

Supplementary Appendix for “Public Opinion in the U.S. States: 1956 to 2010”

Peter K. Enns Julianna Koch
pe52@cornell.edu jmk422@cornell.edu

Cornell University

Contents

Appendix 1 Question Wording	A-1
Appendix 2 State Poll Data	A-8
Appendix 3 Changes in the CA Field Poll Question Wording	A-8
Appendix 4 Survey Data Information by Year	A-9
Appendix 5 Stimson’s Wcalc Algorithm	A-11

Appendix 1 Question Wording

Policy Mood. The following questions were used to generate our state-level measures of policy mood. These questions represent all questions used in Stimson's (1991) measure of policy mood for which individual-level data are available. After each question, we list the survey house, the number of times the question was asked, and the range of years when the question was asked.

1. Would you favor or oppose having Hawaii admitted as a state in the Union? (Gallup; 4, 1954-58)
2. Would you favor or oppose having Alaska admitted as a state in the Union? (Gallup; 4, 1954-58)
3. Some people say that the federal government in Washington should give financial help to build new public schools, especially in the poorer states. Others say that this will mean higher taxes for everyone and that states and local communities should build their own schools. How do you yourself feel—do you favor or oppose federal aid to help build new public schools? (Gallup; 5, 1955-1961)
4. A new plan has been suggested for dealing with the problem of farm surpluses—it's called the Soil Bank plan. Under this plan the government would pay farmers a yearly rental for each acre of land taken out of production. Does this sound like a good idea or a poor one? (Gallup; 4, 1955-1956)
5. If Negroes are not getting fair treatment in jobs and housing, the government should see to it that they do. Do you have an opinion on this or not? (IF YES:) Do you think the government should do this. (NES; 3, 1956-1960)
6. Around election time people talk about different things that our government in Washington is doing or should be doing. Now I would like to talk to you about some of the things that our government might do. Of course, different things are important to different people, so we don't expect everyone to have an opinion about all of these. I would like you to look at this card as I read each question and tell me how you feel about the question. If you don't have an opinion, just tell me that; if you do have an opinion, choose one of the other answers. 'The government ought to help people get doctors and hospital care at low cost.' (NES; 5, 1956-1968)
7. Do you consider the amount of federal income tax you have to pay as too high, about right, or too low? (Gallup, GSS; 42, 1953-2010)
8. Some people feel that the government in Washington should see to it that every person has a job and a good standard of living. Others think the government should just let each person get ahead on his/their own. And, of course, some other people have opinions somewhere in between. Where would you place yourself on this scale, or haven't you thought much about this? (NES; 6, 1956-2002)
9. Do you favor or oppose the death penalty for persons convicted of murder? (Gallup, 26, 1953-2007; GSS, 5, 1974-1980)

10. In general, do you approve or disapprove of labor unions? (Gallup, ABC/Washington Post; 18, 1957-1986)
11. It has been suggested that the United Nations Organization supply information on all birth control methods to the people of different nations of the world who want this information. Would you favor or oppose this being done? (Gallup; 3, 1959-1965)
12. What about the possession of pistols and revolvers—do you think there should be a law which would forbid the possession of this type of gun except by the police or other authorized persons? (Gallup; 4, 1959-1979)
13. In some places in the United States it is not legal to supply birth control information. How do you feel about this—do you think birth control information should be available to anyone who wants it, or not? (Gallup, GSS; 11, 1959-1983)
14. There is much discussion as to the amount of money the government in Washington should spend for national defense and military purposes. How do you feel about this? Do you think we are spending too little, about the right amount, or too much? (Gallup, Time, NBC, CBS; 31, 1960-2003)
15. Do you think the Kennedy Administration is pushing racial integration too fast, or not fast enough? (Gallup; 9, 1962-1963)
16. Do you think abortion operations should or should not be legal in the following cases: where the health of the mother is in danger? (Gallup; 3, 1962-1969)
17. How about this statement, “The government in Washington should see to it that white and colored children are allowed to go to the same schools.” Do you have an opinion on this or not? (IF YES:) Do you agree that the government should do this or do you think that the government should not do it? (NES; 10, 1962-2000)
18. Which of these statements would you agree with: Some people say that Negroes should be allowed to live in any part of town they want to. How do you feel? Should Negroes be allowed to live in any part of town they want to, or not? (NES; 5, 1964-1976)
19. Some people are afraid the government in Washington is getting too powerful for the good of the country and the individual person. Others feel that the government in Washington is not getting too strong (1964,1966,1970: has not gotten too strong for the good of the country). 1964-1972: Have you been interested enough in this to favor one side over the other? 1976-1992: Do you have an opinion on this or not? ALL YEARS: (IF YES:) What is your feeling? Do you think the government is too powerful or do you think the government is not getting too strong? (NES; 12, 1964-2000)
20. Some people feel that if black people (1964,1968: negroes) are not getting fair treatment in jobs, the government in Washington ought to see to it that they do. Others feel that this is not the federal government’s business. Have you had enough

interested in this question to favor one side over the other? 1964,1968,1972: (IF YES) How do you feel? Should the government in Washington see to it that black people get fair treatment in jobs or should the government in Washington leave these matters to the states and local communities? (NES; 9, 1964-2004)

21. In your opinion, which is more often to blame if a person is poor—lack of effort on their own part or circumstances beyond their control? (Gallup, NBC; 8, 1964-2010)
22. Do you approve or disapprove of schools giving courses in sex education? (Gallup; 3, 1965-1991)
23. Would you approve or disapprove if these courses (in sex education) discussed birth control? (Gallup; 2, 1965-1970)
24. In general, do you think the courts in this area deal too harshly or not harshly enough with criminals? (Gallup, 4, 1965-1969; GSS, 25, 1974-2008)
25. In your opinion, which of the following do you think will be the biggest threat to the country in the future—big business, big labor, or big government? (Gallup; 8, 1965-2009)
26. It has been suggested that no strike be permitted to go on for more than 21 days. If after 21 the union and the employer cannot reach an agreement, a government-appointed committee would decide the issue and both be compelled to accept the terms. Would you favor or oppose this idea? (Gallup; 4, 1967-1972)
27. There is much discussion about the best way to deal with the problem of urban unrest and rioting. Some say it is more important to use all available force to maintain law and order – no matter what results. Others say it is more important to correct the problems of poverty and unemployment that give rise to the disturbances. Where would you place yourself on this scale, or haven't you thought much about this? (7-POINT SCALE SHOWN TO R) (NES; 6, 1968-1992)
28. Some people are primarily concerned with doing everything possible to protect the legal rights of those accused of committing crimes. Others feel that it is more important to stop criminal activity even at the risk of reducing the rights of the accused. Where would you place yourself on this scale, or haven't you thought much about this? (7-POINT SCALE SHOWN TO R) (NES; 5, 1970-1978)
29. In general, do you favor or oppose the busing of negro and white school children from one school district to another? (Gallup, GSS; 15, 1970-1996)
30. There is much concern about the rapid rise in medical and hospital costs. Some feel there should be a government insurance plan which would cover all medical and hospital expenses. Suppose these people are at one end of a scale, at point 1). Others feel that medical expenses should be paid by individuals, and through private insurance like Blue Cross or other company paid plans. Suppose these people are at the other end, at point 7. And of course, some people have opinions somewhere in between at points 2,3,4,5 or 6.) Where would you place yourself on this scale, or haven't you thought much about this? (NES; 10, 1970-2004)

31. In some nations, the government allots a certain amount of money for each child for his education. The parents can then send the child to any public, parochial, or private school they choose. This is called the 'voucher system.' Would you like to see such an idea adopted in this country? (Gallup; 7, 1971-1987)
32. Please tell me whether or not you think it should be possible for a pregnant woman to obtain a legal abortion if... the woman's own health is seriously endangered by the pregnancy? (CBS, GSS; 28, 1973-2010)
33. Please tell me whether or not you think it should be possible for a pregnant woman to obtain a legal abortion if... there is a strong chance of serious defect in the baby? (CBS, GSS, LAT; 29, 1973-2010)
34. There is much discussion about the best way to deal with racial problems. Some people think achieving racial integration of schools is so important that it justifies busing children to schools out of their own neighborhoods. Others think letting children go to their neighborhood schools is so important that they oppose busing. Where would you place yourself on this scale, or haven't you thought much about this? (7-POINT SCALE SHOWN TO R) (NES; 5, 1972-1984)
35. Around election time people talk about different things that our government in Washington is doing or should be doing. Now I would like to talk to you about some of the things that our government might do. Of course, different things are important to different people, so we don't expect everyone to have an opinion about all of these. I would like you to look at this card as I read each question and tell me how you feel about the question. If you don't have an opinion, just tell me that; if you do have an opinion, choose one of the other answers. 'The government in Washington ought to see to it that everybody who wants to work can find a job.' (NES; 16, 1972-2004)

We are faced with many problems in this country, none of which can be solved easily or inexpensively. I'm going to name some of these problems, and for each one I'd like you to tell me whether you think we're spending too much money on it, too little money, or about the right amount-

36. The military, armaments and defense (GSS, 27, 1973-2010; Roper, 10, 1975-1986)
37. Halting the rising crime rate (GSS, 27, 1973-2010; Roper, 10, 1975-1986)
38. Improving the nation's education system (GSS, 27, 1973-2010; Roper, 10, 1975-1986)
39. Solving the problems of the big cities (GSS, 27, 1973-2010; Roper, 10, 1975-1986)
40. Welfare (GSS, 27, 1973-2010; Roper, 10, 1975-1986)
41. Dealing with drug addiction (GSS, 27, 1973-2010; Roper, 10, 1975-1986)
42. Improving the conditions of Blacks (GSS, 27 1973-2010)

43. Some people think that (blacks/negroes/African-Americans) have been discriminated against for so long that the government has a special obligation to help improve their living standards. Others believe that the government should not be giving special to (blacks/negroes/African-Americans). Where would you place yourself on this scale, or haven't you made up your mind on this? (GSS; 19, 1975-2010)
44. Some people think that the government in Washington should do everything possible to improve the standard of living for all poor Americans, they are at point 1 on this card. Other people think it is not the government's responsibility, and that each person should take care of himself, they are at point 5. Where would you place yourself on this scale or haven't you made up your mind on this? (GSS; 19, 1975-2010)
45. Some people think the government in Washington is trying to do too many things that should be left to individuals and private businesses. Others disagree and think the government should do more to solve our country's problems. Which of those two views is closer to your own? (ABC, Time, Gallup, GSS; 48, 1975-2010)
46. In general, do you feel that the laws covering the sale of handguns should be made more strict, less strict, or kept as they are now? (Gallup, CBS; 13, 1975-2009)
47. Would you say the government is pretty much run for a few big interests, or would you say that it is run for the benefit of all the people? (CBS, ABC, Gallup; 14, 1976-2010)
48. (I'm going to name some different kinds of taxes you may have to pay, and for each type would you tell me whether the taxes you have to pay are excessively high, somewhat high, about right, or extremely low.)... Social Security taxes (Roper; 5, 1978-1986)
49. Some people think that the government in Washington ought to reduce the income differences between the rich and the poor, perhaps by raising the taxes of wealthy families or by giving income assistance to the poor. Others think that the government should not concern itself with reducing this income difference between the rich and the poor. (GSS; 20, 1978-2010)
50. Some people believe that we should spend much less money for defense. (1996,2004: Suppose these people are at one end of a scale, at point 1.) Others feel that defense spending should be greatly increased. (1996,2004: Suppose these people are at the other end, at point 7.) (2004: And, of course, some other people have opinions somewhere in between, at points 2,3,4,5, or 6). Where would you place yourself on this scale or haven't you thought much about this? (NES; 11, 1980-2004)
51. Do you think there should or should not be a law which would forbid the possession of handguns except by the police and other authorized persons? (Gallup, NORC, PSRA; 14, 1981-1999)

52. Some people think the government should provide fewer services, even in areas such as health and education, in order to reduce spending. (2004: Suppose these people are at one end of a scale, at point 1.) Other people feel that it is important for the government to provide many more services even if it means an increase in spending. (2004: Suppose these people are at the other end, at point 7. And of course, some other people have opinions somewhere in between, at points 2,3,4,5, or 6.) Where would you place yourself on this scale, or haven't you thought much about this? (7-POINT SCALE SHOWN TO R) (NES; 11, 1982-2004)
53. Do you think that people in the government waste a lot of money we pay in taxes, waste some of it, or don't waste very much of it? (CBS, NYT, ABC, Gallup, LAT, NES; 26, 1958-2010)

We are faced with many problems in this country, none of which can be solved easily or inexpensively. I'm going to name some of these problems, and for each one I'd like you to tell me whether you think we're spending too much money on it, too little money, or about the right amount -

54. Highways and bridges (GSS; 18, 1984-2010)
55. Education (GSS; 18, 1984-2010)
56. Law enforcement (GSS; 18, 1984-2010)
57. Assistance to big cities (GSS; 18, 1984-2010)
58. Assistance to the poor (GSS; 18, 1984-2010)
59. Assistance to blacks (GSS; 18, 1984-2010)
60. Drug rehabilitation (GSS; 18, 1984-2010)

If you had a say in making up the federal budget this year, for which (1986 AND LATER: of the following) programs would you like to see spending increased and for which would you like to see spending decreased:

61. Should federal spending on dealing with crime be increased, decreased or kept about the same? (NES; 7, 1984-2004)
62. Should federal spending on public schools be increased, decreased or kept about the same? (NES; 9, 1984-2004)
63. Should federal spending on food stamps be increased, decreased or kept about the same? (NES; 8, 1984-2000)
64. Should federal spending on social security be increased, decreased or kept about the same? (NES; 10, 1984-2004)
65. Should federal spending on programs that assist blacks be increased, decreased or kept about the same? (1984: assistance to blacks, 2002: aid to blacks) (NES; 7, 1984-2002)

66. Should federal spending on child care be increased, decreased or kept about the same? (NES; 8, 1988-2004)
67. Should federal spending on welfare programs be increased, decreased or kept about the same? (NES; 6, 1992-2004)
68. Should federal spending on science and technology (1992, 2004) be increased, decreased or kept about the same? (1990: the space program) (NES; 3, 1990-2004)
69. Should federal spending on foreign aid be increased, decreased or kept about the same? (NES; 5, 1990-2004)
70. Would you favor or oppose a ban on the sale of all handguns, except those that are issued to law enforcement officers? (Gallup, CBS; 10, 1988-2007)
71. In general, do you feel the laws covering the sale of firearms should be made more strict, less strict, or kept as they are now? (Gallup, Life; 17, 1989-2004)
72. Do you favor or oppose stricter gun control laws? (Time, PSRA, ABC; 16, 1989-2009)
73. Would you favor or oppose a constitutional amendment that would define marriage as being between a man and a woman, thus barring marriages between gay or lesbian couples? (Gallup; 6, 2003-2005)

Partisanship. Generally speaking, do you usually think of yourself a Republican, a Democrat, an Independent, or what?¹

Ideology. We relied on several similarly worded ideology questions. Our MRP models included dummy variables for each survey, which accounts for potential question wording effects. If more than one ideology category was offered (e.g., very conservative and conservative), these were combined.

When it comes to politics, do you usually think of yourself as a liberal, a conservative, or what? (Gallup)

How would you describe your political views? Very conservative, Conservative, Moderate, Liberal, (or) Very liberal? (Gallup)

How would you describe your views on most political matters? Generally do you think of yourself as liberal, moderate, or conservative? (CBS)

We hear a lot of talk these days about liberals and conservatives. I'm going to show you a seven-point scale on which the political views that people might hold are arranged from extremely liberal—point 1—to extremely conservative—point 7. Where would you place

¹The Gallup partisanship question begins with “In politics, as of today,” instead of “Generally speaking.”. The CBS question used “consider” in place of “think of”.

yourself on this scale? (GSS)

When it comes to politics, do you usually think of yourself as extremely liberal, liberal, slightly liberal, moderate or middle of the road, slightly conservative, extremely conservative, or haven't you thought much about this? (NES)

Appendix 2 State Poll Data

The state poll data used to validate our measures of state partisanship come from the following sources. The **Carolina Poll** (Fall and Spring 1982-2005, except 1999 and Spring 1982) the **Georgia Poll** (Spring 1982, Fall 1984, Spring and Fall 1985, Fall 1988, Spring and Fall 1991, Fall 1992, Fall 1993, Spring 1994, Fall 1995, Spring and Fall 1996, Spring 1997-1998, Spring 2000, Spring and Fall 2001, Spring and Fall 2002), the **Georgia State Poll** (1999), the **Peach State Poll** (2003 and 2004), the **Eagleton Poll** (New Jersey)(October 1983; February, August, and October 1984; April, August, and October 1985; February, July, and October 1986; February, May, and October 1987; January, May, and November 1988; March, June, and October 1989; March, July, and October 1990; June, September, and October 1991; February, April, and October 1992; June, September, and October 1993; February, June, and November 1994; and February 1995), the **Monmouth University New Jersey Poll** (Poll Numbers 1, 2, 3, 5, 7, 8, 9, 10b, 11, 14, 15, 17, 22, 26, 30 for 2005-2009), and **Illinois Policy Survey** (1984-1997). These surveys were accessed from the University of North Carolina's Odum Institute Data Archive (<http://www.irss.unc.edu/odum/contentPrimary.jsp?nodeid=7>.)

The **Michigan State of the State Poll** (1994-2009) was accessed from The Michigan State University Institute for Public Policy and Social Research (<http://www.ippsr.msu.edu/SOSS/SOSSdata.htm>). The **Field Institute California Poll** (cumulative file 1957-2006) was accessed from http://ucdata.berkeley.edu/data_record.php?recid=3. and the **Public Policy Institute of California (PPIC) Statewide Survey** (April, May, September, and October 1998; January, September, November, and December 1999; January, June, August, and October 2000; January, May, September, and December 2001; January, April, September, and November 2002; February, April, August, and November 2003; January, April, August, and November 2004; January, April, August, and December 2005; January, April, June, and October 2006; January, April, July, and October 2007; January, April, August, and November 2008; January, April, July, and November 2009.) was accessed from <http://www.ppic.org/main/datadepot.asp>.

Appendix 3 Changes in the CA Field Poll Question Wording

Figure 1, in the text, reports two California polls, the Field Poll (1957 to 2006) and the Public Policy Institute of California (PPIC) Survey (1998 to 2009). Overall, we see a general correspondence between the California state polls and our estimates ($r=0.73$). In particular, our estimates reflect the declining proportion of Democratic identifiers in the 1970s and 1980s. This is an important validation of the over time measure. Yet, substantial differences also exist through most of the 1960s and the 1990s. In contrast to

the Field Poll, during the 1960s, our estimates show Democratic identification dropping until 1966 and then increasing again. We are confident in our results during this period for two reasons. First, this pattern is consistent with the shifting Democratic vote share received by the Governor during these years. In 1958, the Democratic candidate received 59.8 percent of the vote. The percent of the Democratic vote share declined steadily to 42.4 percent in 1966 and then steadily increased to 60.6 percent in 1987. This v-shaped pattern matches our partisanship estimates. Additionally, it appears that a coding change between 1962 and 1973 led the Field Poll to overestimate the proportion of Democrats. The overestimate occurred because during this period, respondents who reported being independent were recoded as either Democrats or Republicans based on which way they leaned. Before 1962 and after 1973, partisan leaners were not coded as Democrats or Republicans. Furthermore, prior to 1962, the percent identifying as independents who leaned Democrat ranged from 6.7 percent (1959) to 10.3 percent (1960). Thus, by adding Democratic-leaners to the percent Democratic category, from 1963 to 1972, the Field poll increased the percent Democratic by about 7 to 10 percent. Incidentally, if we increased our estimates by these amounts during this period, they would roughly correspond with the Field Poll estimates. The deviation between our estimates and the Field Poll in the 1990s is not so easily explained.² To gain a better understanding of this difference, we also plot the percent of Democrats based on the PPIC Survey, which is available from 1998 to 2009. The PPIC Survey aligns closely with our estimates near the end of the series but, consistent with the Field Poll, suggests that we underestimate Democratic partisanship in the mid-1990s. Despite this difference, our estimates for California appear to be accurate for most of the more than 50 years of comparison.

Appendix 4 Survey Data Information by Year

In the tables below, we report the number of surveys used and the total number of survey respondents by year. Table A-1 reports this information for our estimates of state policy mood. Table A-2 reports this information for our estimates of state partisanship and ideology.

²One possible explanation is that in 1992, the Field Poll began conducting interviews in Spanish, but the number of Spanish speaking respondents is unlikely to be sufficient to explain the divergence.

Table A-1: Survey Data Information for Mood by Year

Year	Total N	Number of Questions	Number of Surveys	Year	Total N	Number of Questions	Number of Surveys
1953	3,097	2	2	1982	6,816	18	4
1954	2,963	2	2	1983	12,844	19	7
1955	1,433	2	1	1984	5,697	34	3
1956	7,787	6	4	1985	9,599	22	6
1957	7,589	6	5	1986	15,764	33	10
1958	2,992	5	2	1987	4,961	24	3
1959	6,223	5	4	1988	7,033	40	5
1960	6,787	6	3	1989	13,497	28	9
1961	17,467	4	6	1990	11,857	40	10
1962	14,578	7	5	1991	8,364	30	7
1963	27,364	5	7	1992	18,170	23	13
1964	6,713	9	3	1993	14,539	29	13
1965	26,817	11	8	1994	13,307	36	9
1966	11,869	6	4	1995	9,705	4	5
1967	7,452	2	2	1996	15,721	39	11
1968	7,582	11	5	1997	3,144	3	3
1969	9,212	6	6	1998	11,594	28	8
1970	4,926	10	3	1999	14,042	9	14
1971	8,046	4	5	2000	16,531	45	12
1972	8,697	10	5	2001	4,372	4	5
1973	6,294	14	3	2002	8,928	32	4
1974	6,635	19	4	2003	4,035	5	4
1975	6,591	18	5	2004	8,038	36	6
1976	10,640	22	6	2005	1,915	1	2
1977	6,567	14	4	2006	8,740	24	5
1978	14,419	20	8	2007	3,192	5	2
1979	7,957	11	5	2008	5,794	22	4
1980	11,248	21	7	2009	3,052	4	3
1981	11,680	13	7	2010	7,459	24	5
				Total	540,355	932	322

Notes: As reported in the text, 1,082 questions were used to generate our measures of state policy mood. The value of 932 reported above refers to the number of *unique* questions asked. When the same question was asked more than once in the same year, we pooled the data together prior to generating the MRP estimate. Thus, the number of unique questions (932) is less than the total number of questions (1,082) analyzed. Our decision to pool identical questions also explains why in some years the table shows the number of questions was less than the number of surveys. This means that at least two surveys included identical questions, which were then combined and treated as a single question in the MRP analysis.

Table A-2: Survey Data for Partisanship and Ideology by Year

Year	<i>Partisanship</i>		<i>Ideology</i>		Year	<i>Partisanship</i>		<i>Ideology</i>	
	Total N	Surveys	Total N	Surveys		Total N	Surveys	Total N	Surveys
1956	10,675	6			1984	12,861	3	12,125	3
1957	10,297	7			1985	17,846	12	11,723	8
1958	10,214	6			1986	15,795	11	12,140	8
1959	11,733	5			1987	15,492	9	12,115	7
1960	9,649	4			1988	17,878	11	14,644	9
1961	15,581	5			1989	15,691	11	8,647	6
1962	18,548	5			1990	13,214	11	12,549	10
1963	26,965	7			1991	11,829	11	11,758	11
1964	10,247	4			1992	10,034	9	10,128	9
1965	26,266	8			1993	12,812	13	11,453	11
1966	11,868	4			1994	15,291	10	13,190	10
1967	10,660	4			1995	11,355	11	13,427	9
1968	10,626	7			1996	14,133	10	13,475	9
1969	10,763	7			1997	11,508	12	9,777	10
1970	10,663	7			1998	13,565	11	12,970	11
1971	10,690	7			1999	11,980	12	10,176	10
1972	10,113	6			2000	18,337	16	12,403	11
1973	12,142	8			2001	9,681	9	9,063	8
1974	12,301	8			2002	12,915	11	11,616	10
1975	11,307	6			2003	10,847	11	7,971	8
1976	14,685	9	11,490	7	2004	13,344	11	7,881	7
1977	12,366	9	9,181	7	2005	9,701	10	9,798	10
1978	17,707	10	10,864	6	2006	14,788	11	12,770	9
1979	13,230	8	10,092	5	2007	9,995	9	10,161	9
1980	18,243	10	10,096	5	2008	11,643	9	7,891	6
1981	16,652	11	9,241	6	2009	10,888	11	9,873	10
1982	13,662	9	12,046	8	2010	12,615	8	11,307	8
1983	17,379	11	10,265	7	Total	741,270	481	384,306	288

Appendix 5 Stimson's Wcalc Algorithm

James Stimson developed his Wcalc algorithm as a method for identifying the common over time variance in different survey questions that have been asked at repeated time points. The method is particularly flexible because it does not require every survey question to be asked at every time point. Full details of this methodology can be found in Stimson (1991, 133-137), on Stimson's website (<http://www.unc.edu/~jstimson/Software.html>), and the Wcalc Software Manual (<http://www.unc.edu/~jstimson/wcalc.pdf>), but here we offer a general overview of the methodology.

First, each question series is scaled to a common metric by setting the last observation (t) for each issue series (i) at an arbitrary value. Then, all previous values in each series

are rescaled as a proportion of this arbitrary value. For example, if we set the final value, t , to 100, the value for an observation k periods earlier ($Issue_{i,t-k}$) would equal $100 * (\frac{Issue_{i,t}}{Issue_{i,t-k}})$. Based on this formula, starting at the last time point, the values of all possible ratios (for all possible question series) are averaged. This process is repeated backwards for each time point. Below, Equation 1, from Stimson (1991, 136), formalizes this procedure. As Stimson (1991, 136) explains, “every issue available for period t contributes its ratio with all other available periods to the summary scale value for t .”³ Because not every question series corresponds equally with the underlying dimension being estimated, u_i^2 in Equation 1 weights the contribution that each series makes to the overall estimate by the correlation between that series and the resulting estimate.⁴

$$Mood_t = \frac{\sum_{i=1}^n \sum_{j=1}^t u_i^2 * \frac{Issue_{ij}}{Issue_{ib}} * Metric_b}{n} \quad (1)$$

where

$I = 1, n$ is all available issues for period t

$J = 1, t$ is all available dyadic comparisons for issue i

u_i^2 is an estimate of the common variance of I_i and Mood

b is the base period for the recursive generation

$Metric_b$ is the value of the metric for period b .

References

Stimson, James A. 1991. *Public Opinion in America: Moods, Cycles, and Swings*. Boulder, CO: Westview Press.

³This process is done twice, once starting at the last time point as described above and a second time starting at the first time point and proceeding through the last time point. Both backward *and* forward recursion are used because the use of ratios necessarily means that the last estimate will include less information than the first estimate. The results from forward and backward recursion are averaged, ensuring that every time point is based on the same amount of information.

⁴The values of u_i^2 are determined by an iterative process, where the value of u_i^2 is first assumed to be 1.0. After estimating the underlying dimension of policy mood, values for u_i^2 are calculated and policy mood is recalculated using these estimates. This process continues until the values used for u_i^2 match correlations between question series and the resulting estimate of policy mood.