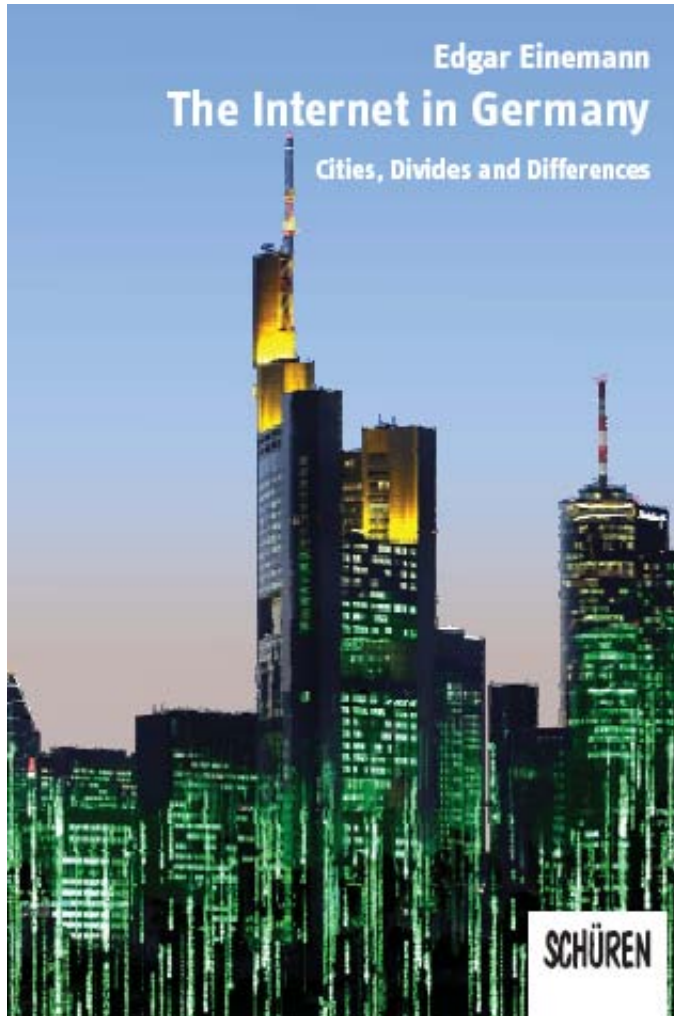


Edgar Einemann



The Internet in Germany

Annual meeting of the IGU-Commission on
the Geography of Information Society:
„Shifting into Global Leadership in
Telecommunications and Information“
Sydney, June 26-30, 2006

The Internet in Germany

1. Initial questions

2. Approach of this study

3. Central results

4. Summary

(Case study of Bremen)

The Internet in Germany

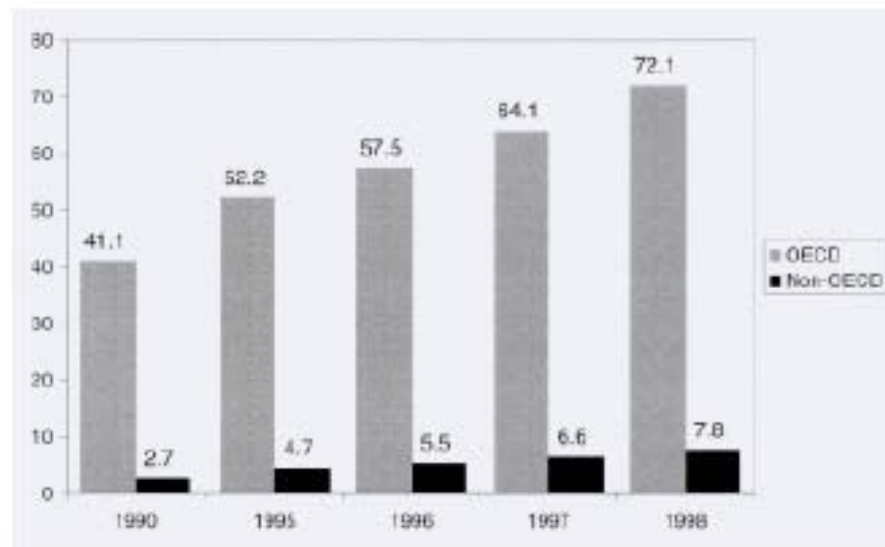
1. Initial questions

Initial question 1

Is there a digital divide in Germany?

Telecommunication access paths are the basic symptom of the digital divide

Fixed plus mobile telecommunication access paths per 100 inhabitants



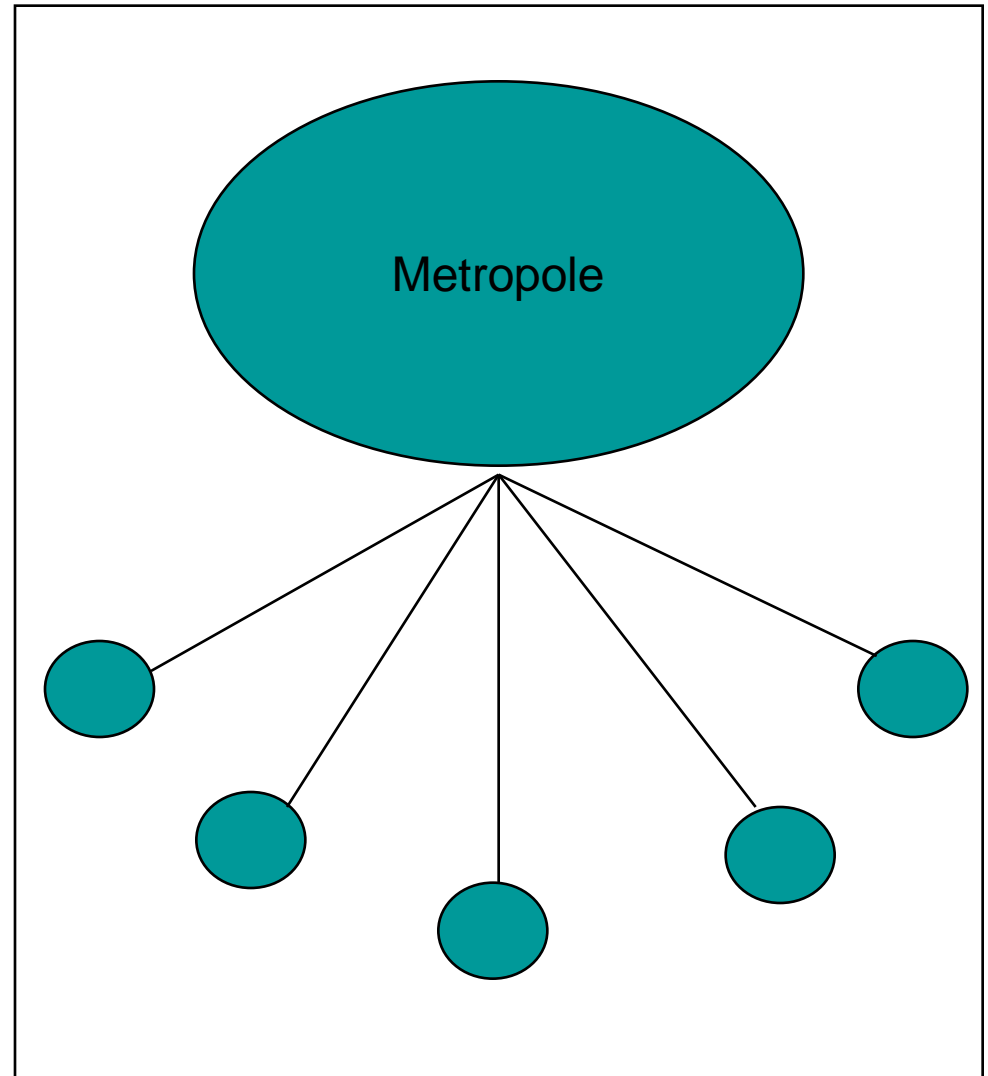
Source: OECD and International Telecommunication Union.



<http://www.oecd.org/dataoecd/38/57/1888451.pdf>

Initial question 2

Is there an internet concentration in a metropolis?



The Internet in Germany

1. Initial questions

Initial question 3

**Is there an economical
and social correlation
of internet power?**

Pisa Study

Mind Wars

By Julia Schaaf

“In all industrial nations there is a connection between the family background and the educational opportunities. But in Germany this correlation is particularly strong.

Repeated studies conducted in the last years have shown the influence of one’s parents’ education and income level on one’s own school career.“

*Source: Frankfurter Allgemeine Sonntagszeitung,
06 Nov 2005, No. 44 / Page 61*

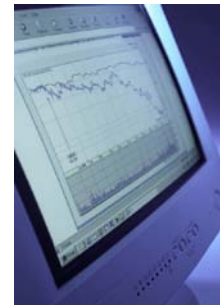
How can the internet power be determined?

Until now mainly by:

Method: mostly surveys
(personal, by telephone, online)
very limited measurements

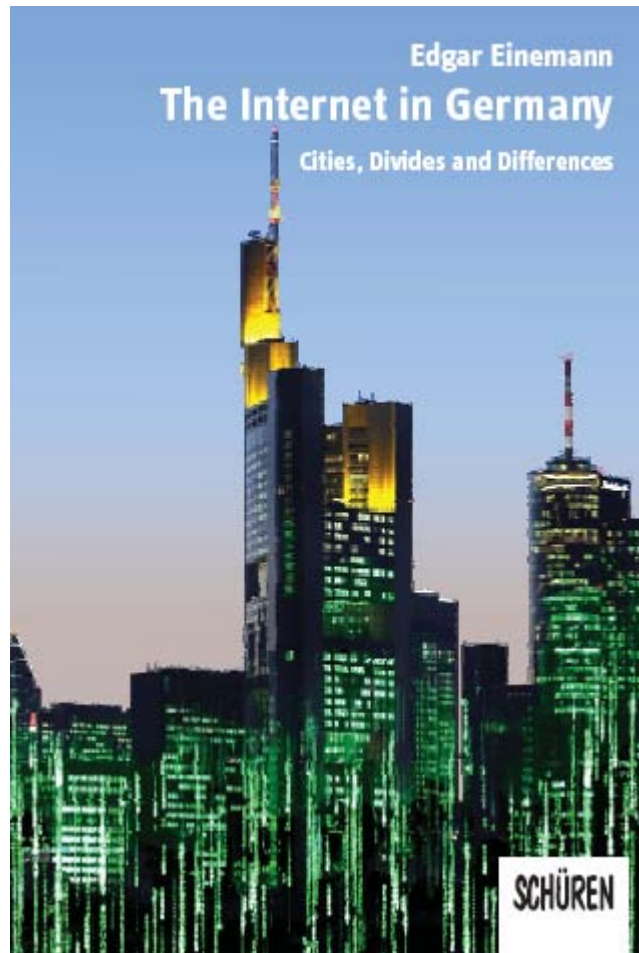


Indicators: Telephone lines, computer equipment, internet access lines



The Internet in Germany

2. Approach of this study



The new approach

Model with 30 main indicators
Database: measurements
Units: cities/quarters

Model with 30 internet indicators

According to internet sectors

1. Production
2. Consumption
3. Frame

According to Internet players

1. Companies
2. Private persons
3. Government

Indicators of the internet-city-position: sectors

Offer/Production		Use/Consumption		Frame/Culture	
1	Domain .de reg	14	Broadband access lines	20	New Market
2	Domains 1&1	15	E-mail addresses		
		16	Online accounts	21	CS-professors
3	Catalog entries	17	Stock market activities	22	CS-students
4	Websites active 1&1				
5	Product provider	18	Download volume	23	ECO
6	Content provider IVW	19	Online time	24	DENIC
7	Car sellers			25	D21
8	Webshops active			26	BITCOM
9	Auctions			27	DMMV
10	City websites				
				28	Telecities
11	Pageviews IVW			29	GCD
12	Pageviews meinestadt				
13	Pageviews 1&1			30	Evaluation

Indicators of the internet-city-position: Players

Companies	Private individuals	Government
Domains DENIC	Domains 1&1 reg.	City website
Domains 1&1 reg.	Catalog entry	CS-professors
Catalog entry	Websites active 1&1	CS-students
Websites active 1&1	Pageviews 1&1	Government active
Product Provider	Access lines	Evaluation
Content provider IVW	E-mail addresses	
Car sellers	Car sellers	
Webshops active	Auctions	
Pageviews IVW	Online accounts	
Pageviews 1&1	Stock market activities	
Access lines	Download volume	
Download volume	Online time	
Online time		
Companies active		
New Market		

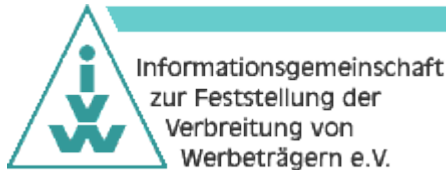
Sources

- Own internet research
- Data provided by institutions
- Data provides by leading internet companies

Database: approx. 13.000 basic numbers, including:



6 million German domain registrations (.de)



8 billion pageviews (measured by IVW)



16 million e-mail addresses from GMX



Auctions

Database: approx. 13.000 basic numbers, including:



**40% of all German domains with private and commercial websites: 2 billion clicks
internet access lines: measurement of data volume (755 terabyte) and online time**



Nearly half a million online accounts

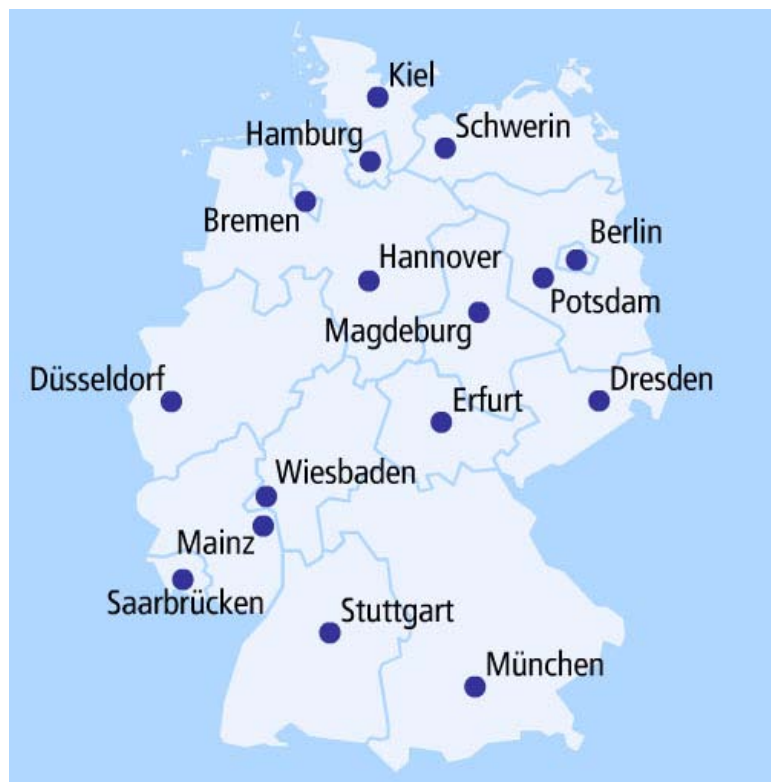


Exhibitors with internet products

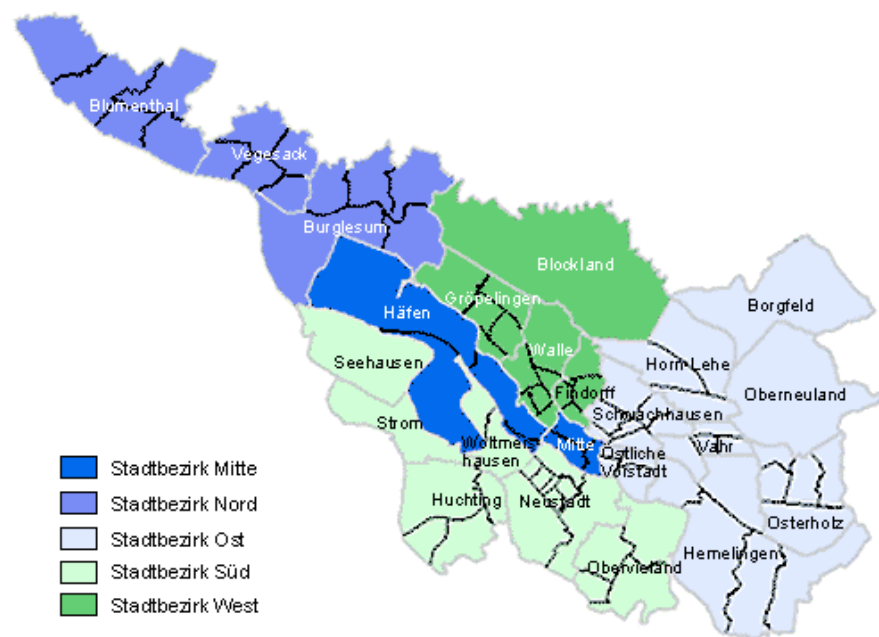
The Internet in Germany

2. Approach of this study

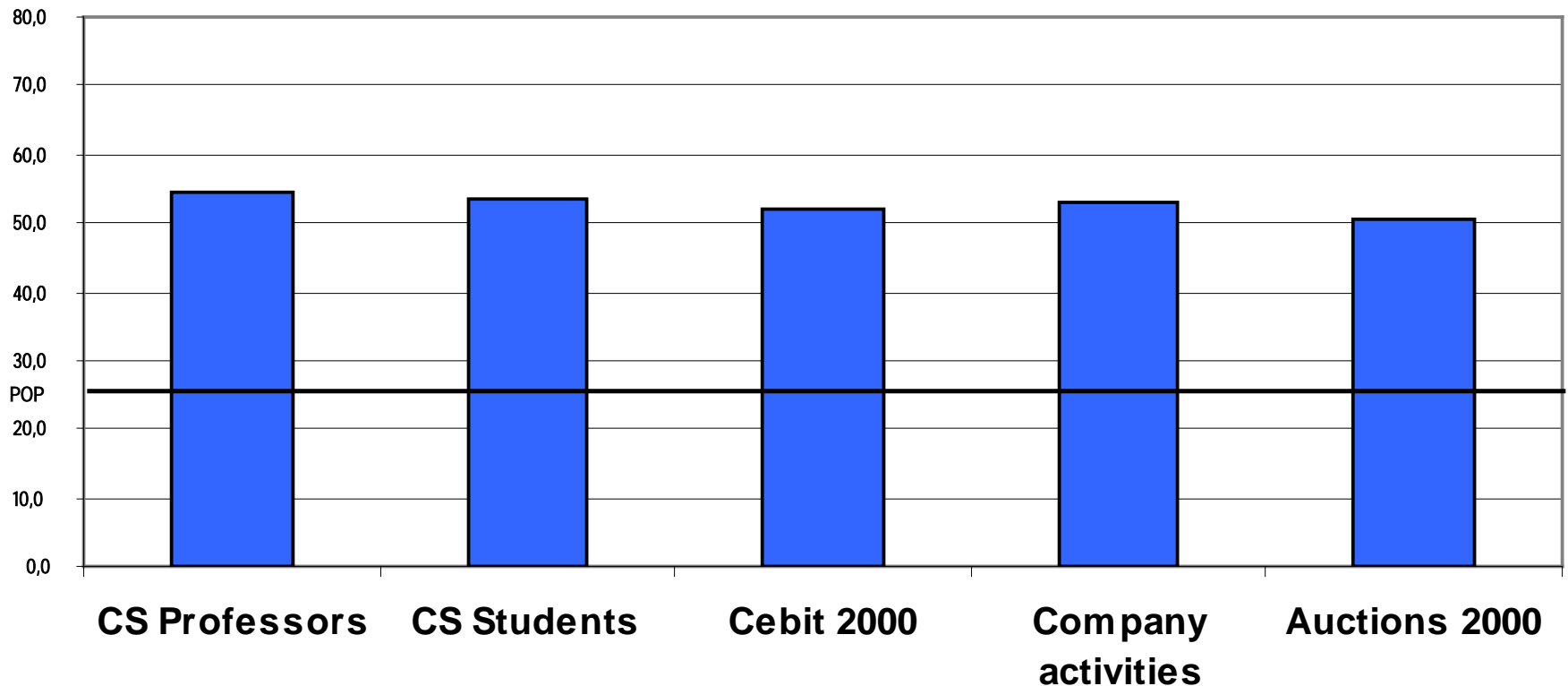
50 largest German cities



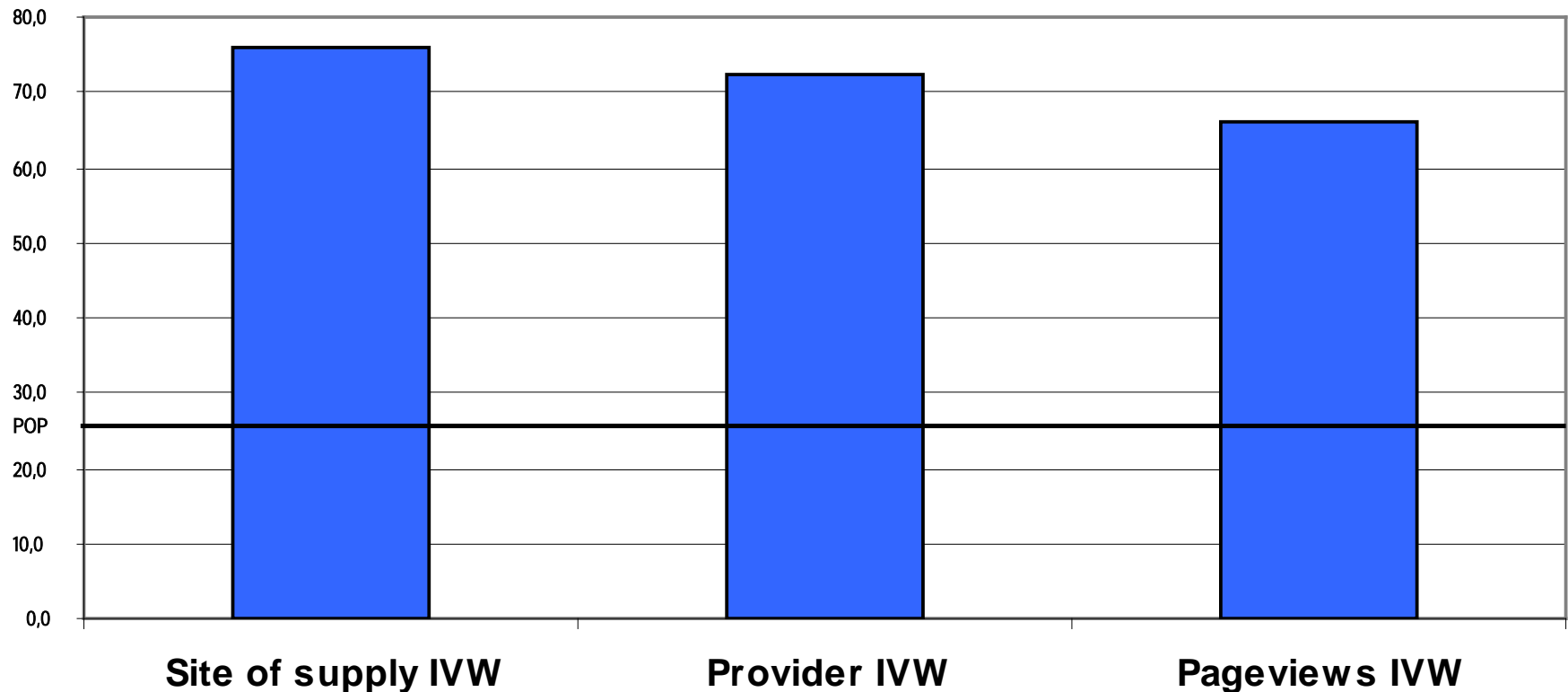
75 quarters in Bremen



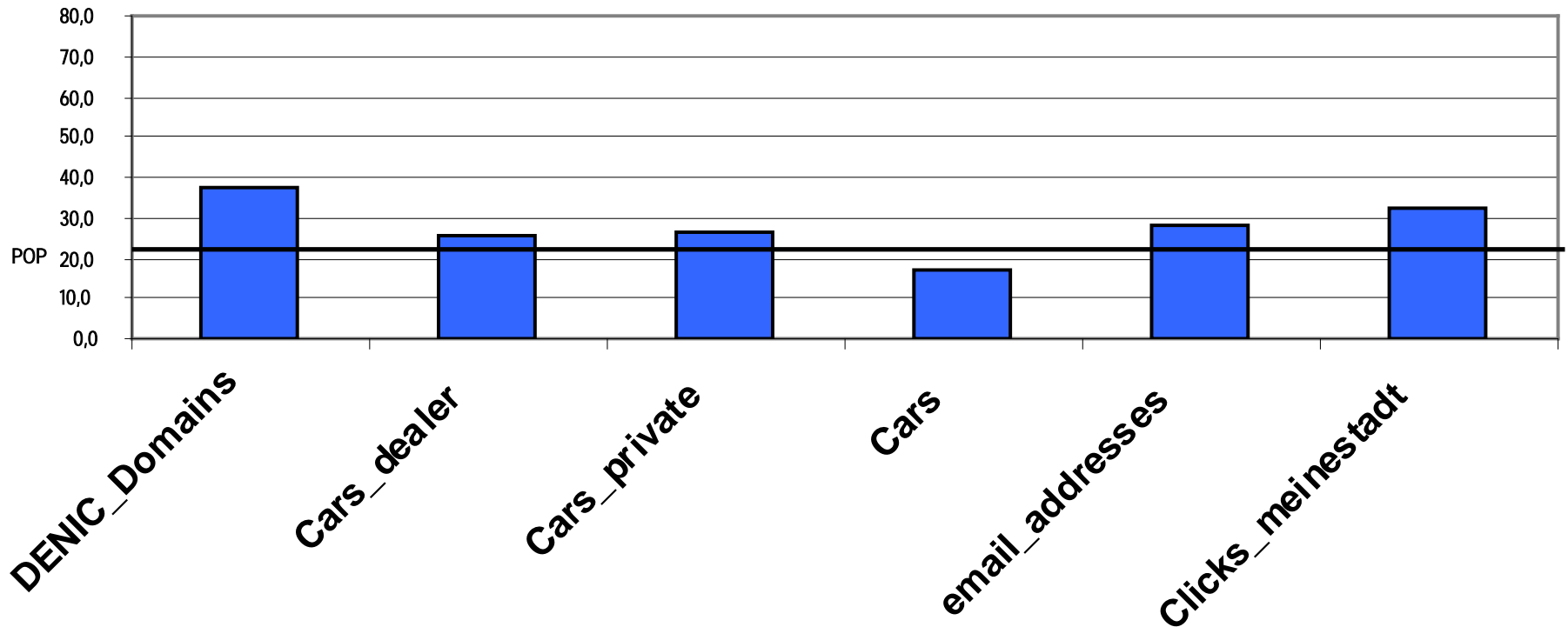
1.1. Dominance of large cities: innovative internet centers



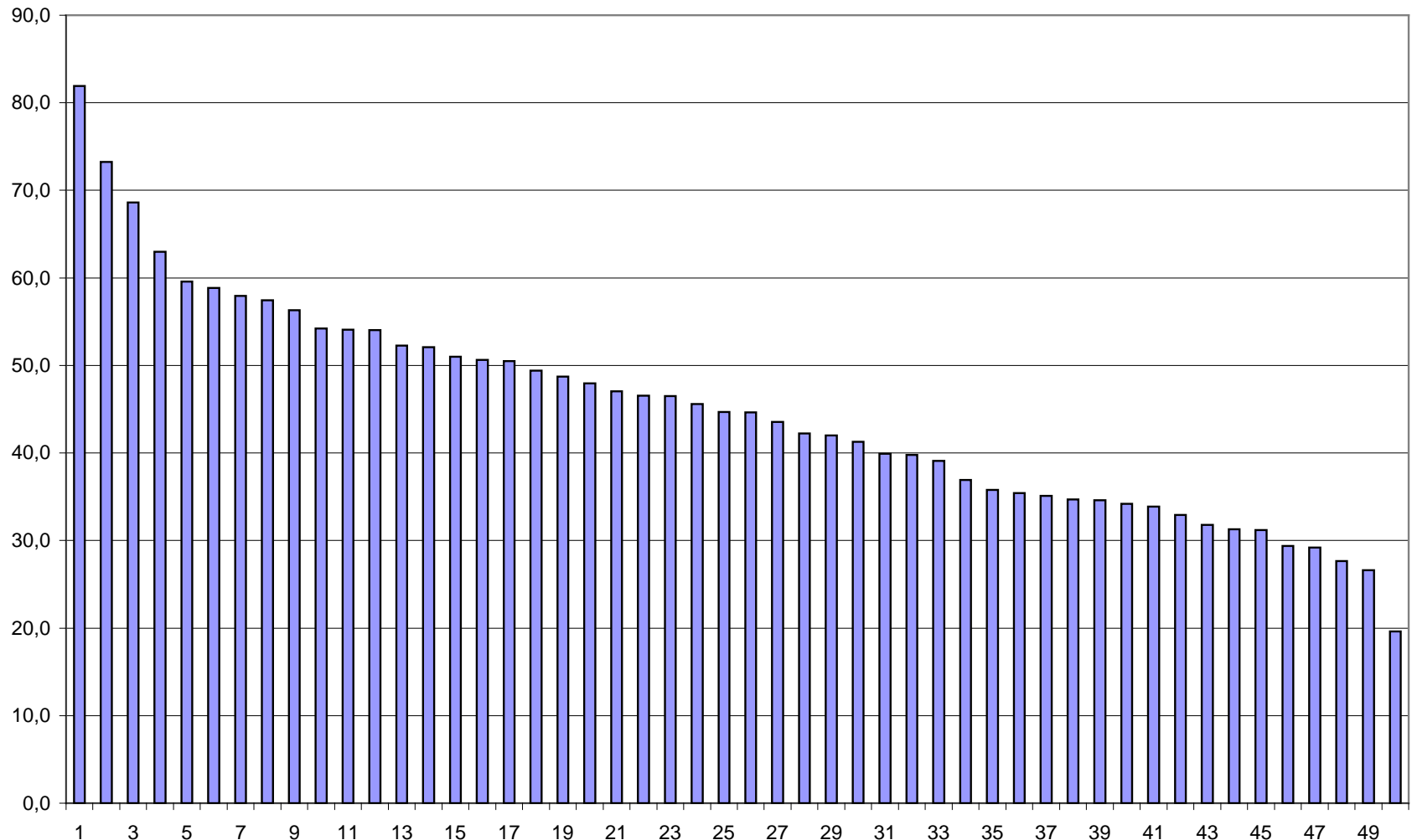
1.2. Dominance of large cities: content production relevant to advertising



2. But: Not everywhere is there a concentration in large cities



3. Picture of Germany: no gap but a digital differentiation



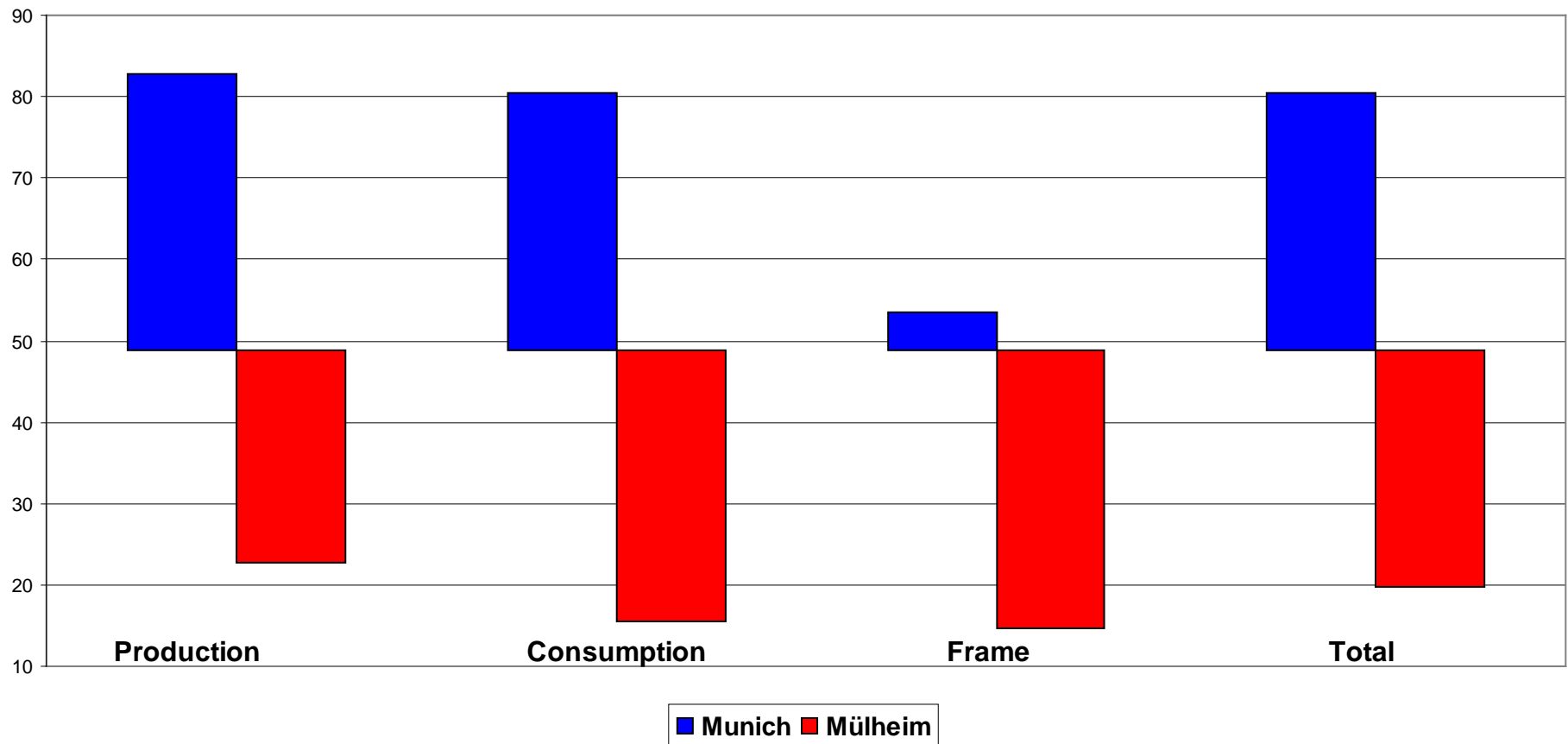
4. The top ten cities

		Production	Consumption	Frame	Total	Index
1	Munich	82.7	84.6	53.4	81.9	167.5
2	Karlsruhe	67.7	84.3	63.1	73.2	149.8
3	Bonn	70.3	70.5	35.6	68.6	140.3
4	Frankfurt	56.5	77.1	42.8	63.0	128.7
5	Aachen	42.7	89.6	51.6	59.6	121.8
6	Düsseldorf	54.2	71.3	27.2	58.8	120.3
7	Cologne	61.2	84.2	27.0	57.9	118.5
8	Mainz	45.1	55.4	28.5	57.4	117.5
9	Dortmund	36.4	93.6	34.7	56.3	115.1
10	Münster	46.2	73.6	14.8	54.2	110.8

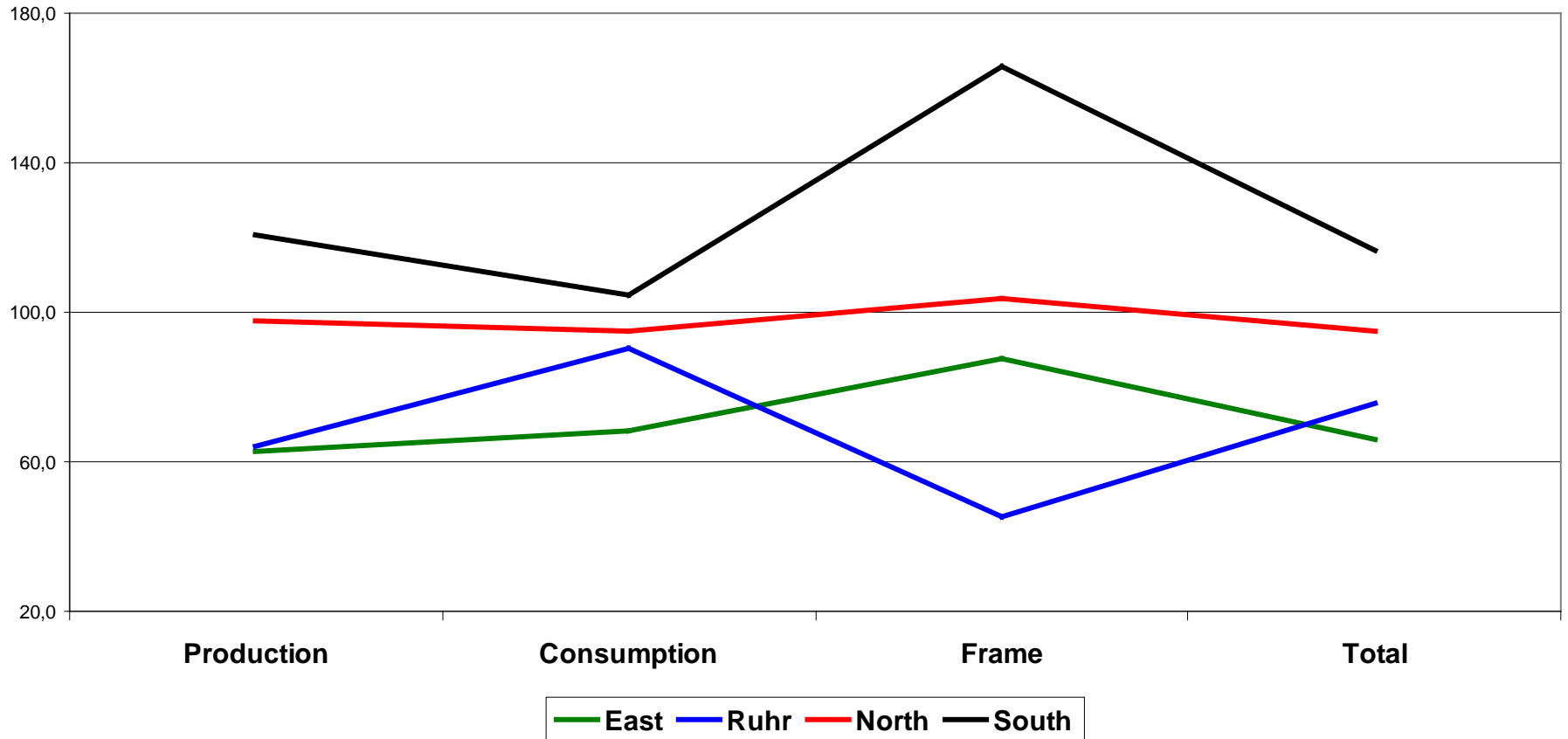
5. Cities ranking 41 to 50

		Production	Consumption	Frame	Total	Index
41	Leverkusen	25.5	52.0	7.5	33.9	69.3
42	Erfurt	26.4	44.5	29.7	32.9	67.3
43	Hamm	19.9	55.8	6.2	31.8	65.0
44	Herne	18.7	56.5	6.4	31.3	64.0
45	Magdeburg	27.0	40.0	19.3	31.2	63.8
46	Rostock	23.1	42.1	15.9	29.4	60.1
47	Chemnitz	25.5	37.5	16.4	29.2	59.7
48	Hagen	19.4	43.4	16.7	27.7	56.6
49	Halle	20.5	38.7	15.7	26.6	54.4
50	Mülheim	22.8	15.0	14.6	19.6	40.1

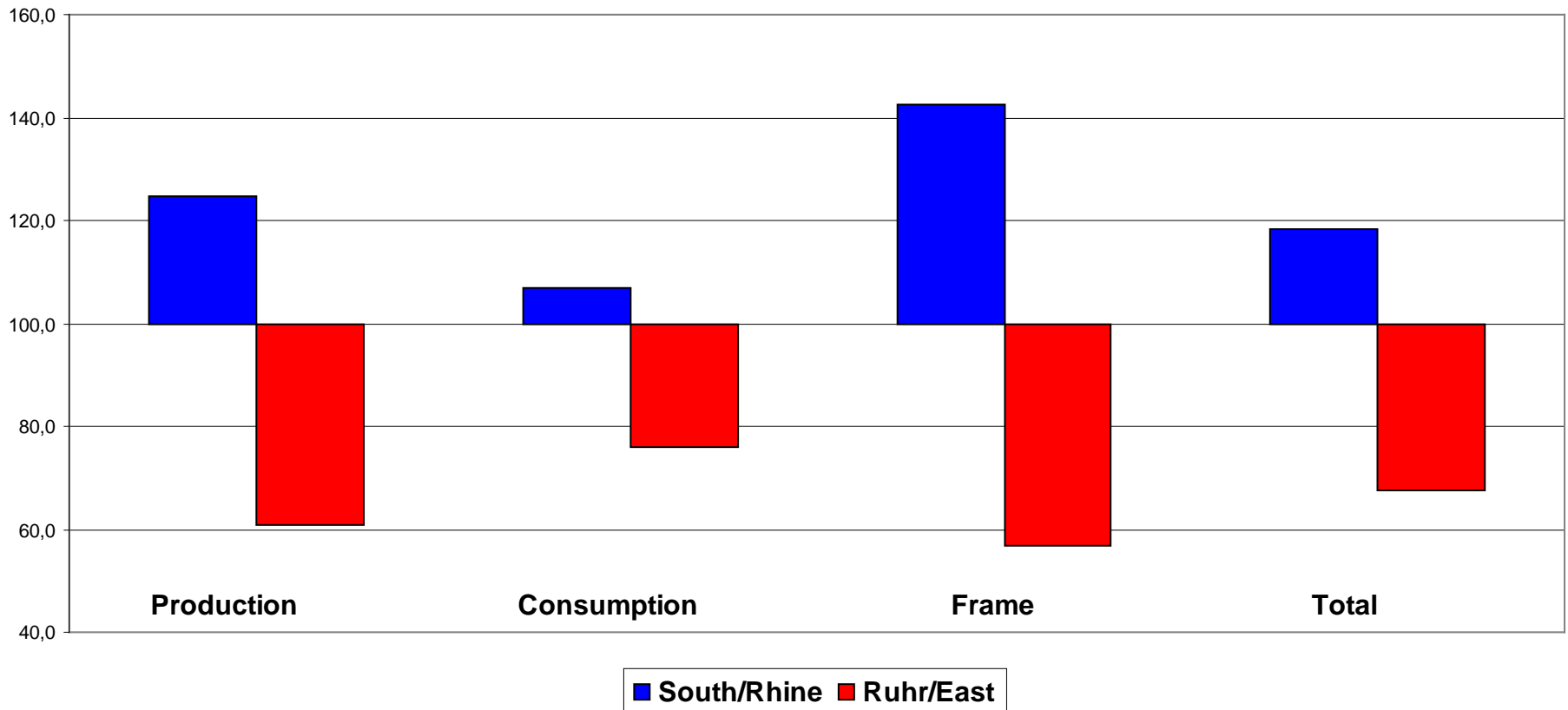
6. There is a divide between the poles (Munich and Mülheim)



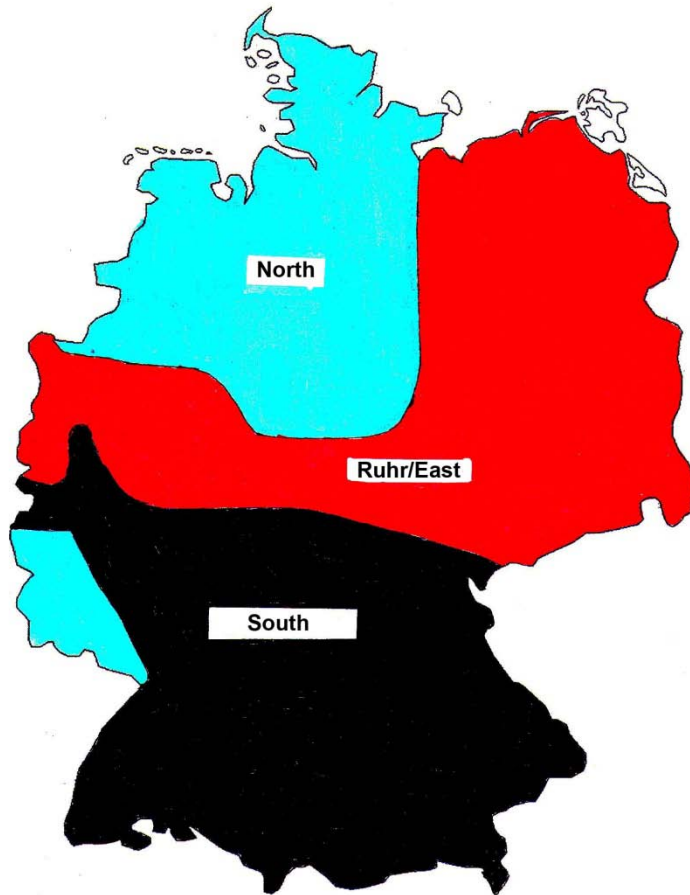
7. There is a regional digital differentiation in Germany



8. There is a clear gap between Rhine/South and Ruhr/East

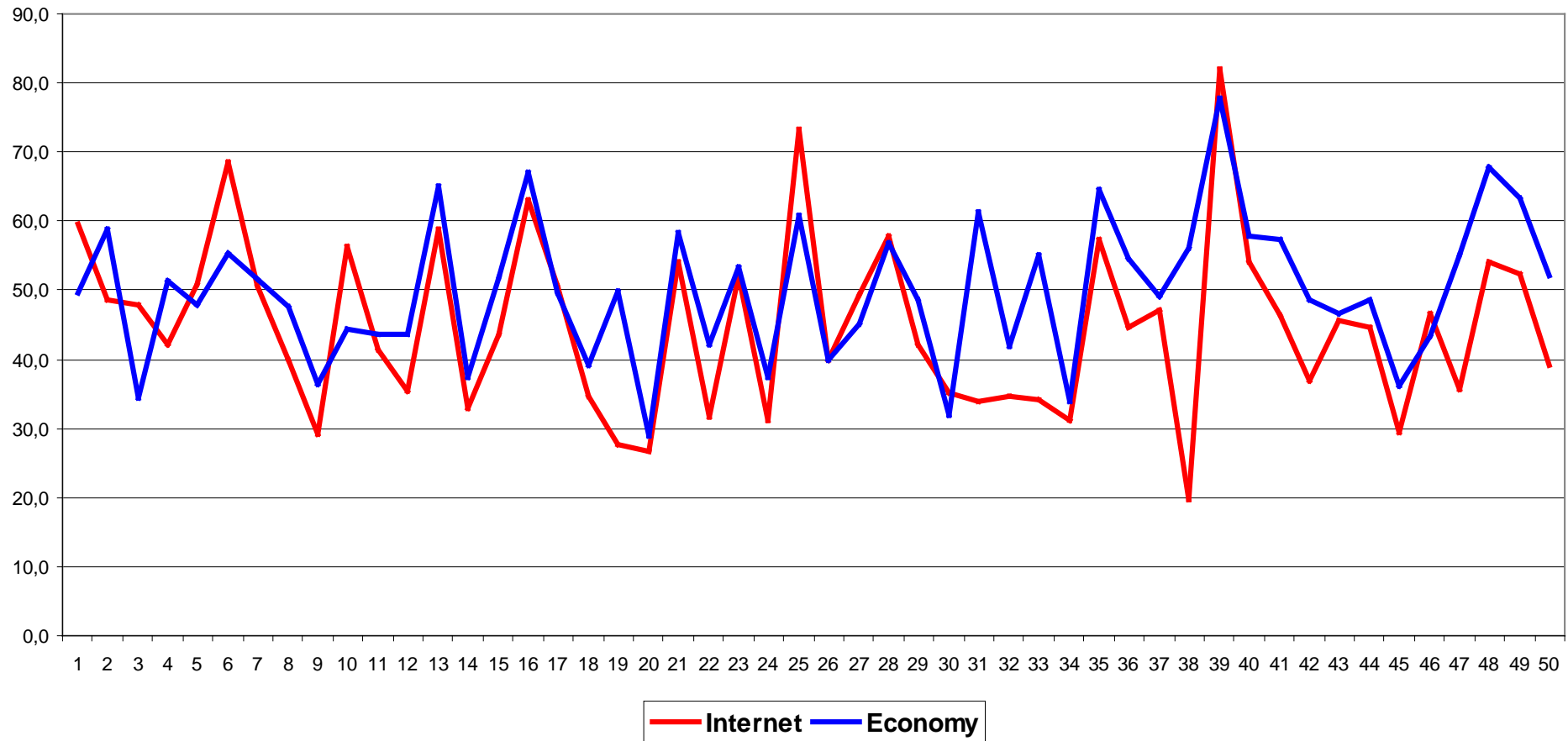


9. The geographical digital division of Germany into three sections does have exceptions



Rank		Res_2003	Index
9	Dortmund	589240	115.1
15	Bochum	390087	104.2
19	Augsburg	257836	99.6
23	Nuremberg	491307	95.0
26	Mannheim	308385	91.2
30	Dresden	478631	84.4

10. There is a statistically clear correlation between economical power and internet power in Germany

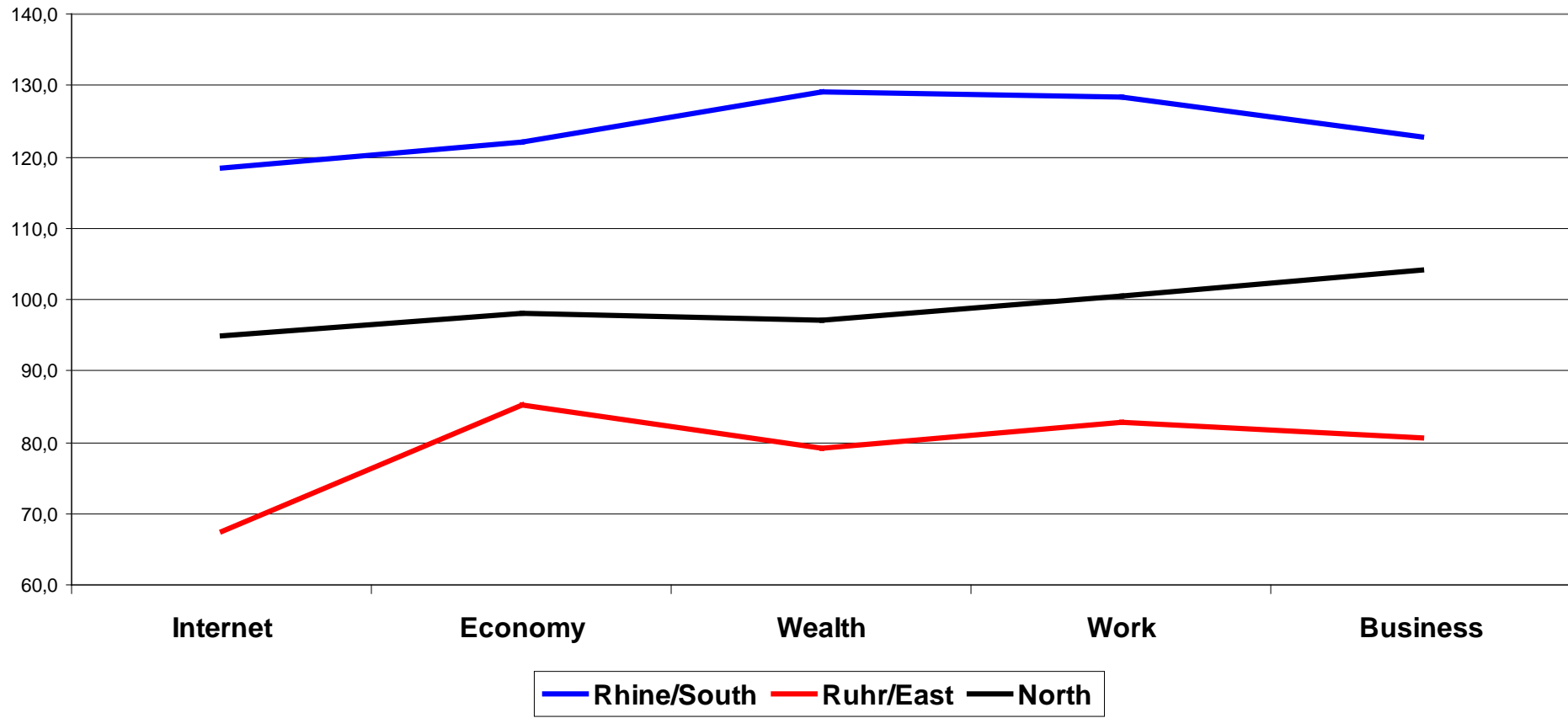


10. There is a statistically clear correlation between economical power and internet power in Germany

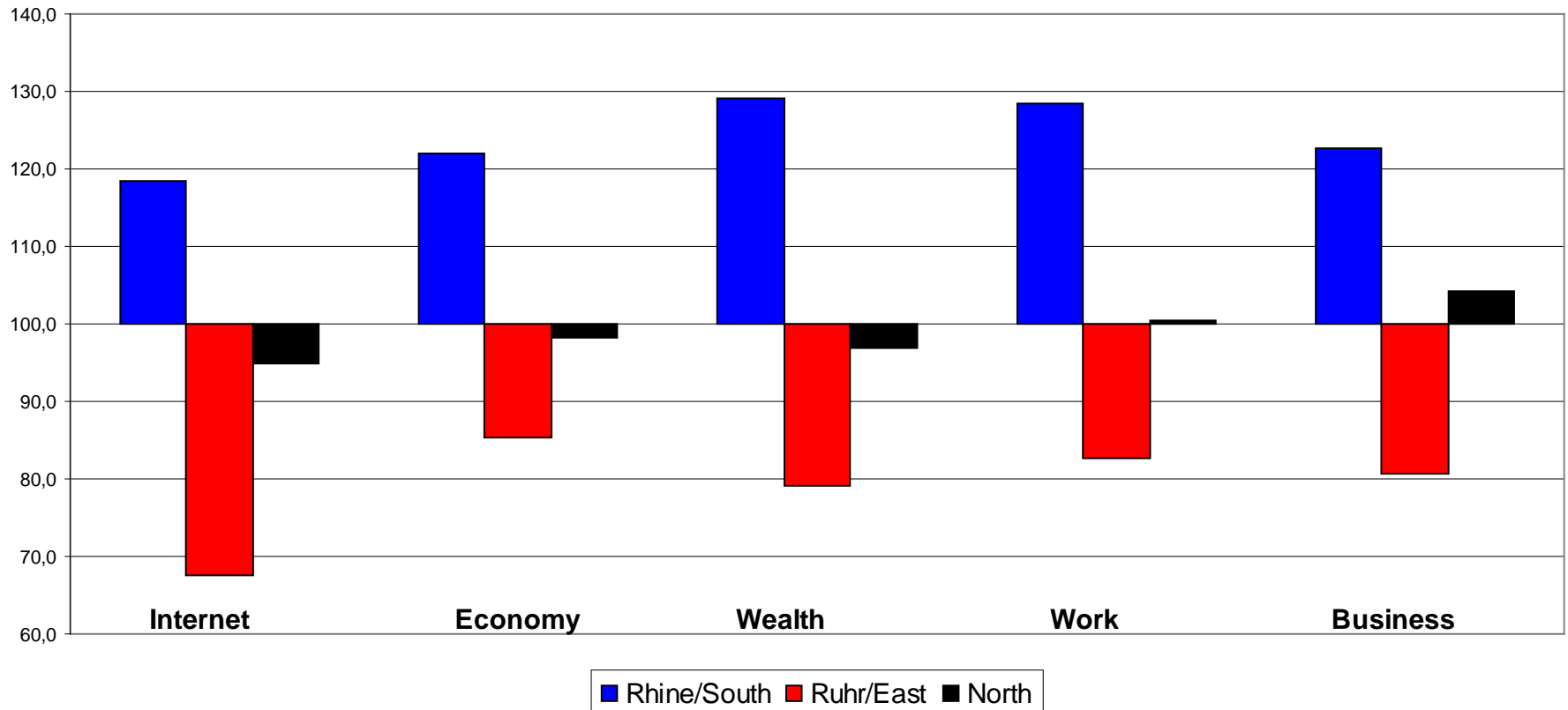
		Internet_pos	Economic. position
Internet_pos	Correlation according to Pearson	1	.653(**)
	Significance (2-sided)		.000
	N	50	50
Economical position	Correlation according to Pearson	.653(**)	1
	Significance (2-sided)	.000	
	N	50	50

**** The correlation is significant at the level of 0.01 (2-sided).**

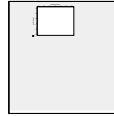
11. This correlation reproduces itself on the regional level 1



11. This correlation reproduces itself on the regional level 2



12. Several greater areas dominate in regards to economical and internet power



Munich

Düsseldorf/Cologne/Bonn

Frankfurt/Wiesbaden/Mainz

Stuttgart/Karlsruhe

Hamburg

1. A continuous digital contrast exists, whereby the digital differentiations take on the features of divides when comparing the poles.

2. Germany shows a clear economical and social correlation of the internet.

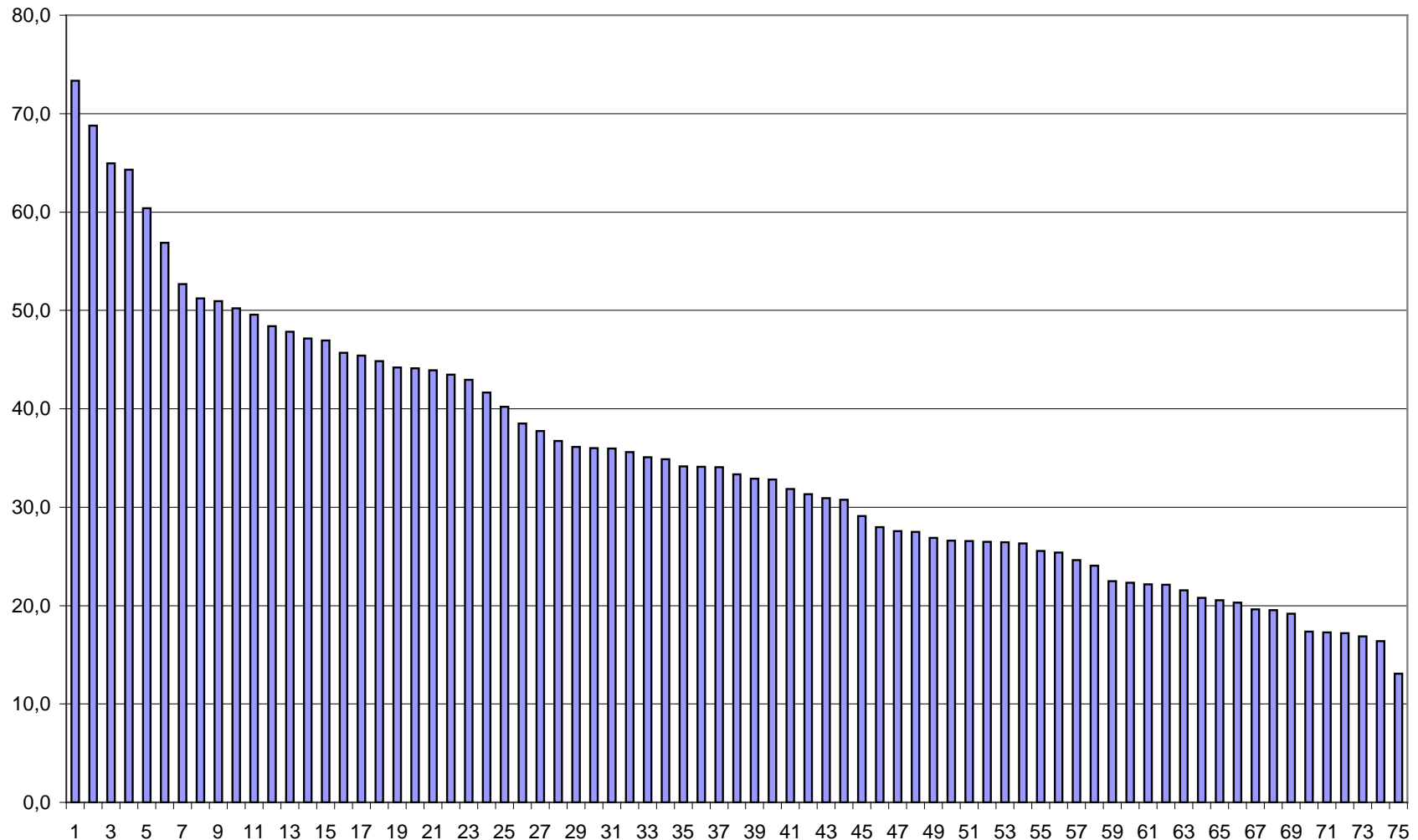
3. The digital and economical differentiation reproduces itself on the geographical level as a digital division of Germany into three sections (with exceptions).

4. Munich is Germany's internet capital and stronghold of wealth. However, there is no concentration of internet power within a single metropolis.

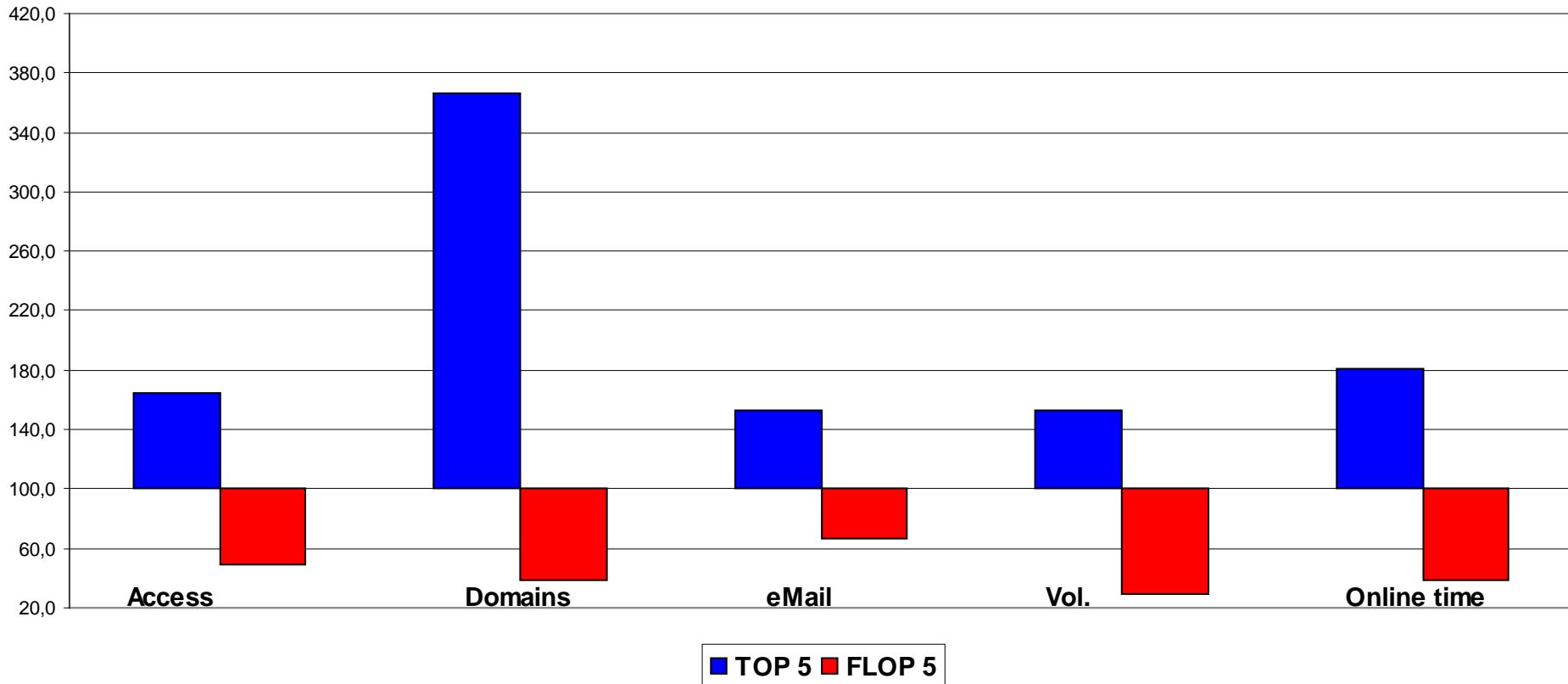
The diagnosis of a digital contrast with a strong polarization between the two ends of the scale applies to the City of Bremen as much as the findings on the social correlation of the internet.

In Bremen the social and digital divide is reproduced on the geographical level as well.

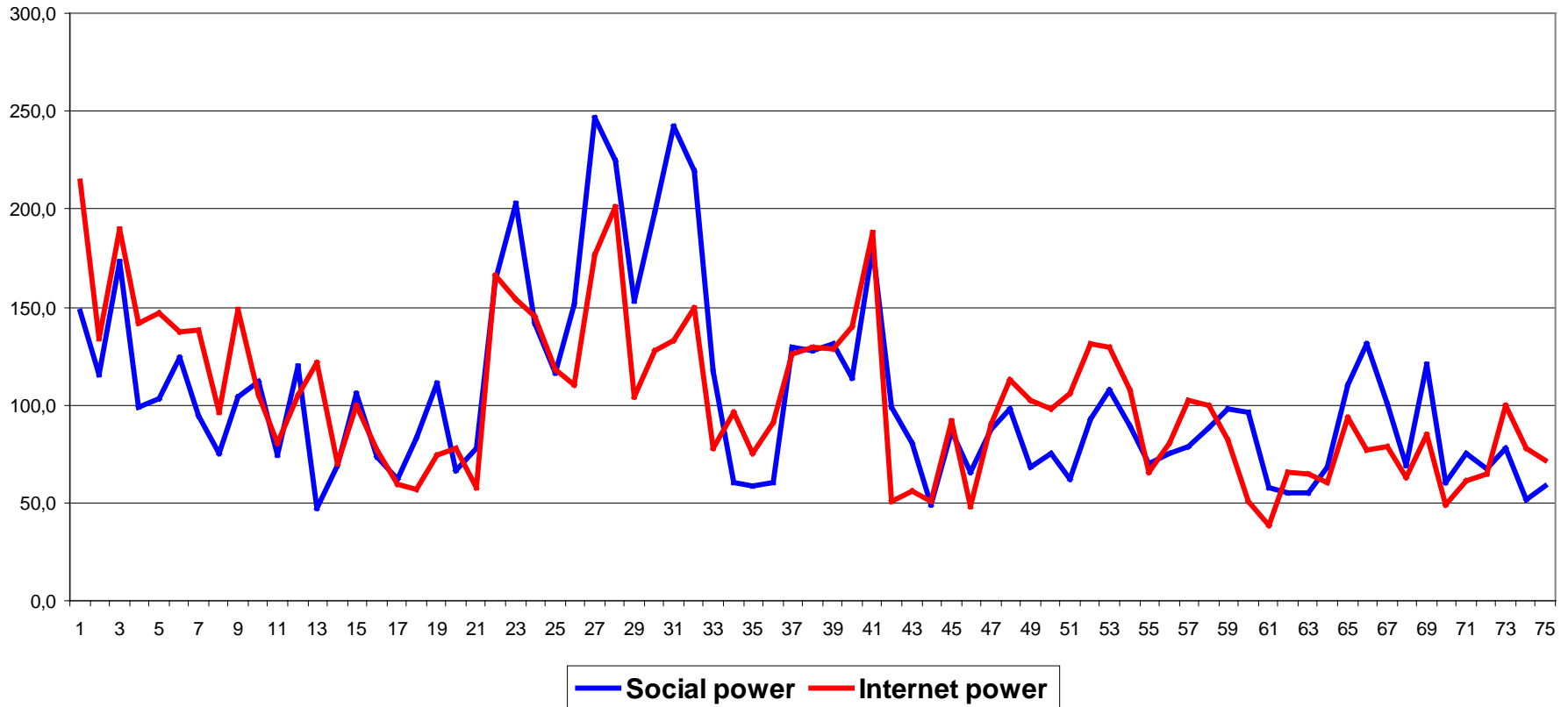
5.1. Picture of Bremen: no gap but a strong digital differentiation



5.2. Also in Bremen: A divide between the poles



5.3. Also in Bremen: A statistically clear correlation between social power and internet power

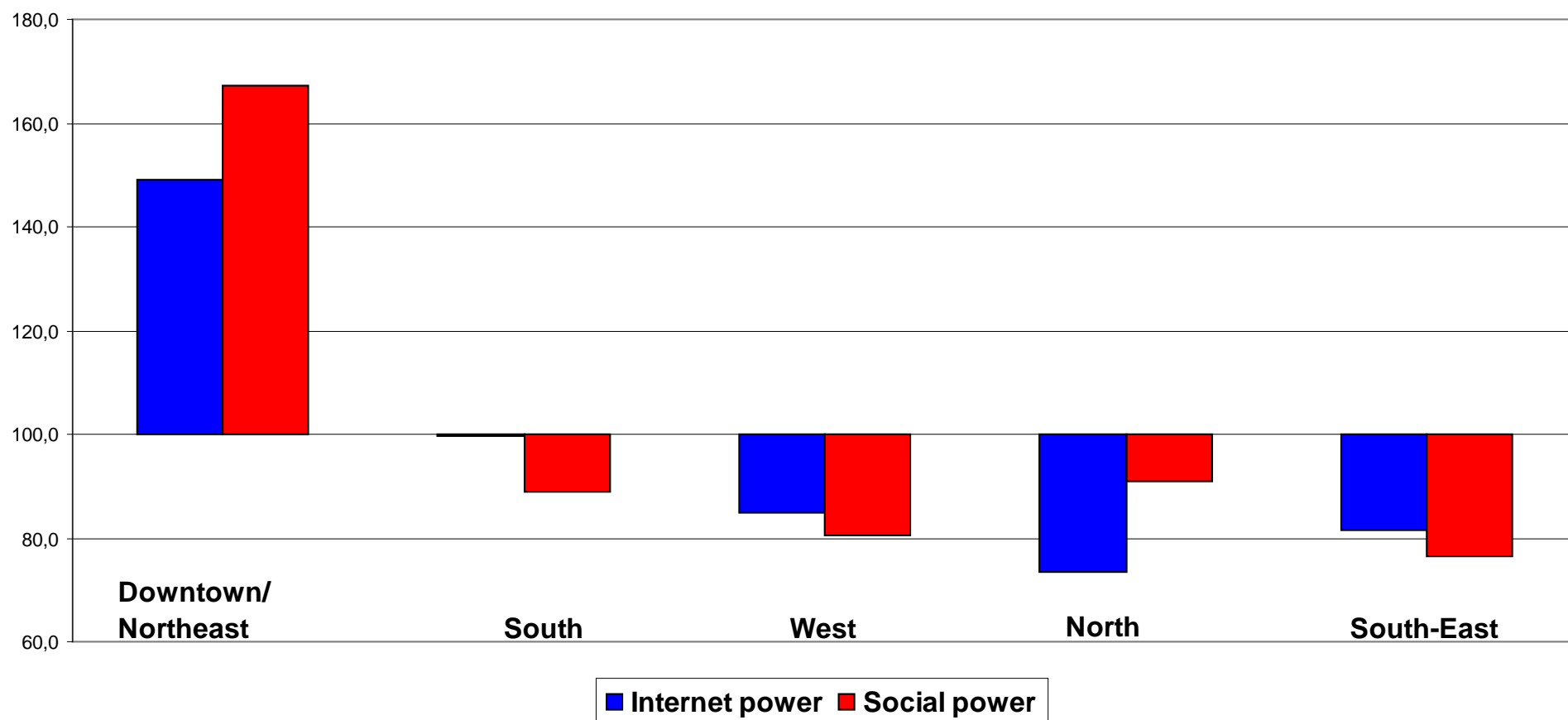


5.3. Also in Bremen: A statistically clear correlation between social power and internet power

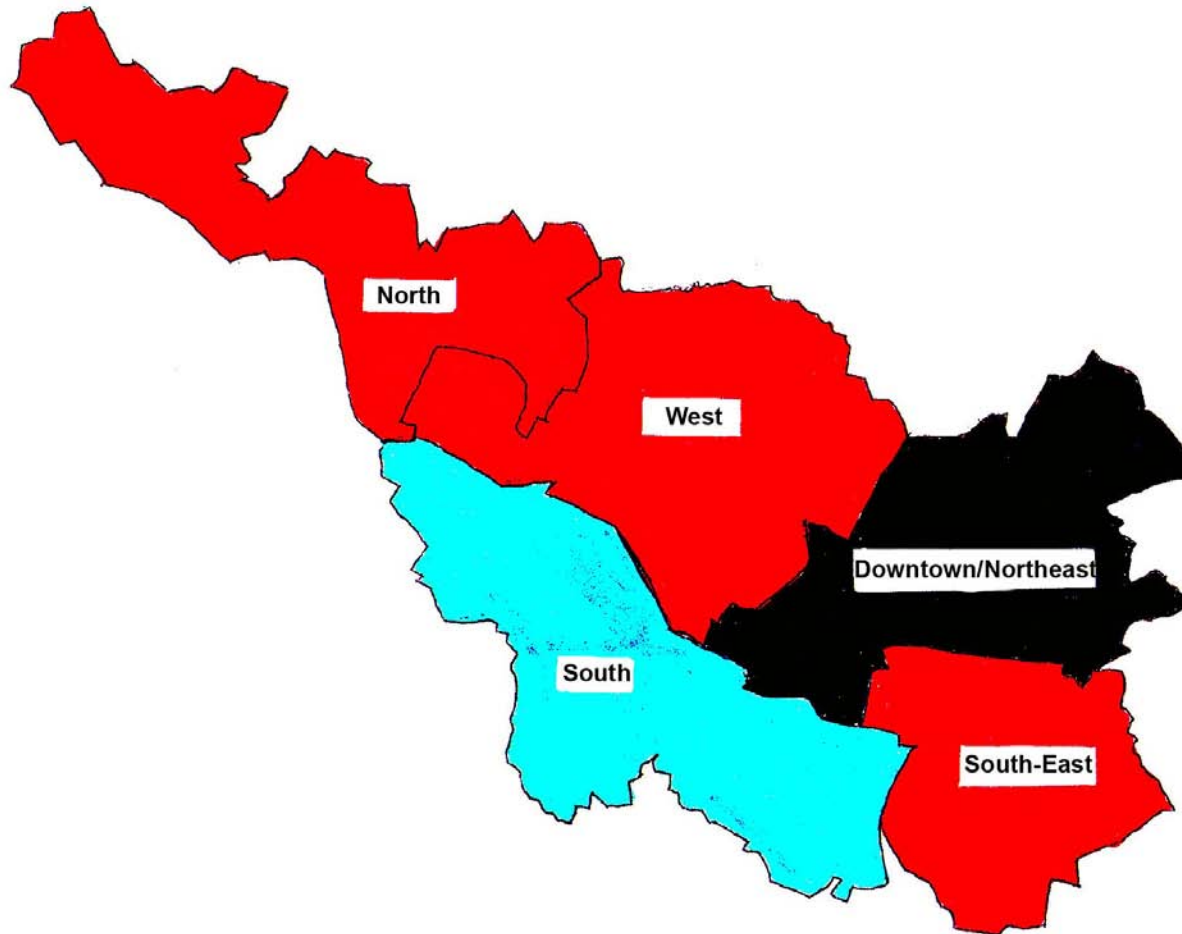
		Social_power	InternetRanking
Social_power	Correlation according to Pearson	1	.723(**)
	Significance (2-sided)		.000
	N	75	75
InternetRanking	Correlation according to Pearson	.723(**)	1
	Significance (2-sided)	.000	
	N	75	75

** The correlation is significant at the level of 0.01 (2-sided).

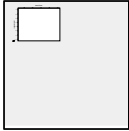
5.4. The gap in Bremen between Center/Northeast and the rest of the city



5.5. The geographical digital and social divide of Bremen



5.5. The digital and social differentiation between the quarters



Further information and download under

<http://www.einemann.de>



Dr. Edgar Einemann

Professor, Computer Science, University of Bremerhaven

[Papers and Reports](#)