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THE PRACTICAL RESEARCHER

The Measurement of the Partisan Balance of State Government

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ABSTRACT

This note examines problems associated with measuring the partisan balance of state government. A description of a new publicly available dataset is given, as well as of the methods used to collect these data. The results of three data analyses using different measures of state government partisan balance demonstrate that sometimes measurement error on this variable can influence substantive findings.

One of the most basic measurement needs of state politics and policy researchers is a benchmark of the partisan balance in a state government. Researchers have used such a measure primarily as an independent variable to help explain everything from gerrymandering (Cox and Katz 2002) to policy outputs (Plotnick and Winters 1990; Smith 1997). Typically, a partisan balance measure is developed using a data source such as *The Book of the States* (Council of State Governments 1960–2000) to construct a simple dichotomous measure of partisan control or an interval measure of legislative dominance like the Ranney index (1976). I argue that such commonly used measures suffer from a number of problems such as the lack of standardization, duplication and redundancy of effort, overreliance on single data sources, and concept definition issues. Each of these problems threatens the validity of the widely used state partisan balance measures through the lack of conceptual clarity or simple measurement error.

To address the problems associated with these traditional measures, I develop a careful and comprehensive measure of the partisan balance in state governments and present a dataset for 49 states from 1959 to 2000 that is available for download at the *State Politics and Policy Quarterly* Data Resource web site (http://www.unl.edu/SPPQ/). In this article, I discuss the problems

State Politics and Policy Quarterly, Vol. 3, No. 3 (Fall 2003): pp. 309–319

with existing measures of the partisan balance of state government, describe my new measure and how it addresses these problems, and provide a basic example of how these measures perform compared to measures employed in a typical quantitative policy analysis.

PROBLEMS WITH EXISTING MEASURES OF STATE GOVERNMENT PARTISAN BALANCE

There are four basic problems with existing measures of state government partisan balance: lack of standardization, redundancy of effort, overreliance on single data sources, and concept definition issues. I address each of these in turn.

Lack of Standardization

Measures of the relative strength of Democrats and Republicans in state governments vary from study to study in their operationalizations and are based on a variety of data sources. This makes it difficult to assess divergent findings on the impacts and causes of the partisan balance of state government. For example, Plotnick and Winters (1990) find evidence that party control of state legislatures influences welfare policy while Dilger (1998) does not. While scholars have expended considerable resources to create reliable measures of state-level public opinion (Erikson, Wright, and McIver 1993; Berry et al. 1998; Brace et al. 2002), there has been no sustained effort to standardize and to assess the reliability and validity of partisan balance measures. Lacking such efforts, it is not clear whether variation in findings regarding partisan balance is due to research design, the time period or issue studied, or just variation in the measurement procedures. A standard measure of partisan balance with widely accepted validity could eliminate at least one of these possibilities.

Duplication and Redundancy

While state-level measures of partisan balance in state government are some of the most common variables included in a broad range of quantitative studies, scholars often develop their own measures from scratch. As such, there is a massive duplication of effort here. Aside from the collective waste of research energy this represents, such efforts lead scholars to reduce their attention and energy in measuring this variable, increasing the risk of measurement error. Furthermore, data entry and data manipulation mistakes may introduce different types of measurement error into analyses even for measures derived from the same data source.

Overreliance on Single Data Sources

Measurement problems can be compounded by an overreliance on a single data source that is fraught with error. Analysts tend to construct measures from a single source for the simple reason that collecting and entering data is time consuming. Yet, using a single data source without crossvalidation to other sources means incorporating any error of that data source in the resulting measure. I found numerous errors in all the standard published sources I used to construct my measures of partisan balance. The most serious of these errors are the occasional transposed values of the number of Democrats and Republicans in a state legislature. For example, *The Book of the States* (Council of State Governments 1960–2000) transposes these values for the 1995–96 Connecticut Senate, the 1999 Kentucky Senate, the 1967–68 New Hampshire Senate, the 1993–94 Utah Senate, and the 1963–64 Pennsylvania House of Representatives. Such errors have potentially severe consequences for studies of state politics and policy.

Similar errors can occur in measuring partisan control of the executive. Commonly, scholars use the most recent general election result to code the party of the governor. Yet, the partisanship of the executive can change between elections. For example, Republican Spiro Agnew was the governor of Maryland from January 25, 1967 to January 7, 1969 when he became vice president and was replaced by a Democratic governor elected by the general assembly to fill out Agnew's term. One dataset I examined miscoded Maryland as having a Republican governor in 1969 and 1970. This dataset had 17 state-years miscoded because of between-election shifts in partisan control, representing .9 percent of the cases.

Measurement error in a dependent variable does not produce biased regression coefficients, but the consequences of such error in independent variables can be severe (Davidson and MacKinnon 1993; Greene 2000). Measurement error in independent variables biases regression coefficient estimates towards zero, even as sample size increases to infinity (Greene 2000; Kennedy 1998). Even if only one independent variable has measurement error, other independent variables' coefficients are also biased. Little is known about the finite sample properties of such estimators, and the consequences of measurement error in multiple independent variables are usually impossible to compute (Greene 2000). Thus, special attention should be given to measurement error in independent variables.

Concept Definition Problems

Many studies of state politics and policy lack clear descriptions of variable coding and measurement decisions. Indeed, many studies lack a clear theo-

retical discussion of the concept being measured. The lack of such a discussion can lead to the use of measures that may not capture the underlying concept of partisan balance faithfully. A good example of this is the common practice of designating Democrats as the controlling legislative party when they have 50 percent or more of the seats (Smith 1997) or when they have more than 50 percent of the seats (Brown 1995). Like most studies that examine party control of state legislatures, they do not specify how such an operationalization is affected by tied chambers (Plotnick and Winters 1990; Dilger 1998; Alt and Lowry 2000; Clingermayer and Wood 1995; but see King 1989). Tied legislative chambers have become relatively common in recent years, with party control being resolved by the flip of a coin, the lieutenant governor's vote, or power-sharing arrangements (Erickson 1998). Such an operationalization can also be misleading because it does not account for the role of non-major party legislators and vacant seats. In these cases, a measure that hinges on who holds 50 percent of total seats may not reflect accurately which party actually controls the legislature.

Furthermore, as with the governor, party control of a legislature can also change between elections. Mid-session vacancies and legislators who switch parties can determine the partisan balance of power. For example, on March 15, 1994, party control of the Pennsylvania State Senate changed from Democratic to Republican for these reasons (Commonwealth of Pennsylvania 1997, 286). Complicating this problem is the fact that a shift in partisan plurality during a legislative session does not necessarily signal a shift in party control. For example, in the 1995 Tennessee State Senate, there were 18 Democrats and 15 Republicans. In 1996, two of these Democrats became Republicans, making the balance 16 Democrats and 17 Republicans. However, the senate did not reorganize and partisan control did not shift.

Heretofore, scholars have rarely dealt thoroughly with the conceptual and definitional problems for partisan control that these sorts of situations create. Without such clarification, the validity of the resulting measurements can be questioned.

NEW MEASURES OF STATE GOVERNMENT PARTISAN BALANCE

To address these problems, I have created a comprehensive, simple, and intuitive set of indexes for measuring the partisan makeup of state government. These measures cover 49 states (Nebraska is excluded) from 1959 to 2000 and are included in a dataset publicly available from the *SPPQ* Data Resource web site. These indexes are described below and are intended to provide the state

politics and policy scholarly community with robust, valid, and standardized measures of state partisan balance. Datasets containing all these measures, codebooks, and sources can be downloaded from the *SPPQ* Data Resource web site (http://www.unl.edu/SPPQ/).

Partisan Composition of State Legislatures

I used multiple sources of data to construct my measures of the partisan composition of state legislatures. Following Smith (1997), I define the partisan composition of a state legislature as the proportion of major party state legislators who are Democrats. To construct this measure, I took data for the number of Democrats, Republicans, Independents, vacancies, and total seats in each legislature from *The Book of the States* (Council of State Governments 1960–2000), *Supplement Number I to The Book of the States* (Council of State Governments 1959–2000), the *Statistical Abstract of the United States* (Bureau of the Census 1960–2001), and, where accessible, state-specific sources. Data from all sources were cross-checked to one another, and I resolved conflicts among them by examining state-specific sources or consulting with state-specific reference librarians. The basic idea was to inform the coding decisions with as much information as possible. If one source indicated that a chamber had more than 50 percent Democrats and another source indicated that it had less, I examined the party of the committee chairs to inform my coding decision. If sources disagreed because of reported vacancies, I examined the process by which legislative vacancies were filled in that state to help resolve the discrepancy. In Colorado, Illinois, Maryland, Nevada, and Washington for 1959 to 2000, and in New Jersey, North Carolina, and Ohio for part of this time, various "same party replacement" rules existed for legislative vacancies. This means that a legislator of the same party as the vacating legislator would almost certainly fill the vacancy, providing a good indication of how to resolve the discrepancy in the published data. All coding decisions are documented in a column in the Excel file for each legislative chamber.

Of course, resolving discrepancies in published sources sometimes requires making judgment calls. A prime example of this is how I coded the party affiliation of Minnesota legislators. Before the 1974 and 1976 elections, Minnesota had a nonpartisan house and senate, respectively. But almost every member of the legislature before those elections belonged to either the Democratic Farmer-Labor (sometimes called the Liberal) or Conservative caucuses. Thus, I used membership in these caucuses to measure partisanship for the period of nonpartisan elections. Nebraska's nonpartisan legislature created a particular challenge. Lacking a clear indicator, such as caucus membership, I aban-

doned my effort to code the partisanship of the legislators. However, I created a spreadsheet with the names of all of Nebraska legislators since 1947. Anyone with access to information about any of these Nebraska legislators' partisanship can use this list to create a partisanship measure.

Partisan Control of State Legislatures

I coded a measure of the partisan control of a state legislature based on a detailed definition of the concept of party control. I defined *democratic legislative control* (with the appropriate designation for chamber) as follows:

1) If a party has more than 50 percent of the seats in a chamber for the entire two-year legislative cycle, this variable is coded 1 for Democratic control and 0 for Republican control;
2) If a party has more than 50 percent of the seats in a chamber at the beginning of a biennium and then loses this majority before the next general election but legislative leadership and committee chairs do not change, this variable is coded 1 for Democratic control and 0 for Republican control;
3) If the party in the majority changes during a biennium and control of leadership and committees does change, this variable equals the proportion of the legislative session before the beginning of the next fiscal year that the chamber was controlled by Democrats;
4) If neither party had a majority of seats and between 25 and 75 percent of the committee chairs were Democrats, this variable is scored .5; and
5) If neither party had a majority of seats and more than 75 percent of committee chairs were Democrats, this variable is scored 1 and if more than 75 percent of these chairs were Republicans, it is scored 0.

Using committee chairs to judge partisan control in cases of nominal split control is justified because it is rare for the party with the most committee chairs to hold fewer than 75 percent of them when one party has a majority. From 1977 to 2000 (the years for which I have comprehensive data), when there is a majority in the legislature, this only occurs 7.7 percent of the time in upper chambers, and 4.4 percent of the time in lower chambers. Also, whenever more than 75 percent of committee chairs were of a given party, the party of the chamber leader is almost always the same as that of those chairs.[1] I got data on the partisanship of committee chairs from *Supplement II to The Book of the States* for 1977 to 2000 (Council of State Governments 1977–2000) and from state-specific legislative journals for state-years with close partisan splits before 1977.

One caveat on the use of these data is that they were collected for a study that assessed the impact of the partisan balance of state legislatures. Thus, these data may be less appropriate for studying the determinants of the partisan balance of state legislatures. For example, immediately after the 1988 general election, there were 53 Independent Republicans and 81 Democratic Farmer-Labor legislators in the Minnesota House of Representatives. However, due to an early resignation and special election, I code that chamber's split in 1989 as 54 to 80. While this may seem to be a trivial difference, it may have an analytical impact if these data were used hundreds of times.

Partisan Control of the Executive

My partisan control of the executive variable is coded 1 when the governor was a Democrat and 0 when the governor was a Republican. Data were taken from Congressional Quarterly's *Gubernatorial Elections, 1787–1997* (Congressional Quarterly 1998, 11–36) and from *Supplement I to The Book of the States* (Council of State Governments 1959–2000) for 1998 and thereafter (the *Supplement* is annual after 1995). Following Smith (1997), I code independent governors as .5. Fractions based on days served were assigned to a few years that witnessed a change in the party of the governor. Congressional Quarterly's *Gubernatorial Elections, 1787–1997* is an especially good source for gubernatorial partisanship because it provides a comprehensive list by date of every governor a state has ever had. This eliminates many of the coding problems described in the last section on state legislative partisan control.

AN EXAMPLE: WHAT DIFFERENCE DOES IT MAKE?

Even minor measurement errors can sometimes have an important impact on quantitative analyses. As an example of the difference my measures can make, I ran a simple analysis of the impact of the partisan balance of state governments on Aid to Families with Dependent Children (AFDC) policy. The dependent variable is the AFDC guarantee for a family of four, deflated by the Berry et al. (2000) state-specific cost-of-living index. The control variables are benefit depreciation (the amount that the guarantee declines in real terms if nominal benefits are not increased, based on the cost-of-living index) (Tweedie 1994), AFDC recipients as a percentage of a state's population (Tweedie 1994), federal matching rate (the percentage of benefits reimbursed by the federal government) (Berry, Fording and Hanson 2003), and deflated state per capita income (Brown 1995). The independent variables related to partisan control are change in Democratic legislative control, change in the proportion of major party legislators who are Democratic, and

change in a dummy variable coded 1 if the governor is Republican. The data cover 47 states for the state fiscal years 1970–96.[2]

I ran three versions of the basic model, identical except for the three measures of partisan balance. Model 1 uses data on the partisan balance of state government from my new dataset discussed above. Model 2 uses measures constructed from a single data source (*The Book of the States*) with party control defined as Democrats having 50 percent or more of major-party seats. Model 3 uses measures independently constructed and generously shared by a prominent team of state policy scholars. The indicators are highly correlated with one another across these datasets, with bivariate correlations ranging from .768 to .942. However, these high correlations belie the impact of how the partisan balance measures perform in a multivariate analysis.

Table 1 presents the results of ordinary least squares regression analyses using the alternative partisan control measures. Of greatest interest is that

Table 1: Determinants of the AFDC Guarantee for a Family of Four, Fiscal Years 1970–96

Independent Variable	Model 1: Klarner Measures	Model 2: *Book of the States* Data	Model 3: Anonymous Scholar's Data
Y_{t-1}	.823***	.823***	.824***
	(.032)	(.032)	(.033)
Depreciation	−.042	−.030	−.062
	(.283)	(.281)	(.285)
AFDC recipients as % of population	−1.560***	−1.565***	−1.608***
	(.466)	(.464)	(.471)
Federal matching rate	.128*	.135*	.133*
	(.089)	(.090)	(.091)
State per capita income ($1,000s)	1.644	1.663	1.511
	(1.948)	(1.961)	(1.966)
Δ proportion of legislators who are Democratic	10.088**	7.681*	−.741
	(5.681)	(5.623)	(4.736)
Δ Democratic legislative control	3.081***	3.876***	2.432**
	(1.260)	(1.275)	(1.218)
Δ Democratic governor	.410	.421	.661
	(.562)	(.563)	(.590)
SEE	6.966	6.957	7.003
R^2	.972	.972	.971

Note: State and year dummy variable coefficients are not shown. The dependent variable in all models is the AFDC guarantee for a family of four. The cell entries are the unstandardized OLS regression coefficients, with the panel-corrected standard errors in parentheses beneath.

Number of cases = 1269

* $p < .10$, ** $p < .05$, *** $p < .01$. All tests of statistical significance are one-tailed.

the partisan balance measures are more prominent in Model 1 than in Models 2 or 3. The impact of the change in the proportion of legislators who are Democrats is comfortably statistically significant in Model 1, less so in Model 2, and not statistically significant in Model 3. Indeed, the estimated coefficient for this variable in Model 3 is actually in the opposite direction from that in the other two models. The coefficient for change in Democratic legislative control also varies in its level of statistical significance across these models. Only the change in Democratic governor measures perform consistently across all three models. Thus, this simple analysis provides evidence that even relatively small measurement errors can influence our statistical results. Marginal changes in data quality can influence findings.

CONCLUSION

Eliminating measurement error and resolving conflicts over judgments on particular coding decisions should be a communal project. It is for this reason that I have posted complete documentation of my procedures and decisions on the *SPPQ* Data Resource web site along with my dataset. This allows others to check my work and identify any errors that may remain, as well as make judgments about the validity of my measures for their own research purposes. This also will reduce duplication of effort when others build on my work.

The data collection process can be thought of as an informal Bayesian updating process where one continually uses new information to assess the quality of the information already gathered, and vice versa. The data generation process is an ongoing one and the notes associated with my dataset imply other pieces of information that could be obtained to improve data quality.

My dataset and these measures of state government partisan balance may be of broad utility to state politics and policy scholars. I plan future updates, and these will also be posted on the *SPPQ* Data Resource web site as they are finalized. Ideally, scholars will gather and disseminate other data and variables that are widely used in state politics in a similar fashion. Such communal efforts may be particularly fruitful because they allow people with a high level of knowledge about a single state or a particular phenomenon across states to make contributions that can have a wide impact on our understanding of state politics. Collectively, the potential payoffs of these contributions are considerable.

ENDNOTES

I would like to thank Abby Lorenz and Melanie Burns for data entry, the American Politics Program at Texas A&M University for financial assistance in collecting data and Russell Hanson for the data on the AFDC guarantee.

1. There are only two state-legislative-years out of 4,018 from 1959 to 2000 that are exceptions to this.
2. Following Beck and Katz (1995), I use panel-corrected standard errors, as is appropriate with pooled-time series data.

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