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Pre-Election Polling in Germany 1949-2005

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- Motivation
- Research questions
- State of research
- Potential factors influencing the forecasting error
- Data
- Accuracy measurement
- Empirical results
- Discussion



- Pre-election polls are a virulent topic in every election campaign – with a still rising tendency.
- Pre-election polls are relevant in the process of opinion-formation of the voter.
- They are used by parties and candidates as information resources for their election campaigns.
- Pre-election polls are usually presented in a scientific manner.
- An ongoing debate about use and misuse attend pre-election polling in Germany with a remarkable summit in the 1980ies.



- Since the last remarkable forecast errors (i.e. Landtagswahl Sachsen 1994, Bundestagswahl 2005) some polling institutes avoid the term “forecast”; they speak regularly from “political climate of opinion”.
- Researchers as Falter and Schumann (1989) generally deny the possibility of forecasting election results on the basis of polls.
- Nonetheless pre-election polls are – at least on the verge of an election – perceived as election forecasts by the voters (i.e. Brettschneider 2000).
- Additionally, all institutes adjust the raw data – this would be unnecessary if the aim is to represent a current climate of opinion.
- Furthermore Crespi (1988: 5) asked: “If polls cannot achieve such accurate predictability, why should we accept any poll results as having meaning relevant to real life?”



- The skepticism of social scientists regarding election forecasting is puzzling, because...
 - in principle they agree that forecasting is one central aim of social sciences,
 - voting is one of the most detailed analyzed social behaviors with well established and empirical approved theoretical approaches,
 - researchers themselves regularly use vote intentions to analyze voting behavior.

- Due to the dominance of polls to forecast election results, a first step could be to systematically analyze pre-election polling in Germany.

- In the following these questions will be addressed:
 - How accurate have pre-election polls been in Germany since 1949?
 - Which variables influence the accuracy of pre-election polling?
 - Can we find empirical support for publically pronounced party biases of different pollsters?



- Pre-election polling in Germany is based predominantly on the so called “Sonntagsfrage”:
 - “Wenn am nächsten Sonntag Bundestagswahl wäre, welche Partei würden Sie dann wählen?”
- The German scientific research of election forecasting is underdeveloped:
 - Only one theoretical forecasting model was developed (Gschwend/Norpoth 2001, 2005).
 - Systematic analyses concerning the accuracy of German pre-election polls are rare (Radtke 1977; Ulmer 1987; Antholz 2001) and influence factors on the accuracy have never been considered.
 - Some research on prediction markets stimulate the forecasting debate and also present some empirical evidence on the accuracy of pre-election polls, but hardly in a systematic manner (i.e. Berlemann 1999; Brüggelambert 1999; Huber 2002; Schaffer/Schneider 2005).



- The rare research regarding pre-election polls focuses on their influence on voting behavior (bandwagon vs. underdog effect; stimulation of strategic voting), voter turnout and election campaigns (i.e. Brettschneider 2000).
- Vote intention surveys are usually conducted by telephone interviews based on random sampling techniques – with one well-known exception: The IfD Allensbach still uses quota samples and conduct personal interviews.
- Characteristically, published vote intention surveys do not represent the raw data, but are a result of (substantial) redressment procedures, which vary by polling institute and are not published.



- Methodical considerations:
 - Polls based on random samples should outperform polls based on quota samples.
 - Polls based on simple random samples should outperform polls based on more complex random sample designs.
 - The bigger the sample size on which a vote intention survey is based, the smaller the forecasting error should be .
 - The closer the election day the more precise should the measured vote intention approximate the actual election result – but the increase in precision of the approximation is declining by convergence to the election day.
 - Due to improved data ascertainment techniques the forecast errors should decline in the course of time.

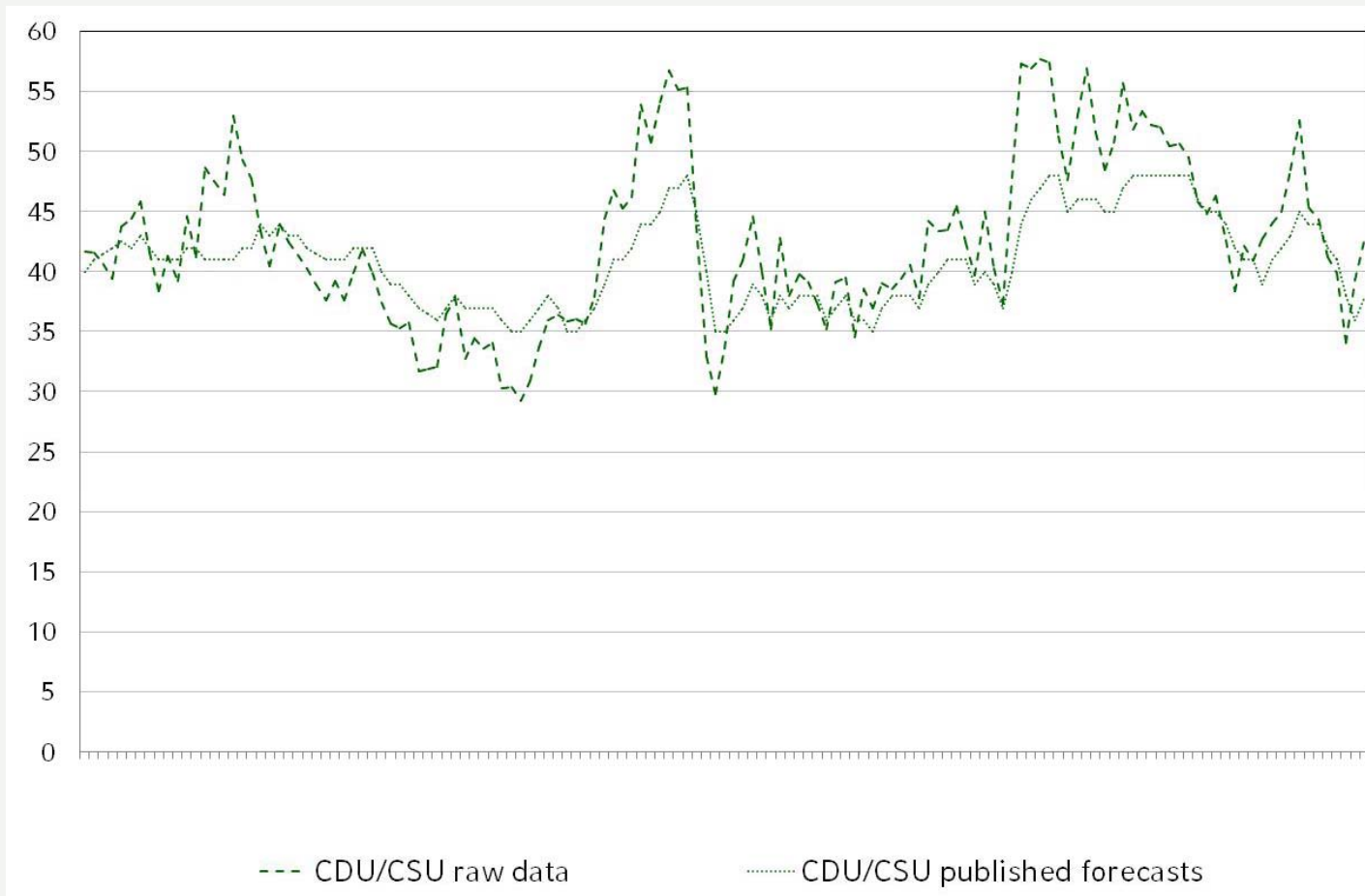
- Electoral considerations:
 - The lower the voter turnout, the bigger the forecast error should be .
 - Election results in Eastern Germany are more difficult to forecast than election results in Western Germany
 - Due to trends as party dealignment or personalization politics, forecast errors should increase in the course of time.



- Unfortunately, some of these propositions could not be tested, because...
 - the pollsters do not publish their raw data (except Forschungsgruppe Wahlen), but weighted results without unfolding this procedure.
 - the pollsters do not fully inform about methodological details (only vague statements about sample size, sample design, response rates, dealing with undecided respondents etc.).
- The substantial differences between unweighted and published results of vote intentions are analyzed using the Politbarometer data.

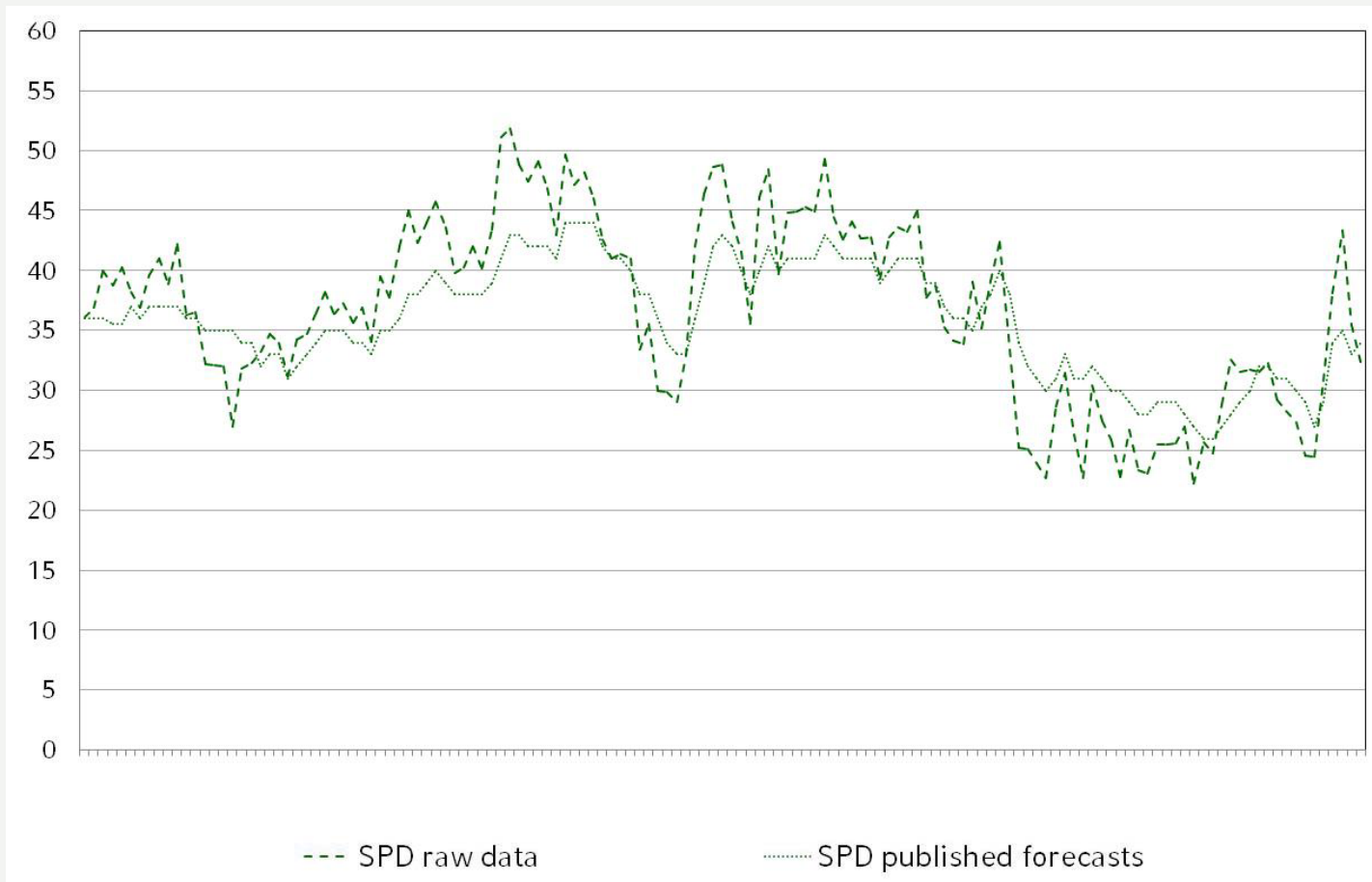


Comparison of Politbarometer raw and published data 1994-2005 (in %)





Comparison of Politbarometer raw and published data 1994-2005 (in %)





- As a consequence of this weighting procedures, one must assume that the afore mentioned methodical considerations are overlaid by house effects (Zukin 2004).
- Due to these reasons, these potential influence factors on the forecasting error will be considered:
 - House effects
 - Closeness of the election day
 - Voter turnout
 - Effect of reunification

- Basis of the analysis is an own conducted dataset including...
 - presumably almost all published results of vote intention questions of all elections to the Bundestag since 1949 (1624 forecasts to 16 elections),
 - daily pro information of election forecast,
 - information about the respective polling institute,
 - information about sample size (if denoted) of the poll,
 - actual election results (share of second votes),
 - voter turnout.
- Data is based upon data-recall facility of Antholz (2001) and a recording of this time-series since 2000, especially from <http://www.wahlrecht.de>.



- The most common accuracy measurements for polling data were developed by Mosteller et al. (1949) in purpose to asses the failure of pre-election polls to forecast the US presidential elections in 1948.
- Besides some measurements which are not usable in multiparty systems, the mean absolute error (MAE) is the mostly used measure value for pre-election polling data.

$$MAE = \frac{1}{k} \sum_{i=1}^k |P_i - E_i|$$

- Advantages:
 - Intuitive and descriptive interpretation
 - Possibility to calculate the polls deviation from vote results for more than two parties.
- Disadvantages:
 - If number of parties is varying, a comparison of different MAEs is not possible.
 - Assumed party bias of pollsters can not be analyzed.
 - Degree of error is not considered in relation to vote share of a party.



- Martin et al. (2005) propose a new measurement, which can be applied to multiparty systems, too.

$$A_{ij} = \ln \left[\frac{c_{ij} / s_{ij}}{C_j / S_j} \right]$$

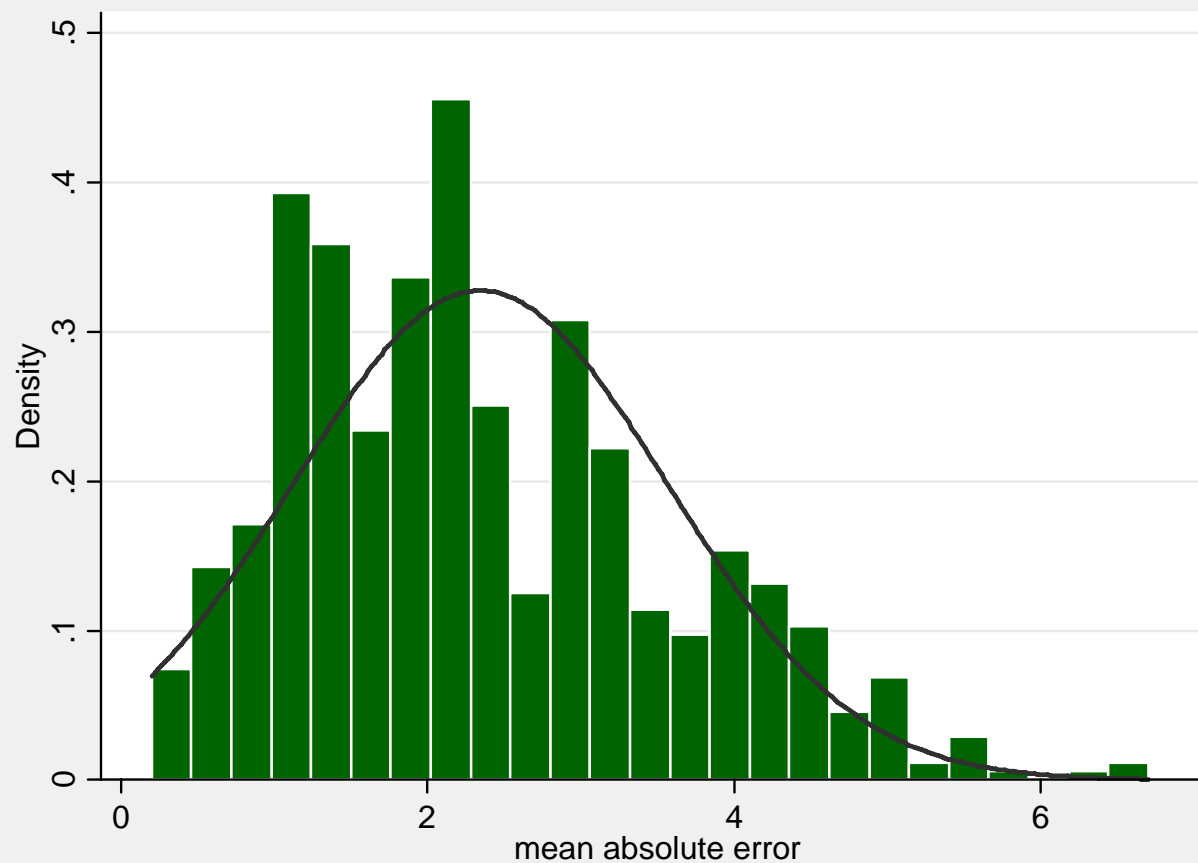
- Annotations:
 - c_{ij} : estimated vote share of party C for election j by institute i
 - s_{ij} : estimated vote share of party S for election j by institute i
 - C_j : actual vote share of party C for election j
 - S_j : actual vote share of party S for election j
- A is zero, when the ratio defined above is one, reflecting perfect agreement between a poll and election result.
- A negative (positive) value of A indicates a poll is biased in direction of party S (C)
- The measure is symmetric and higher deviations from zero indicate a bigger error.



- The “A” measure value can simply be applied to more than two parties, but it is possible that the deviations from different parties sum up to zero – therefore an “adjusted A” measure value is proposed.
- An “A” measure value for each forecasted party in respect to all other forecasted parties in this poll will be calculated.
- The composed “adjusted A” measure value is calculated as the summation of the absolute values of all the single “A” values – weighted by number of parties.
- Advantage:
 - Every deviation is regarded
- Disadvantages:
 - Possible party bias is not measurable any more
 - Value is not well interpretable



Histogram mean absolute error for published polls 1953-2005 for the last year before election



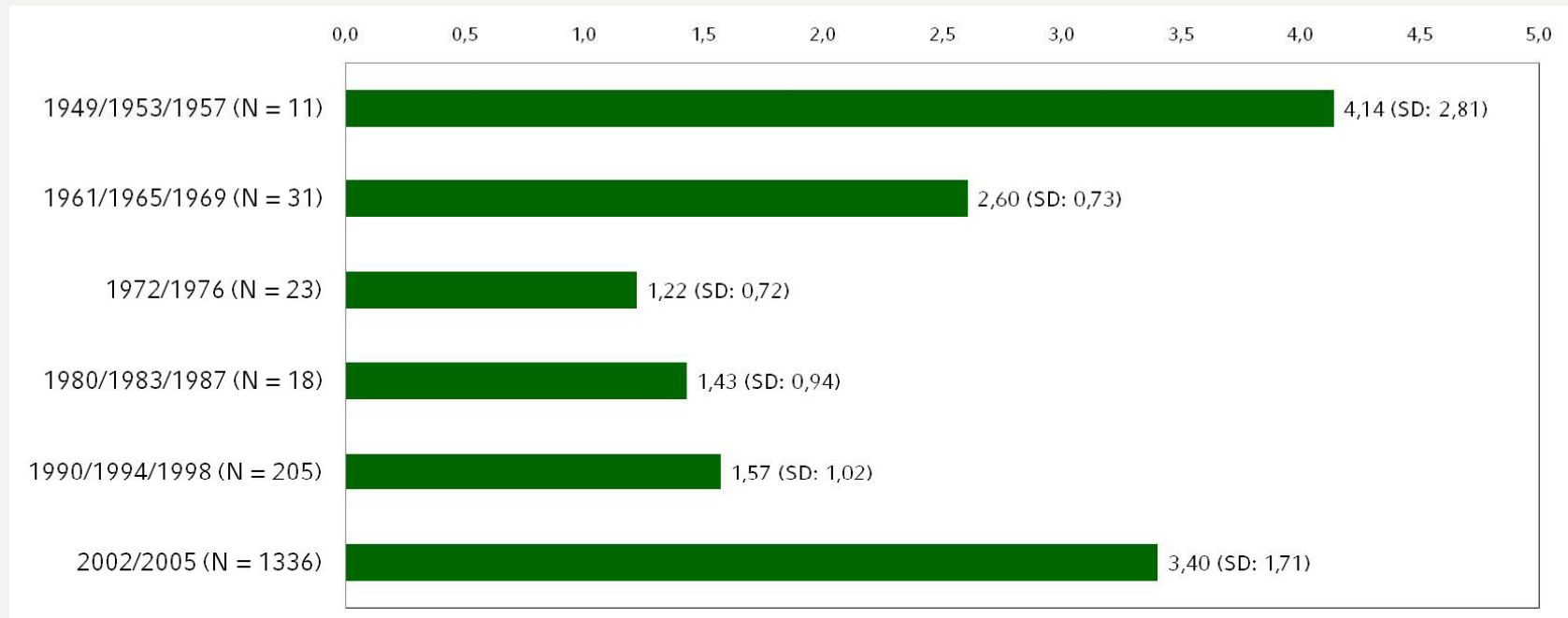
Median: 2.1

Mean: 2.3

Std. Dev.: 1.2

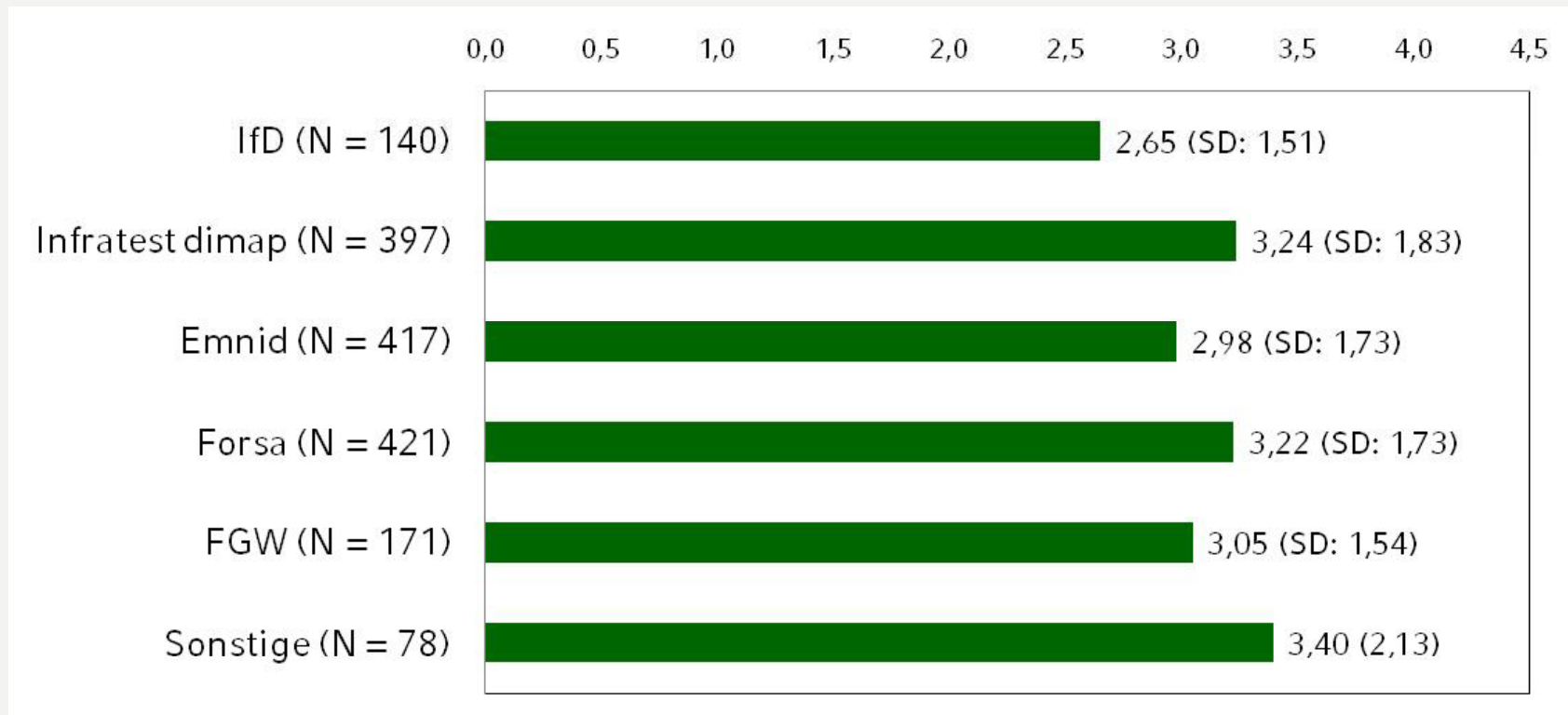


Mean absolute errors by election period



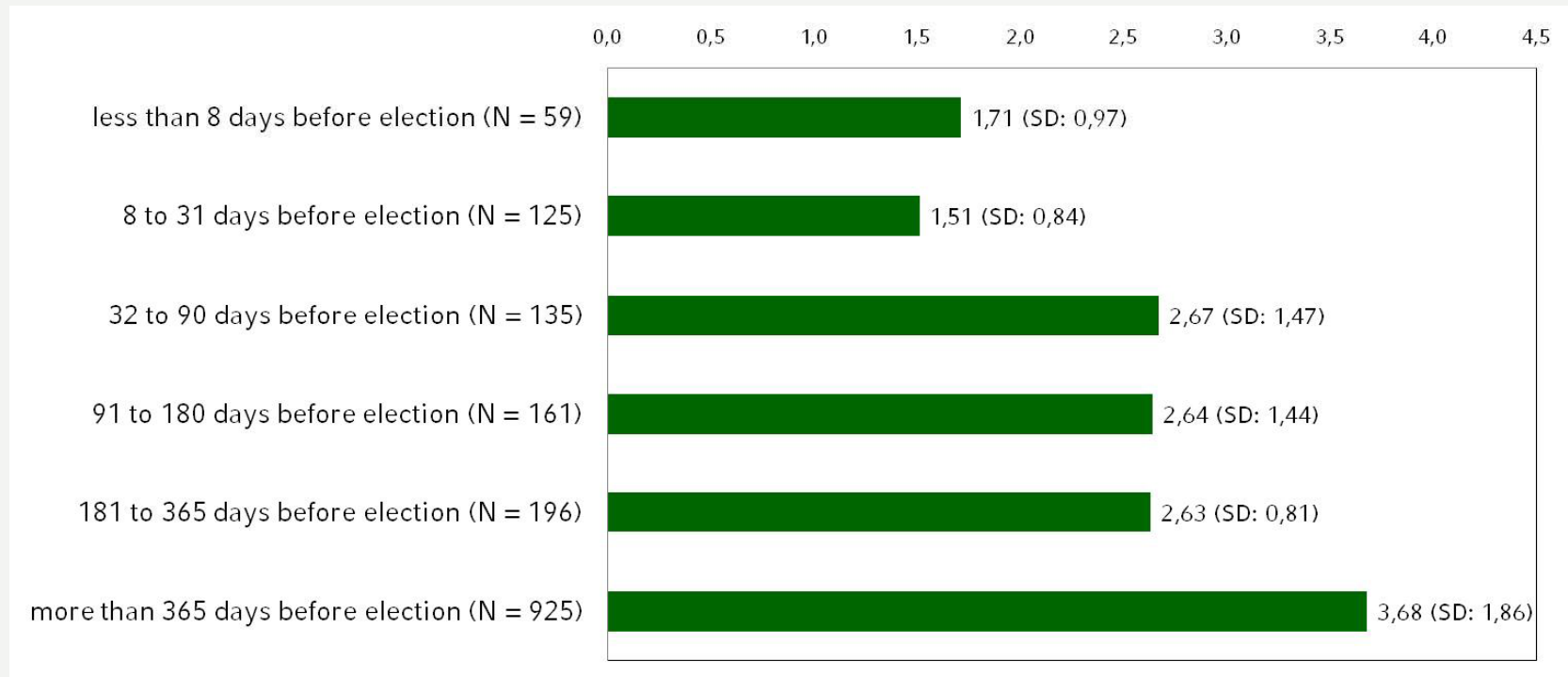


Mean absolute errors by pollster





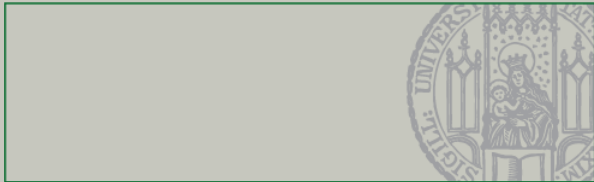
Mean absolute errors by closeness to election day





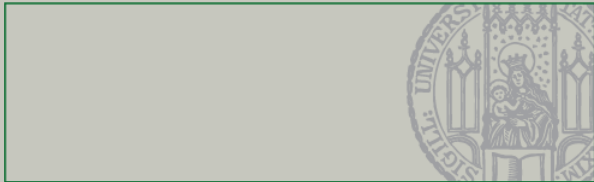
OLS regressions of forecasting error for elections 1957-2005

<i>Adjusted A</i>	(1)	(2)
Months to election (max. 12)	.011***	.033***
Months to election (squared)		-.002***
Election before reunification	-.049***	-.028*
IfD Allensbach	<i>Ref.</i>	<i>Ref.</i>
Infratest dimap	.013	.004
Emnid	.002	-.003
Forsa	.014	.011
Forschungsgruppe Wahlen	-.014	-.017
Others	.022	.017
Constant	.167***	.138***
R ²	.260	.317
N	672	672



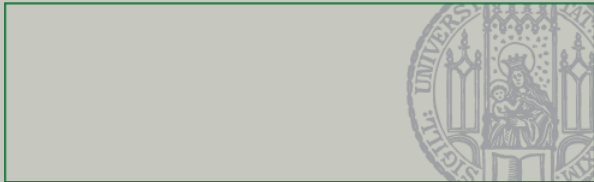
OLS regressions of forecasting error for elections 1998-2005

<i>Adjusted A</i>	(1)	(2)	(3)
Months to election (max. 12)	.031***	.025***	.025***
Months to election (squared)	-.002***	-.002***	-.002***
IfD Allensbach	<i>Ref.</i>	<i>Ref.</i>	<i>Ref.</i>
Infratest dimap	.006	.010	.010
Emnid	-.004	-.006	-.006
Forsa	.011	.019*	.019*
Forschungsgruppe Wahlen	-.013	-.008	-.008
Others	.020	-.001	-.006
Turnout		-.032***	
Election 1998			-.148***
Election 2002			-.065***
Election 2005			<i>Ref.</i>
Constant	.143***	2.737	.228***
R ²	.245	.642	.653
N	597	597	597

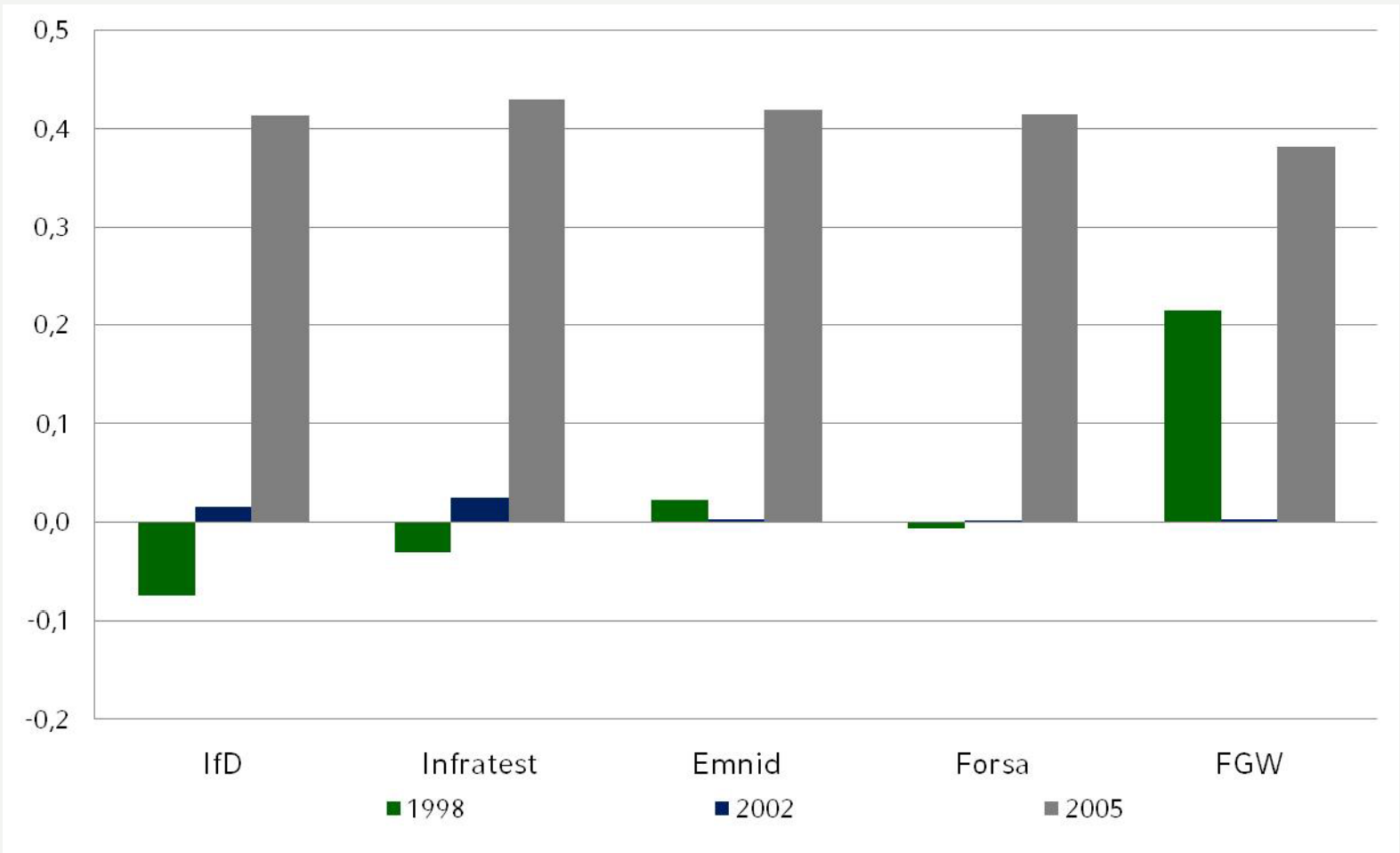


Random effects regressions of forecasting error for elections 1957-2005

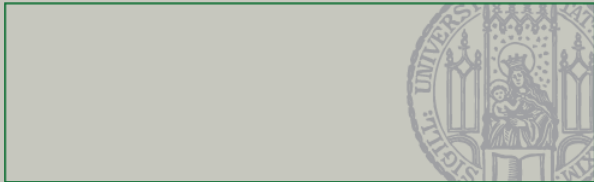
<i>Adjusted A</i>	(1)	(2)
Months to election (max. 12)	.028**	.028***
Months to election (squared)	-.002***	-.002***
Election before reunification	-.015	.043
IfD Allensbach	<i>Ref.</i>	<i>Ref.</i>
Infratest dimap	.009	.009
Emnid	-.005	-.006
Forsa	.020*	.019*
Forschungsgruppe Wahlen	-.011	-.011
Other	.006	.006
Turnout		-.006
Constant	.143***	.655
R ² within / between	.235 / .316	.235 / .312
Wald Chi ²	211.44***	210.91***
Rho	.191	.243
Groups (election)	14	14
N	672	672



Party bias in favor of CDU/CSU or SPD (measured by A value)



- Accuracy of vote intention questions
 - Despite regular propositions, published vote intentions approximate the later election result quite well.
 - Already in a descriptive manner clear trends regarding the accuracy of polls are not observable.
 - Substantial differences between pollsters are not obvious, too.
- Correlates of forecasting error:
 - It is shown that there are almost no significant differences between the pollsters
 - Published results of the “Sonntagsfrage” approximating the election result so much the better the difference between the poll and election day decreases – with the assumed decreasing of increment of growth.
 - The turnout of an election seems to influence the accuracy, too
 - Most of the variance can be explained by different election characteristics.
- Party bias of pollsters
 - On basis of the available data, a systematic party bias of pollsters in favor of certain parties could not be found.



- There are still remaining questions:
 - It is proposed that due to steadily party dealignment, increasing of personalization of politics as well as decreasing response rates in telephone surveys, election forecasts based on polls are getting worse – the available data does not allow a proper test of this hypotheses so far.
 - In respect to these arguments, the possible differences between the forecasting errors between Eastern and Western Germany should be focused.
 - To widen the data base, it is planned to collect published forecasts for elections of Landtage.
 - It should be analyzed if in the long run vote intentions based on raw data outperform published results based on atheoretical redressment procedures.
 - Theory driven models based on current approaches to explain voting behavior should be developed and tested.



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Thank you for your attention!



- Antholz, Birger. 2001. *Validität deutscher Wahlprognosen 1949-2000*. Hamburg: Universität Hamburg.
- Berlemann, Michael. 1999. „Wahlprognosen: Politische Wahlbörsen versus traditionelle Meinungsforschung.“ *Dresdner Beiträge zur Volkswirtschaftslehre, vol. 1/99*. Dresden.
- Brettschneider, Frank. 2000. "Demoskopie im Wahlkampf - Leitstern oder Irrlicht?" Pp. 477-505 in *50 Jahre Empirische Wahlforschung in Deutschland*, edited by M. Klein, W. Jagodzinski, E. Mochmann, and D. Ohr. Wiesbaden: Westdeutscher Verlag.
- Brüggelambert, Gregor. 1999. *Institutionen als Informationsträger: Erfahrungen mit Wahlbörsen*. Marburg: Metropolis Verlag.
- Crespi, Irving. 1988. *Pre-Election Polling. Sources of Accuracy and Error*. New York: Russell Sage.
- Gschwend, Thomas and Helmut Norpoth. 2001. "'Wenn am nächsten Sonntag ...': Ein Prognosemodell für Bundestagswahlen." Pp. 473-499 in *Wahlen und Wähler. Analysen aus Anlass der Bundestagswahl 1998*, edited by H.-D. Klingemann and M. Kaase. Wiesbaden: Westdeutscher Verlag.
- Gschwend, Thomas and Helmut Norpoth. 2005. "Prognosemodell auf dem Prüfstand. Die Bundestagswahl 2005." *Politische Vierteljahresschrift* 46:682-688.
- Huber, Jürgen. 2002. *Wahlbörsen: Preisbildung auf politischen Märkten zur Vorhersage von Wahlergebnissen*. Hamburg: Verlag Dr. Kovac.
- Falter, Jürgen W. and Siegfried Schumann. 1989. "Methodische Probleme von Wahlforschung und Wahlprognose." *Aus Politik und Zeitgeschichte* B43:3-14.
- Martin, Elizabeth A., Michael W. Traugott, and Courtney Kennedy. 2005. "A Review and Proposal for a New Measure of Poll Accuracy." *Public Opinion Quarterly* 69:342-369.
- Mosteller, Frederick, Herbert Hyman, Philip J. McCarthy, Eli S. Marks, and David B. Truman. 1949. *The Pre-election Polls of 1948. Report to the Committee on Analysis of Pre-election Polls and Forecasts*. New York: Social Science Research Council.
- Radtke, Günter D. 1977. "Zur Prognosekompetenz der empirischen Wahlforschung." *Politische Vierteljahresschrift, Sonderheft* 18:669-688.
- Schaffer, Lena-Maria and Gerald Schneider. 2005. "Die Prognosegüte von Wahlbörsen und Meinungsumfragen zur Bundestagswahl 2005." *Politische Vierteljahresschrift* 46:674-681.
- Ulmer, Fritz. 1987. "Wahlprognosen und Meinungsumfragen und der Absatzhandel mit Prozentzahlen." *Zeitschrift für Markt-, Meinungs- und Zukunftsforschung* 30:6729-6875.