with only Control of Resources of Founder: Years of Schooling, Years of Work Experience, Industry-specific Experience, Self-employment Experience, Leadership Experience	+ 7	- 5
with only Control of Firm Characteristics: Follower Business, Amount of Capital Invested, No. of Employees at Founding, Registered Company	+ 8	- 4
with only Control of Environmental Conditions: Branch of Industry	+ 33 **	+ 1
with only Control of Economic Development: Early Growth, Business Cycles	+ 28 *	- 5

Effects of Gender Without and With Control of Independent Variables

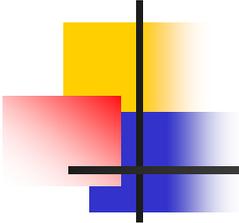
Percent Change of Long-run Monthly Mortality Rate of Firms of Women as compared with Firms of Men ...	Munich	Leipzig
without Control of Covariates	+ 42 **	+ 2
with only Control of Resources of Founder: Years of Schooling, Years of Work Experience, Industry-specific Experience, Self-employment Experience, Leadership Experience	+ 7	- 5
with only Control of Firm Characteristics: Follower Business, Amount of Capital Invested, No. of Employees at Founding, Registered Company	+ 8	- 4
with only Control of Environmental Conditions: Branch of Industry	+ 33 **	+ 1
with only Control of Economic Development: Early Growth, Business Cycles	+ 28 *	- 5
with Control of all Covariates	- 4	- 15

% Change of Monthly Mortality Rate (Cox-Regression)

	München	Leipzig
Gender (1=woman)	- 4	- 15
Years of Schooling	- 1	- 2
Years of Work Experience	- 1	+ 1
Industry-specific Experience (1=Yes)	- 26	+ 33
Self-employment Experience (1=Yes)	+ 8	+ 31
Leadership Experience (1=Yes)	- 12	- 9
Follower Business (1=Yes)	- 29	- 15
Amount of Capital Invested (log)	- 2	- 4
No. of Employees at Founding (log)	- 15	- 7
Registered Company (1=Yes)	- 40	- 33
Branch of Industry (ref. category: Retail Trade)		
Manufacturing, Construction	- 30	+16
Wholesale	- 29	- 20
Restaurants	+ 96	- 10
Transportation	+ 213	- 1
Insurances	+ 160	- 85
Firm-Related Services	+ 102	- 58
Person-Related Services	+ 96	- 28
Early success (at least two indicators of growth)	- 63	- 43
Business cycles	- 6	+3

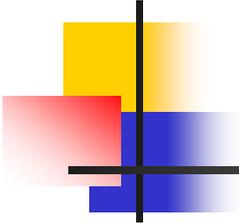


Brief Summary



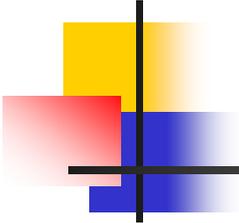
Early Growth

- Both in Leipzig and in Munich female businesses are less expansive during the first three years after founding.



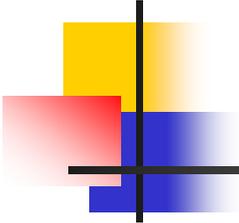
Early Growth

- Both in Leipzig and in Munich female businesses are less expansive during the first three years after founding.
- This lower early growth of female firms shows up even after controlling for differences in human resources, firm characteristics and branch of industry.



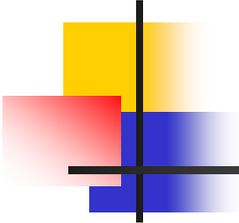
Long-run Survival

- In Munich female businesses have higher long-run mortality rates than male firms.



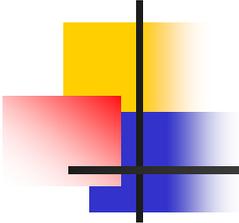
Long-run Survival

- In Munich female businesses have higher long-run mortality rates than male firms.
- In Leipzig long-run mortality rates are almost equal.



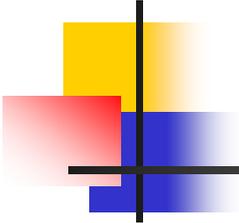
Long-run Survival

- In Munich female businesses have higher long-run mortality rates than male firms.
- In Leipzig long-run mortality rates are almost equal.
- Resources of founder and firm characteristics reduce the differences between the two regions.



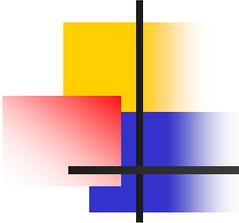
Long-run Survival

- In Munich female businesses have higher long-run mortality rates than male firms.
- In Leipzig long-run mortality rates are almost equal.
- Resources of founder and firm characteristics reduce the differences between the two regions.
- **Branch of industry and economic development have a minor influence.**



Long-run Survival

- Controlling for all these covariates, in Munich there exist practically no differences between the survival chances of female and male businesses.



Long-run Survival

- Controlling for all these covariates, in Munich there exist practically no differences between the survival chances of female and male businesses.
- However, in Leipzig the long-run survival chances of female businesses then turn out to be higher than those of firms of men.

München



Leipzig

