

# Office Market and Labour Market: The Case of Germany

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# Inhalt

- Motivation

- Office Employment in Germany

- Panel Regressions

- Single Regressions

- Conclusion

# Motivation

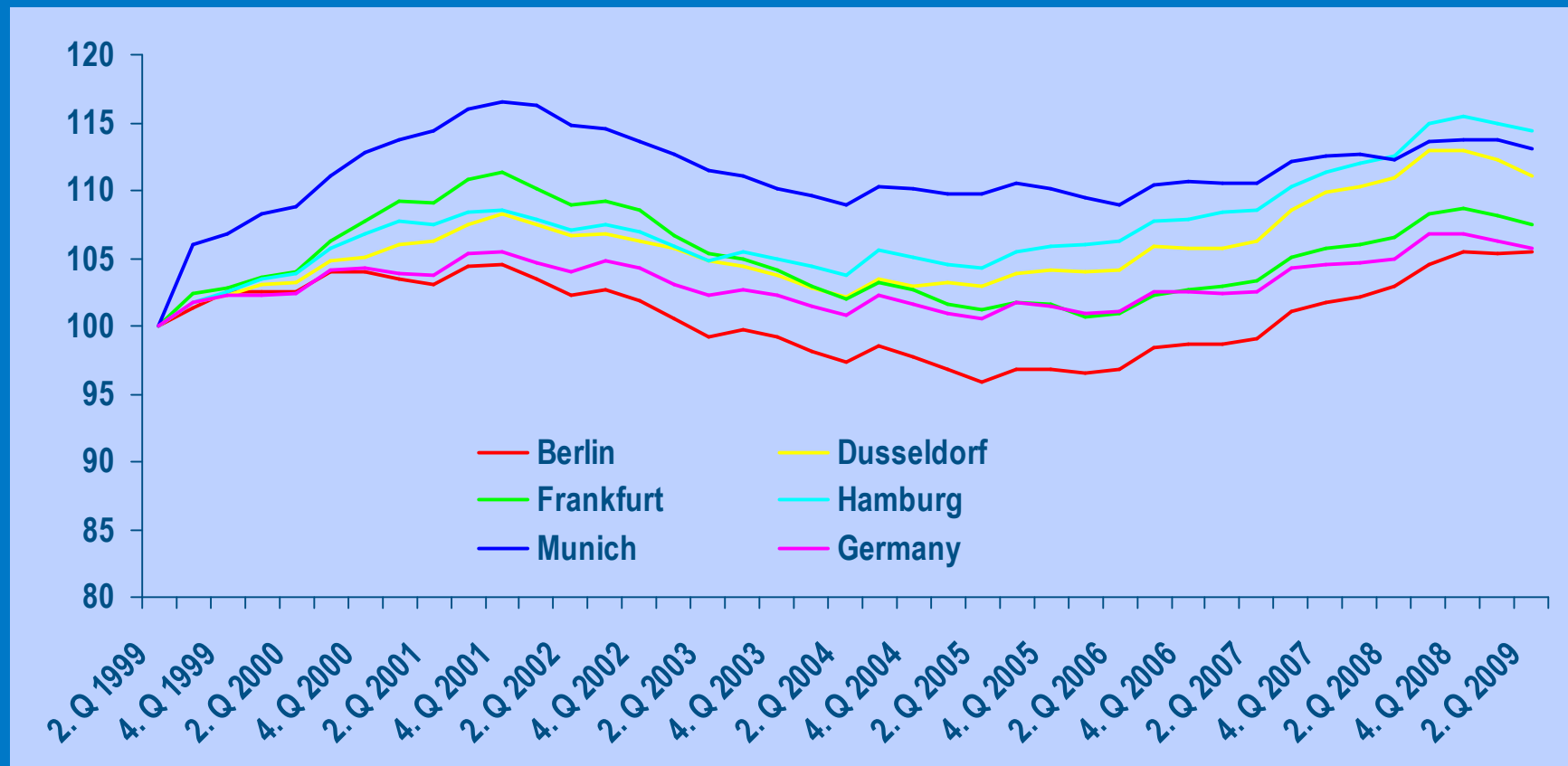
- The link between labour market and office market has been explored in detail for Anglo-Saxon countries
- For Germany such analyses are missing
- With a value of approximately 450 billion Euro in the 7 biggest cities the German office market has a significant relevance for institutional investors
- Central questions
  - Can labour market indicators explain rental adjustments?
  - Are their differences between office employment, total employment and unemployment data?
  - Is construction as relevant as employment?
  - Do the German cities react differently?

## Office Employment in Germany (only socially secured)

Occupational group	Germany	Top 5 cities (Berlin, Dusseldorf, Frankfurt, Hamburg, Munich)
Office clerks	3,833,268	589,020
Securities and finance dealers and brokers	578,528	126,530
Computer assistants	530,068	114,139
Production and operations managers in wholesale and retail trade	514,509	62,089
Technicians	368,374	46,917
Other	3,492,841	680,676
<b>Total</b>	<b>9,317,588</b>	<b>1,619,317</b>

Source: Federal Agency for employment, own calculations

# Development of Office Employment



Source: Federal Agency for employment, own calculations

## Data and methodology

- Office employment: own calculations
- Other employment data: Federal Agency for Employment
- Office market indicators (rents, vacancy rates, construction): JLL
- All relevant time-series are non-stationary
- Thus, first differences have been used
- Fisher Test and Hadri-Test show stationarity for first differences
- Hausman-Test allows for random-effects-models

## Regression results for changes in prime rents

	Regressor (first difference)		
	Office employment	Total employment	Unemployment rate
t	.0000821 (0.001)	.0000314 (0.001)	-.2581492 (0.025)
t <sub>-2</sub>	.0001782 (0.000)	.0000606 (0.000)	-.1549157 (0.200)
t <sub>-6</sub>	-.0000954 (0.002)	-.000031 (0.084)	.0130688 (0.920)
R <sup>2</sup>	0.2572	0.1549	0.0451

This table reports the results for a random-effects panel model with changes in prime rents as the dependent variables and changes in employment variables as independent variables. In all cases a contemporaneous and a lagged regressor were considered. P-values are in parenthesis.

## Regression results for an extended model for changes in prime rents

	(I)	(II)	(III) $\text{vac}_t < \text{vac}_{\text{mean}}$	(IV) $\text{vac}_t > \text{vac}_{\text{mean}}$
Office employment (t)	.0000821 (0.001)	.0000835 (0.001)	.0001323 (0.032)	.0000505 (0.004)
Office employment (t <sub>2</sub> )	.0001782 (0.000)	.0001792 (0.000)	.0002505 (0.002)	.000082 (0.006)
Office employment (t <sub>6</sub> )	-.0000954 (0.002)	-.000093 (0.002)	-.0000704 (0.336)	-.0000241 (0.450)
Construction (t)		.0015208 (0.167)		
Construction (t <sub>1</sub> )		-.0003126 (0.779)		
Constant	-.1761639 (0.028)	-.1776245 (0.006)		
R <sup>2</sup>	0.2572	0.2710	0.3543	0.1843

This table reports the results for a random-effects panel model with changes in prime rents as the dependent variables. All variables are in first differences and t stands for the considered time period of the independent variable.  $\text{vac}_t$  represents the current vacancy rate while  $\text{vac}_{\text{mean}}$  stands for the mean of the vacancy rate for each regarded city. P-values of the coefficients are in parenthesis.

## Regression results for an extended model for changes in average rents

	(I)	(II)	(III) $vac_t < vac_{mean}$	(IV) $vac_t > vac_{mean}$
Office employment (t)	.0002817 (0.000)	.000274 (0.000)	.000292 (0.085)	.0002581 (0.002)
Office employment (t <sub>-1</sub> )	.0002668 (0.000)	.000253 (0.001)	.0003893 (0.025)	.0002151 (0.008)
Office employment (t <sub>-6</sub> )	.0001523 (0.015)	.0001595 (0.009)	.0000831 (0.548)	.0001459 (0.080)
Construction (t)		.0099844 (0.003)		
Construction (t <sub>-1</sub> )		.0058075 (0.086)		
Constant	-.3865476 (0.052)	-.3696617 (0.058)	-.009689 (0.987)	-.4408775 (0.045)
R <sup>2</sup>	0.2220	0.2654	0.2862	0.1830

This table reports the results for a random-effects panel model with changes in average rents as the dependent variables. All variables are in first differences and t stands for the considered time period of the independent variable.  $vac_t$  represents the current vacancy rate while  $vac_{mean}$  stands for the mean of the vacancy rate for each regarded city. P-values of the coefficients are in parenthesis.

## Single regressions for prime rents

	Berlin	Dusseldorf	Frankfurt	Hamburg	Munich
Office employment (t)	.0000542 (0.127)	.000103 (0.267)	.0002122 (0.010)	.0000125 (0.823)	.0000417 (0.127)
Office employment (t <sub>2</sub> )	.0000978 (0.105)	.0002009 (0.092)	.0003613 (0.001)	.0003427 (0.000)	.0000602 (0.000)
Office employment (t <sub>6</sub> )	-.0000648 (0.315)	-.0000388 (0.752)	-.0002199 (0.027)	-.0002775 (0.003)	-.0000003 (0.854)
Constant	-.2921952 (0.022)	-.1117053 (0.442)	-.3138825 (0.079)	-.1344514 (0.416)	-.0422727 (0.530)
R <sup>2</sup>	0.2066	0.1786	0.5421	0.4048	0.2976

This table reports the results for single regressions with changes in prime rents as the dependent variable and changes in office employment as the independent variable whereby t stands for the considered time period of the independent variable. P-values of the coefficients are in parenthesis.

## Conclusion

- Office employment is a better predictor for changes in office rents than the unemployment rate or total employment
- In cities like Frankfurt and Munich, movements in office employment can explain more than 50 percent of rental adjustments
- Between office market and labour market is a time-lag which makes labour market data interesting for forecasts
- Construction activity is only of minor importance for explaining rental adjustments
- Given the lack of reliable office market indicators in Germany real estate research should put more effort in the utilisation of labour market data.



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