This article presents several patterns of partisan competition suggested by an interplay of long-term and short-term forces in the political system. By applying constraints to the forces, one can note the effects on the temporal properties of party competition. Each pattern has an analogue in the political parties literature and a statistical procedure for its identification. Four patterns of party competition are considered: (1) a noncompetitive pattern, (2) a trend pattern, (3) a cyclic pattern, and (4) a Poisson pattern. Using time series data on the occurrence of partisan change events for the U.S. presidency and state governorships, the authors note several expectations of the patterns.

PATTERNS OF PARTY COMPETITION

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Descriptions of party competition in the United States range from the complex to the simple. For example, Bean (1948) describes partisan forces as a "swinging pendulum" favoring one party and then the other. Similarly, Sellers (1965) has analyzed changes in political parties as an "equilibrium system." In both models the sequence of voting changes follows an oscillation of partisan forces. There are periods of ascendency, equilibrium, and realignment in regular intervals throughout the history of presidential elections. The tendency for equilibrium or "restoring forces" has also been noted in more formal statistical models of the electorate (Stokes and Iverson, 1966).

On the other hand, the temporal patterns of party competition are often quite simple. Typologies rely on the degree of alter-

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nation in office by the parties (for example, Schlesinger, 1955: 1120-1128). Furthermore, statistical indicators of party competition count the number of partisan changes in a time period (for a review, see Pfeiffer, 1967: 457-467). Rather complex stochastic processes are simplified to measure partisan success.

This article challenges some of these earlier descriptions of party competition and presents a new classification for patterns of party competition. Focusing on partisan change, the first section describes four patterns derived from the political parties literature, yet consistent with a few basic mathematical properties. The second section details a methodology for the classification. The third section presents an empirical analysis of U.S. presidential and state gubernatorial elections and discusses the implications of the analysis.

FOUR PATTERNS OF PARTY COMPETITION

The patterns of party competition presented in this section are a selection of substantive models suggested in the political science literature. While not an exhaustive list of all possible models, these patterns are prominent in the field: a noncompetitive pattern, a trend pattern, a cyclic pattern, and a Poisson pattern.

Mathematically, the patterns assume that electoral outcomes are determined by short-term and long-term forces. Short-term forces are volatile, vary in magnitude, and randomly favor one party or the other from election to election. For example, candidates with a more attractive image may be the nominees of a political party over a series of elections. The short-term forces favor this party. Long-term forces are not necessarily constant, but they vary more slowly over time than short-term forces. For example, the percentage of persons identifying themselves as a Democrat, Republican, or independent has remained stable since 1952 (Campbell et al., 1960, 1966). The outcome of any election is a function of the long-term and the short-term forces:

$$P(D)_t = L(D)_t + S(D)_t$$

where

$P(D)_t$ = proportion of an electorate voting for party D at time t

$L(D)_t$ = aggregate impact of long-term forces for party D at time t

$S(D)_t$ = aggregate impact of short-term forces for party D at time t

In a two-party system, the outcome of an election depends on whether $P(D)_t$ is above or below .5.

The four patterns of party competition discussed in this article apply different constraints to the above equation. As a simple example, let $L(D)_t$ equal .5 for all values of t. The outcome then is determined solely by the characteristics of the short-term factor, $S(D)_t$. Alternatively, if $S(D)_t$ is sufficiently small, the outcome of each election at time t is determined solely by the long-term factor $L(D)_t$. By imposing different constraints on $L(D)_t$ and $S(D)_t$, one might suggest several patterns of party competition which focus on "partisan change events." Conceptually a partisan change event is any election in which the incumbent party loses.[1] In our notation, this occurs when $P(D)_t$ is greater than .5, but $P(D)_{t-1}$ is less than .5 (or vice versa). We now turn to the four patterns of party competition.

NONCOMPETITIVE PATTERN OF PARTISAN CHANGE

Noncompetitive state systems have attracted considerable attention,especially in discussions of Southern states. Key (1949: 298-311) argues that Southern states resolve issue differences by intraparty struggles rather than interparty competition. General elections do not provide a forum for partisan debate on the major political cleavages. Also Elazar (1966) argues that noncompetitive states have an elite-oriented political culture in which the only competition is the struggle among factions; thus there is little public policy content during elections. Both arguments are consistent with our position that the short-term forces (e.g., issues) which distinguish the parties in the election are too small to influence the outcome.

Mathematically, a noncompetitive system has the following constraints on the long-term and short-term forces:

(1) $L(D)_t$ has some constant value, say a, over time;

(2) $S(D)_t$ varies randomly over time with mean 0 and variance s^2.

In a noncompetitive system, $|a - .5|$ is much larger than s. The system is noncompetitive since the outcome of an election is so biased by $L(D)_t$ that only extraordinary events could create $S(D)_t$ sufficient to swing the election. In other words, there are no partisan change events for a long time.

The long-term and short-term forces of a noncompetitive system are represented in Figure 1A. The long-term commitment (shown as a straight line) to the dominant political party is far above the .5 level. Short-term forces (shown as vectors above and below the normal support level) periodically favor one party or the other producing fluctuations in the vote. However the short-term forces rarely produce enough deviation from the normal support level to create partisan change. Issues rarely make a sufficient (i.e., partisan change event) difference in the outcome of the election.

TREND PATTERN OF PARTY COMPETITION

Changing levels of party dominance, and thus a trend pattern, are suggested by Phillips (1969). He argues that middle-class Catholics, blue-collar workers, and Southern conservatives, who traditionally have identified with the Democratic Party, increasingly support Republican policies. Richard Nixon's presidential campaigns employing a Southern strategy with a conservative appeal were successful exploitations of this new sentiment. The election outcomes of 1968 and 1972 give credence to Phillips' concept of an Emerging Republican Majority (or at least minority). Similarly, Converse (Campbell et al., 1966: 212-246) notes long-term drifts of party division in the South which more

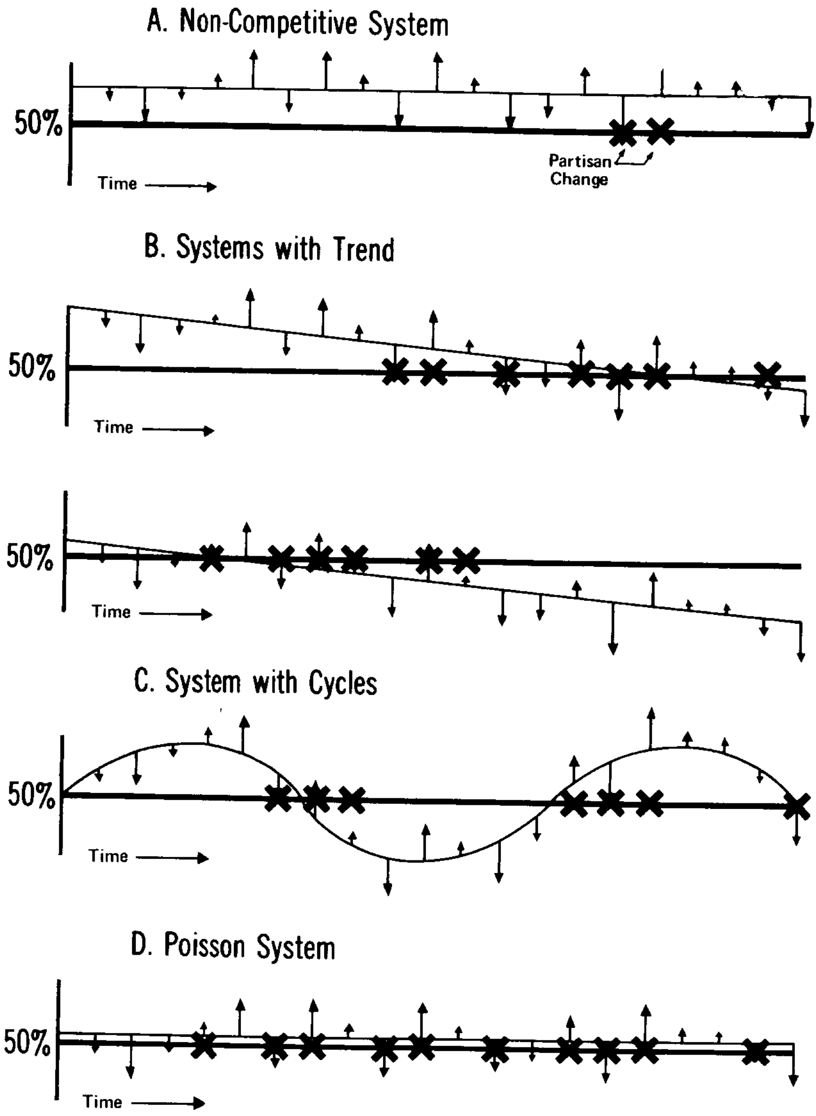


Figure 1: Types of Partisan Change

recent research (Tindall, 1972; Beck, 1977) labels "dealignment." The consistent theme of these studies is the emphasis on long-term change in the national two-party vote.

Several similar statements have been made about state party systems. For example, Fenton (1966: 194) states that the "net impact of the events and personalities that affected the lives of Illinois' citizens for good or ill, 1860-1928, was to make it a dominantly Republican state. . . . After 1932, Illinois was transformed from a relatively safe Republican stronghold to a marginal state politically." These two statements together show Illinois to have a trend from one-party dominance to two-party competition. Other statements about growing two-party competition describe Rhode Island and New Hampshire (Lockard, 1959: 339), California (Turner and Vieg, 1964: 41), and New York (Straetz and Munger, 1960: 66).

Mathematically the trend pattern relaxes the assumption of constant long-term forces.

(1) $L(D)_t$ has an incremental drift, say a + kt, over time.

(2) $S(D)_t$ varies randomly over time with mean 0 and variance s^2.

The long-term forces gradually drift toward (or away from) the 50% level. For a system in which a + kt is greater than .5, the frequency of partisan change events depends on the magnitude of s. As a + kt approaches .5, the occurrence of partisan change events increases. Eventually the system is transformed into a noncompetitive system as a + kt crosses .5 and once again becomes the dominant factor in the equation.

Figure 1B shows the long-term and short-term forces of a system with trend. The short-term fluctuations produce a greater number of partisan changes as $L(D)_t$ approaches .5. A different trend is represented in the second system in Figure 1B. Previously there were a large number of partisan changes, but the increasing dominance of one party makes a turnover less likely. Thus a system with trend has an increasing or decreasing probability of partisan change; that is, the probability of a turnover is not stationary. Systems with this pattern have turnovers from one party to the other in shorter (or longer) time intervals.[2]

CYCLIC PATTERN OF PARTY COMPETITION

A third pattern of party competition has cycles of partisan change. This model is suggested by Key in two articles on "critical realignment" (1953: 3-18) and "secular change" (1959: 198-210). Presidential elections according to Key are the result of periodic changes in the partisan allegiances of social groupings. Sometimes social changes are quite dramatic, thus "critical," other times they are gradual, thus "secular." In both cases there are alternating and changing periods of party dominance. A similar typology of partisan change based on social cleavages and partisan victory is suggested by Campbell et al. (1966: 531-538) and elaborated by Pomper (1968: 101-122). Several methodological tests (Burnham, 1970; Shade, 1973) as well as hypothetical political scenarios (Sundquist, 1973) for realignment also have been suggested. However, the most explicit statement about the cyclical nature of two-party politics has been made by Sellers (1965: 16-37).

> It becomes apparent that it is not enough to speak of single realigning elections. Instead it appears that ascending phases are regularly preceded by realigning phases, sometimes of considerable duration. These realignment phases are in turn usually preceded by equilibrium phases of stable party balance, from which the realignment phases are distinguished by their sharp short-term oscillations.

A similar literature about critical realignment in the states has been discussed in Illinois (MacRae and Meldrum, 1960: 669-683) and several other states (Burnham, 1970).

Mathematically, a cyclic pattern of party competition has a slow oscillation of long-term forces.

(1) $L(D)_t$ has an oscillation, say sin t, over time.

(2) $S(D)_t$ varies randomly over time with mean 0 and variance s^2.

The system has epochs of party dominance, competition, dominance (perhaps by the other party), competition and so on.

During a period in which sin t is near the value of .5, the random fluctuation of s would produce frequent partisan change events. These periods of relatively high competition surround periods of party dominance. Figure 1C presents a graphic reconstruction of a cyclic system. There are alternating periods of party ascendency and descendency separated by periods of two-party competition. Such a system is cyclic.

POISSON PATTERN OF PARTY COMPETITION

The Poisson pattern is strikingly similar to Converse's (1964) discussion of belief systems. Converse notes the stability of party identification for panel survey data from 1956 to 1960. This suggests an unchanging long-term, partisan force. Furthermore, Converse notes the instability of issue attitudes for a large segment of the population.

> This model is somewhat surprising but not implausible. It posits a very sharp dichotomy within the population according to processes of change that are polar opposites. There is at first a "hard core" of opinion on a given issue, which is well crystallized and perfectly stable over time. For the remainder of the population response sequences over time are statistically random [1964: 242].[3]

The "hard core" of stable opinions may be the strong party identifiers who rarely, if ever, fluctuate in their vote. In Key's (1966: 9-28) terminology, they are probably "standpatters." If the short-term forces—issues—favor one party or the other at random, then a Poisson distribution characterizes the temporal distribution of partisan change events.

Elazar (1966: 90) permits application of the Poisson to state politics by describing "moralistic political cultures," states in which issues play an important part in electoral politics. Such states have a two-party system in which short-term forces (i.e., issues) determine the electoral outcome. In addition they adopt innovative programs since they provide frequent opportunity for partisan change and high expectation for progressive programs (Walker, 1969).

As discussed in *Midwest Politics* (Fenton, 1966), Michigan, Wisconsin, and Minnesota have a history of issue-oriented parties. Most elections provide a referendum on basic societal cleavages. States in which "people come together out of some common concern with public policy" are likely to be states which have a long history of two-party competition (Fenton, 1966: 194). In *New England State Politics* (Lockard, 1959: 326), Massachusetts, Connecticut, and Rhode Island make highly partisan policy decisions in their legislatures. This history of policy politics would produce a Poisson distribution of partisan change.

Mathematically, this pattern has a long-term factor which is not significantly different from .5 and has random short-term forces.

(1) $L(D)_t$ has a constant value very close to .5, say a', over time.

(2) $S(D)_t$ varies randomly over time with mean 0 and variance s^2.

Unlike the first model, $|a' - .5|$ is small compared to s. Thus the frequency of partisan change events depends on the direction of short-term forces. The pattern of elections has the properties of a series of independent Bernoulli trials; or viewed as a continuous time process, the series of elections has the properties of a Poisson process. There is no evidence of memory and no autocorrelation between partisan change events.[4] Figure 1D shows a Poisson system.

To review, we consider four patterns of the temporal distribution of partisan change events, defined as an election in which the winning party is different from the incumbent party. We consider the case of (1) a noncompetitive system, characterized by an extremely low frequency of changes, (2) a trend system, characterized by an increasing or decreasing frequency of changes, (3) a cyclic system, characterized by alternating epochs of frequent and infrequent changes, and (4) a Poisson system, characterized by a constant rate of change with no trend, memory, or autocorrelation. Clearly different constraints suggest other patterns; however, the four patterns we present are ones given great attention by scholars of party competition.[5]

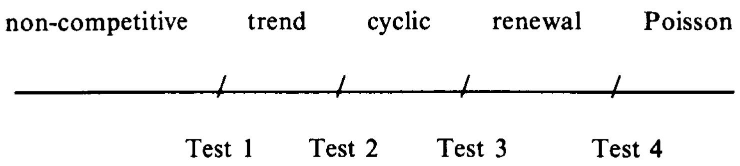
METHODOLOGY

DATA BASE

The data for the study is a time series of partisan change events. The partisan affiliation of the governor of a state or the president of the United States was determined for each inaugural year from 1789 to 1974.[6] The coding rule was simple. If the party affiliation of the inaugurated governor (or president) was the same as the previous governor (or president), then there was no partisan change event. Conversely, if the party of the inaugurated governor differed from the previous governor, a partisan change event was coded for the inaugural year. It does not matter if a Democrat follows a Republican or vice versa; in either case a partisan change occurs. Further, the margin of victory, the size of the plurality, and the rise or fall of the party's vote are not considered with this procedure. A complex process is simplified for the sake of the single salient feature of concern, the occurrence of partisan change events.[7]

STATISTICAL PROCEDURES

For the statistical analysis we employ a sequential testing procedure.[8] A noncompetitive system has a nonnegligible rate of partisan change, and this rate is increasing or decreasing monotonically. A cyclic system has a nonnegligible, stationary rate of change, and there is autocorrelation in the series. A Poisson system has a nonnegligible, stationary rate of change with independent intervals, and there are some peculiar distributional properties of the time between partisan change events. Thus there is a logical ordering such that Poisson systems are not noncompetitive, do not have trend, and are not cyclic. Cyclic systems do not have trend and are not noncompetitive, and so forth. We employ tests that sequentially evaluate (1) competition, (2) absence of trend, (3) absence of cycles, and (4) unique Poisson properties. The tests form a cumulative scale, partitioning a dimension of electoral systems:



There is also a type of system categorized as having a "renewal" distribution of partisan change events. Renewal processes have a stationary rate of change with independent intervals between partisan change events. The Poisson distribution is a special case of the renewal in which the intervals have a particular distribution, the negative exponential. Since no substantive model of the occurrence of partisan change events predicts a non-Poisson renewal distribution, we leave this category as statistically anticipated but substantively ambiguous.

Test for noncompetitive pattern of party competition. Any series with fewer than eight partisan change events is noncompetitive and thus fails the first test. This is an arbitrary value based on two pragmatic considerations. First, later statistical tests require at least eight events. Second, there is only one state with six or seven partisan changes. Thus eight partisan changes is a convenient breakpoint.[9]

Test for trend pattern of party competition. The notion of stationary intervals means that the density of partisan change events does *not* increase or decrease over time. A pattern of party competition with a trend would reject the test for a stationary process.

The test for a stationary series of events is the statistic U. U compares the average length of time between each partisan change event with the average length of time among all partisan change events. Should U reach a critical value, the time between partisan change events is not stationary; that is, there is a trend.

Test for cyclic pattern of party change. Independent of intervals means that the probability of a partisan change event is not affected by past partisan change events. The length of time since the last partisan change event has no impact on the chance of a partisan change event now. A simple test of this assumption is the absence of any serial correlation in the length of time between partisan change events. Lagged correlation coefficients are conventional statistics which provide the requisite information as long as the distribution is not skewed. We report the maximum serial correlation to a lag of five.[10]

Tests for Poisson pattern of party competition. Should a series pass the stationary and independent intervals tests, it may be classified as a renewal process. The Poisson is a special case of a renewal process in which the time between partisan change events has a particular distribution, the negative exponential. Thus the final decision is whether the Poisson or some other renewal distribution best captures the data.

The first test is the Kolmogorov-Smirnov test which is a goodness-of-fit test. Discussions of the Kolmogorov-Smirnov test are widely available (for example, see Siegel, 1956). The test compares a theoretical distribution to an empirical distribution, by identifying the maximum difference between the two distributions and comparing this maximum difference to tabulated values of a previously defined critical value.[11] Since an alternative distribution is not specified, the statistic provides confirmation of the fit to the predicted distribution. On the other hand, the test does not focus on a rival distribution and thus is not maximally powerful against other patterns. The Moran test enables one to distinguish between the Poisson and a similarly distributed rival.

The final statistic is the coefficient of variation (i.e., the ratio of the standard deviation to the mean) of the time between partisan change events. In the case of the Poisson, this ratio should be 1.0 since both the mean and standard deviation of the time between partisan events should be equal. Although there are no tests for significance of deviation of the coefficient of variation from unity, this statistic is a useful descriptive and diagnostic term. It indicates whether there are a large or small number of short (or long) intervals. When the coefficient of variation exceeds unity,

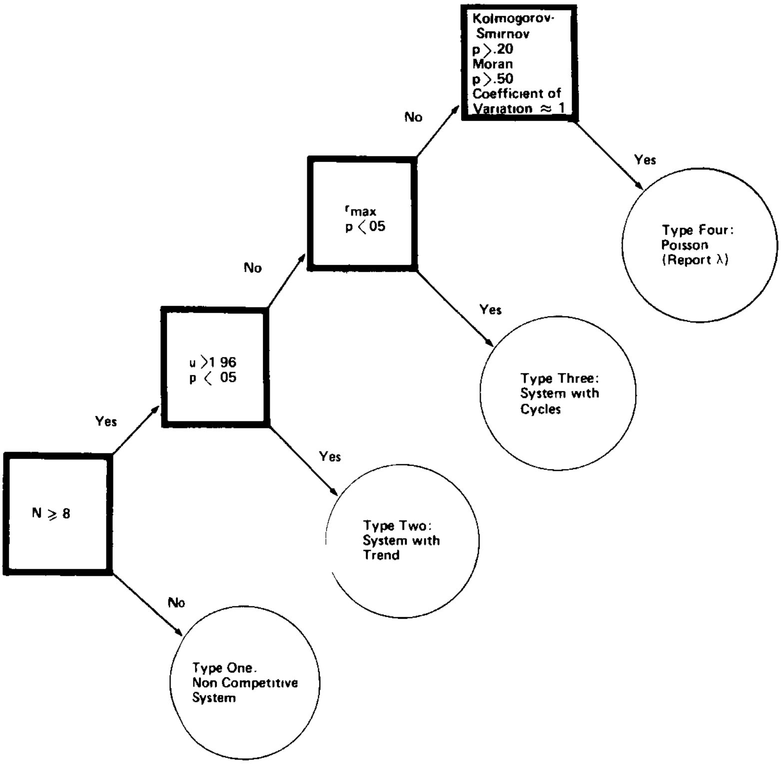


Figure 2: The Poisson Decision Tree

there are proportionally too many long intervals in the data. Conversely when the coefficient is less than unity, there are too many short intervals.[12] A summary of the statistical tests used in our decision tree is presented in Figure 2.

RESULTS: THE UNITED STATES PRESIDENTIAL ELECTION SERIES

The United States presidential election series fits the Poisson model. This conclusion is based on the following path through the decision tree.

TABLE 1
Statistical Tests for U.S. Presidential Elections

	TEST FOR N-C	TEST FOR TREND	TEST FOR CYCLE	TEST FOR POISSON			
	N	U	Max. Rho (Lag)	Kolmogorov-Smirnov	Moran	V	λ
United States Presidency	18	.417	-.184 (3)	.157	8.681	.687	.391
Revised United States Presidency	16	.811	-.270 (2)	.235	8.400	.802	.348

(1) Since 1789 there have been 18 partisan change events (see Table 1). Unlike other systems which have histories of few partisan change events (e.g., Texas and South Carolina), the presidency has changed parties often enough that the first conclusion was the existence of some nonnegligible density of partisan change events.

(2) Partisan change in the presidency is not a pattern with a trend. There is neither a significantly increasing nor decreasing tendency toward partisan change events. There have been periods in American history, such as the Era of Good Feeling, the Reconstruction period, and the New Deal / Fair Deal, in which one party won several successive elections. But these eras are no more or less frequent than they have ever been. Indeed the examples just cited span the history of the United States.

(3) There are no significant cycles of partisan change events in the presidential data. If they existed, these cycles would show a high serial correlation as the number of the lag approaches the number of changes within a cycle. Thus if the sequence of partisan change events consisted of two long intervals between changes followed by three short intervals between changes, the serial correlation of the fifth lag would be quite high. The maximum Rho of -.184 in the third lag is not significant at the .05 level. Thus there is no significant cycle of partisan change events in presidential elections.

(4) Since the presidential series is trend-free with no noticeable memory, the requisites of a renewal process are fulfilled. The final

tests determine whether the series is Poisson. The Kolmogorov-Smirnov value of .157 is associated with a probability greater than .2; more than 20% of all renewal distributions would fit the Poisson *worse* than the model for the United States presidency fits it. (Since its critical values are only tabulated to .2, this test is unavoidably conservative.) On the basis of the Moran test there is at best a 5% chance that a renewal-gamma distribution fits the data better than the Poisson. The last check for the Poisson distribution is the coefficient of variation. The test value of .687 obviously differs from 1.0, but given the other congruent test results and the absence of significance tests of deviation from unity, one can conclude that there is more than reasonable support for the Poisson characterization of the presidential series.

Since the discussion of types of electoral change ignores institutional restrictions, it is possible that another constitutional framework could produce different conclusions. In a reanalysis of the presidential data, American history was altered slightly to simulate the direct election of the president by plurality. Only three elections would have different results.[13] With these revisions, the series is still Poisson. The statistical results are shown in Table 1.

The finding that American presidential elections are a Poisson process has three important substantive implications. First, one can reject the notion of a trend toward one-party dominance in presidential elections over the full history of the office. The probability of partisan change events in the United States is stationary throughout the long history of presidential elections. There is no greater tendency or no less tendency for either party to dominate the current presidential contests than the first presidential contests. The Democratic Party has won more presidential elections in recent years than the Republican Party, but there is no statistically significant evidence of a change in the probability of party dominance. Our results emphasize the importance of short-term random shocks against the background of constant long-run forces.

At first glance this finding contradicts discussions of "long-term forces restoring party competition." Earlier research suggested that presidential elections could not be characterized as a random walk through time since the two-party vote would have strayed more than history has recorded if there were no equilibrium forces in the electorate. Indeed without equilibrium (long-term) forces the two-party vote would have remained within its historic bounds less than five times in a hundred (Stokes and Iverson, 1966).

The data presented here do not dispute this conclusion. The long-term forces act, by their very constancy, to keep the presidency competitive; they preclude emergent or cyclic periods of party dominance. Given this background of equilibrium, the winner of a particular presidential contest is a function of the short-term components which we assume favor parties randomly over time.

Second, discussions of cyclic realignment affecting the probability of electoral outcomes are not supported by these data. Partisan change in presidential elections is stationary and acyclic. This finding suggests that earlier discussions of an equlibrium cycle in two-party politics at the presidential level may have exaggerated the regularity of partisan change events. Ascending phases of partisan competition are not *regularly* preceded by realigning phases (Sellers, 1965: 16-37). Partisan competition at the presidential level does not repeat 30-40 year cycles (Burnham, 1970). To the extent that such phases exist in American Presidential politics and such phases can be recognized by the outcome of presidential elections, a theory of *regular* cycles of party competition at the presidential level can be rejected (see Ladd and Hadley, 1975: 333). The outcome of presidential elections are determined by at least one factor which is Poisson distributed. A system with a Poisson distributed factor excludes the possibility of a regular cyclic process.

The observer must be careful not to interpret phases ex post facto as regular patterns of party dominance or change. A party may win two or three elections in a row and lose two or three elections consecutively. However the pattern of change may not deviate significantly from chance expectations. There is no regularity to the lengths of time between partisan change events in presidential elections.

This does not mean that specific election periods cannot be "critical eras" in which the two-party vote for president changes dramatically. One can observe several such elections historically. However, we reject the notion that critical or realigning elections appear at uniform time intervals producing regular cycles of partisan change.

Third, the outcomes of presidential elections are caused by short-term forces acting within the system. Recent voting behavior literature emphasizes the importance of issue perceptions in any election (for example, see Popkin et al., 1976: 779-805). That is, a portion of the electorate at any time makes a partisan choice based on short-term forces. This random swing of short-term factors favoring one party or the other is a crucial factor in electoral outcomes.

This conclusion gives credence to Key's (1966) methodology of correlating short-term forces (e.g., issues, candidate preference, party image) during an election with "switches" from a previous partisan choice. Key found that voters switched their party choice from one election to the next because of the short-term forces, which favor one party in one election, the other party in the next election, then the first (or second) party, and so on randomly through time. More recent voting behavior studies suggest that short-term deviations from the normal vote are associated with vote preferences (Boyd, 1972: 429-449; Miller et al., 1976: 753-778). Research on the 1964 presidential election suggests that several long-term attitude variables which traditionally explained voting preferences can be specified by short-term perceptions (Broh, 1973). The data presented here are consistent with this research.

THE STATE GUBERNATORIAL ELECTION SERIES

The patterns of partisan change in state gubernatorial races were analyzed with the same decision tree as the United States presidential elections. The results of this analysis are presented in Table 2.

TABLE 2
Statistical Tests for State Governor Elections

	TEST FOR N-C	TEST FOR TREND	TEST FOR CYCLE	TEST FOR POISSON			
State	N	U	Max. Rho (Lag)	Kolmogorov-Smirnov	Moran	V	λ
Non-Competitive							
Alaska	2*						
Alabama	3*						
Arkansas	5*						
Florida	6*						
Hawaii	1*						
Oklahoma	2*						
South Carolina	7*						
Texas	4*						
Utah	5*						
Trend							
Illinois	13	2.108*					
Louisiana	9	-2.729*					
Mississippi	8	-2.729*					
Vermont	14	-2.369*					
Cyclic							
Deleware	24	0.905	-.483* (2)				
Indiana	18	0.580	-.581* (4)				
Iowa	10	1.044	.632* (2)				
Maine	23	-0.835	.548* (4)				
Maryland	25	0.003	.466* (4)				
Nevada	14	0.042	-.562* (3)				
New Hampshire	19	-1.261	.632* (4)				
New York	20	0.782	.447* (1)				
West Virginia	8	0.897	-.739* (2)				
Renewal							
Connecticut	37	1.100	.066 (3)	.261*	42.908*		
Georgia	8	-1.416	-.222 (3)	.513*	22.681*		
Idaho	13	1.761	-.335 (3)	.400*	17.283*		
Tennessee	20	-0.991	.369 (4)	.258*	25.662*		
Virginia	9	-0.966	-.162 (2)	.391*	9.117*		
Poisson							
Arizona	9	0.612	-.340 (2)	.266	0.582	0.892	.125
California	16	1.876	.367 (2)	.345*	13.617	1.257	.127
Colorado	20	-1.314	-.361 (5)	.225	12.211	0.653	.202
Kansas	17	0.472	-.396 (5)	.202	15.251	1.005	.149
Kentucky	21	0.965	-.237 (3)	.202	16.382	1.077	.114
Massachusetts	37	1.029	-.269 (3)	.117	28.388	0.884	.189
Michigan	18	0.910	-.350 (3)	.207	17.040*	1.015	.129
Minnesota	12	1.496	.307 (4)	.276	11.797*	1.170	.103
Missouri	11	0.976	.517 (4)	.271	10.320*	1.022	.071
Montana	8	0.057	-.586 (1)	.134	3.835	0.621	.093
Nebraska	19	0.390	-.315 (2)	.179	16.863	0.981	.176
New Jersey	26	0.253	-.266 (5)	.147	19.759	0.926	.131
New Mexico	12	1.143	-.249 (5)	.302*	7.231	0.987	.190
North Carolina	14	-1.182	-.189 (5)	.224	11.719	1.001	.070
North Dakota	14	-0.872	-.333 (5)	.266	12.172	0.807	.163
Ohio	35	0.868	-.307 (5)	.146	18.233	0.885	.203
Oregon	16	-0.381	-.253 (1)	.177	9.795	0.649	.138
Pennsylvania	17	0.048	-.369 (1)	.133	10.454	0.896	.092
Rhode Island	29	0.722	-.253 (1)	.130	24.895	0.952	.157
South Dakota	11	0.073	-.496 (1)	.157	6.622	0.789	.128
Washington	10	0.127	-.580 (3)	.123	4.015	0.442	.116
Wisconsin	13	-0.276	-.416 (1)	.161	13.320*	1.114	.102
Wyoming	12	-0.282	-.471 (2)	.129	6.677	0.610	.141

*Denotes failure of statistical test. See Figure 2 for decision rule.

(1) Seven states are noncompetitive systems; each has so few partisan change events that further statistical analysis is not meaningful. Alabama, Arkansas, Florida, Oklahoma, South Carolina, Texas, and Utah have fewer than eight partisan change events in the statehouse. All but one of these states are from the South, historically noncompetitive at the gubernatorial level. Additionally, Alaska and Hawaii are nominally classified here due to their short histories of statehood.

(2) Four states—Illinois, Louisiana, Mississippi, and Vermont—have a significant trend of party competition. These states demonstrate several historical developments to which our analysis is sensitive.

Illinois has a trend toward more frequent partisan change events, as Figure 3 demonstrates. Although early history of statehood was dominated by the Democratic Party, Illinois shifted to Republican control in the antebellum period. In the twentieth century, Illinois politics has had many partisan changes. The frequency of partisan change monotonically increases over the full period of inquiry. The time between the first and second partisan change was a relatively long period as was the time between the second and third. However, the time between partisan change events has decreased significantly.

Vermont represents the exact opposite trend of party competition. In its early history the intervals between partisan change events were short. However, in recent years, Vermont's statehouse has been dominated by the Republican party. Again the trend is significant and could have occurred by chance less than two times in one hundred.

(3) Nine states are systems with memory. Delaware, Indiana, Iowa, Maine, Maryland, Nevada, New Hampshire, New York, and West Virginia show significant serial correlations of various lags. The maximum serial product-moment correlations and lag numbers are presented in Table 2.

Iowa and New Hampshire have cyclic patterns of partisan change. Iowa became a state in 1846 with a Democratic governor. Within the next twelve years, it elected a Free Soil Democrat and has remained predominately Republican since then. However,

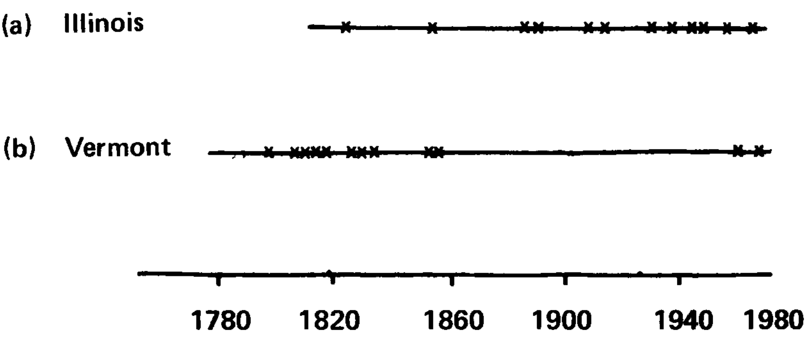


Figure 3: Time Series of Partisan Changes in Two States with a trend: Illinois and Vermont

Democrats have been elected to the statehouse in 1890, 1933, 1957, and 1963. A cycle of partisan change emerges; a Democrat has been elected to office for a short interval every 30 to 40 years. The time series is graphically represented in Figure 4.

New Hampshire, also presented in Figure 4, shows a similar pattern except that there are four rapid turnovers followed by a long period of partisan dominance. Such a pattern suggests regular periods of critical realignment. There partisan changes may be caused by unsettled issues which build to a boiling point before the parties realign. Once their political parties are in harmony with the issues of the day, New Hampshire citizens return to a long period of acquiescence (for a similar scenario of realignment processes, see Sundquist, 1973).

The rest of the states are renewal. The decision rule for entrance into the Poisson category is that a state must pass the Kolmogorov-Smirnov and the Moran tests. Both tests are reported in Table 3. Connecticut, Georgia, Idaho, Tennessee, and Virginia are renewal processes, having failed both of the specific Poisson tests.

(4) The remaining states (see Table 2) have a Poisson distribution of partisan change events. Each was tested for various statistical qualities. They have no significant trend; they have no significant cycles; they are not significantly different from the

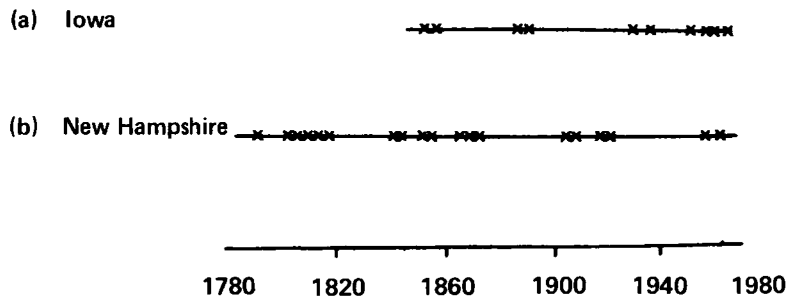


Figure 4: Time Series of Partisan Changes in Two States with Memory: Iowa and New Hampshire

Poisson; they are significantly different from non-Poisson renewal distributions; and they have coefficients of variation near unity. The time series for a typical state from this group, Ohio, is represented in Figure 5.[14]

Substantively these state gubernatorial races have properties similar to the United States presidential elections. At least one of the variables causally antecedent to the electoral outcome is random over time and produces partisan change events as a Poisson process. In such a system short-term forces have a dominant impact on electoral outcomes.

Scholars studying policy-making have often speculated about state political systems which are highly volatile with short-term forces. For example, Walker (1969: 880-899) notes:

> It would seem that parties which often faced closely contested elections would try to out-do each other by embracing the newest, most progressive programs and this would naturally encourage the rapid adoption of innovations. Lowi (1963: 570-583) argues that new departures in policy are more likely at the beginning of a new administration, especially when a former minority party gains control of the government. If this tendency exists it would also seem likely that state political systems which allow frequent turnover and offer the most opportunities to capture high office would more often develop the circumstances in which new programs might be adopted.

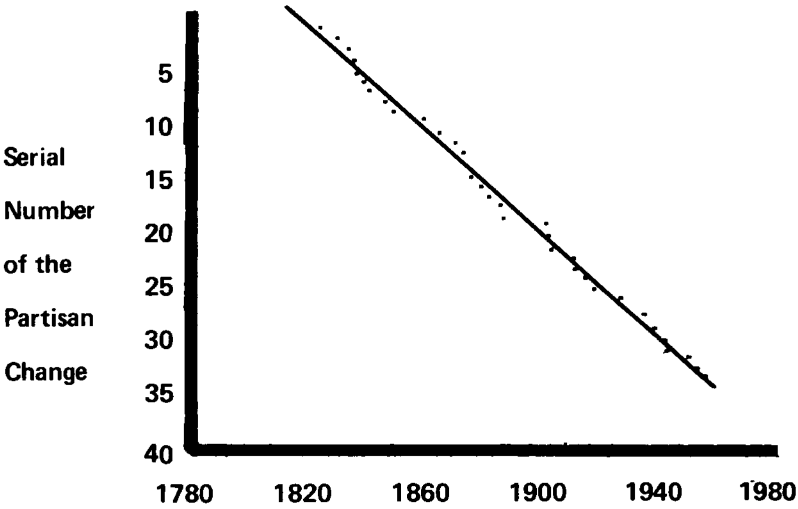


Figure 5: Time Series of Partisan Changes in a State with a Poisson Process: Ohio

However Walker (1969) does not find a correlation between his state innovation index and party competition.

Since previous discussions (and indicators) did not consider party competition as a stochastic process, we retested Walker's hypothesis: patterns of party competition are related to policy innovation in the states. To test the hypothesis, we performed a one-way analysis of variance for the patterns of party competition. One might expect the innovation scores for noncompetitive states to be less than innovation scores for states with at least some history of competitive partisan politics (i.e., Trend pattern, Cyclic pattern, or Renewal pattern). Furthermore, one might expect the innovation scores for states with some history of competitive partisan politics to be less than innovation scores for states fitting the Poisson pattern of party competition. The data are presented in Table 3.

As suggested by earlier research, states fitting the Poisson model of party competition have the highest mean innovation score; they adopt new programs when faced with a constant, long-term history of closely contested elections (Lowi, 1963).

TABLE 3
Differences Among States in Walker Innovation Scores

PATTERN OF PARTY COMPETITION	N	INNOVATION SCORE	
		MEAN	SD
NON-COMPETITIVE	7	389	33
OTHER [a]	18	439	86
POISSON	23	478	87
TOTAL	48 [b]	451	80

$F = 3.530$ $P < .037$

a. Includes Trend pattern, Cyclic pattern, and Renewal pattern
b. Excludes Alaska and Hawaii

Random turnover of government control encourages the parties "to out-do each other by embracing the newest, most progressive programs" (Walker, 1969). Conversely noncompetitive states have the lowest mean innovation scores, and all other patterns have mean innovation scores between the Poisson and the non-competitive pattern. As predicted, the time series of partisan change events is significantly related to policy innovation.

CONCLUSIONS

Four patterns of party competition were discussed: non-competitive, trend, cyclic, and the Poisson. United States presidential elections follow a Poisson distribution of partisan change events. The data support earlier conclusions about long-term forces restoring presidential election competition, support more recent conclusions about the influence of short-term forces determining presidential election outcomes, but modify conclusions about regular equilibrium cycles producing partisan realignment.

Four models of partisan change were observed in state gubernatorial elections. Some states have a temporal distribution of noncompetition; others have a trend of increasing or decreasing frequencies of partisan change; others have a regular cycle of partisan change; still others have a Poisson distribution of partisan change. Poisson states have a history of policy innovation, whereas noncompetitive states have little policy innovation. Other patterns of partisan change fall somewhere between the two extremes of policy innovation. This analysis follows from the tendency of states with a Poisson distribution of partisan change to adopt progressive programs. Such states are more sensitive to short-term fluctuations created by popular support (or lack of support) for the "newest" ideas in state governance. Conversely, noncompetitive states are insulated from these short-term forces impelling policy innovation in partisan politics.

In conclusion, mathematical properties describe the stochastic patterns of party competition in the United States. Moreover, a few statistics test the verbal formulation of patterns common to the existing literature in political parties. The resulting classification helps predict political characteristics of systems with different patterns of party competition.

NOTES

1. The occurrence of partisan change events has been used by many scholars as an indicator of party competition (for example, Key, 1956: 52-74; Ranney, 1971: 86; David, 1972, see also, Pfeiffer, 1967: 457-467).

2. A system with trend need not have increasing or decreasing occurrences of change events over the *entire* span.

3. This discussion of attitudes in the 1956-1958 elections has been criticized (Pierce and Rose, 1974: 626-649) and defended (Converse, 1974a: 650-660) and rejoined (Rose and Pierce, 1974: 661-666).

4. Discussions of the assumptions underlying the Poisson and related stochastic processes can be found at varying levels of completeness and difficulty in Bartholomew

(1973), Coleman (1964), Feller (1950), and Richmond (1968). The statistcal procedures which we employed throughout this article are discussed at length in Cox and Lewis (1966).

5. Another pattern might relax the assumption of constant, short-term forces. For example, the exchange of comments among Burnham (1965, 1974a, 1974b) and Converse (1972, 1974b) and Rusk (1970, 1974) suggests an increasing, constant, or decreasing s^2.

6. The information on the governors was available in *The Encyclopedia Americana*. The coding implicitly assumes that a change in office is of no consequence if the incumbent party retains control.

7. The coding procedure is consistent with our definition of a "partisan change event." However, the reader is warned that the procedure is quite different from Burnham's (1970) concern about increasing or decreasing levels of participation. In addition, Gerald Ford's narrow defeat in 1976 may provide evidence of a trend toward Republican dominance, yet our coding would not be sensitive to this since 1976 was a Democratic victory.

8. The calculations were performed on a slightly modified version of SASE-IV, a program based on Cox and Lewis (1966). The program was written by Lewis, Katcher, and Weis of the IBM Thomas J. Watson Research Center (SHARE #3602-13.0.001).

9. The decision rule eliminates Hawaii and Alaska from further analysis since neither has had the opportunity since statehood to have eight partisan change events.

10. There is no prior theory to guide the selection of the lag. The choice of any of the first five lags is a conservative procedure. A lag of five is all that is possible when computing a product moment correlation of eight events. The decision rule is that the maximum of the first five lag correlations not be significant at the .05 level.

A significant serial correlation is necessary, but not sufficient, for a cycle model. A more suitable technique for testing cycles is spectral analysis. Though not reported here, spectral analysis did not alter our conclusions (see Broh and Levine, 1974).

11. The test is two-tailed in that we observed the maximum positive or negative difference between the cumulative density functions.

12. This does not mean that the events cluster together in a way that would suggest contagion or diffusion; there are merely too few long intervals.

13. John Quincy Adams would not have been elected in 1824 if the president had been popularly elected. Thus there would have been a partisan change event in 1824 but none in 1828 when Andrew Jackson was elected. Also if the Electoral College had not chosen Rutherford B. Hayes in 1876, there would have been partisan change events in 1876 and 1888. Finally Grover Cleveland won the popular vote between his noncontiguous terms; thus there would not have been partisan change events in 1888 and 1892 if the president were popularly elected (Schlesinger, 1971).

14. Six of the states classified as Poisson should be identified in that they do not pass cleanly into this last category. California and New Mexico fell below the threshold value of the Kolmogorov-Smirnov test but passed the Moran test. Michigan, Minnesota, Missouri, and Wisconsin were below the threshold of Moran but passed the Kolmogorov-Smirnov. Since none of these individual test failures was of large magnitude (e.g.,, $p < .001$) and since each state passed one or the other of two roughly parallel tests, these states were classified in the Poisson category. Further, since each of the states had coefficients of variation close to the threshold expectation of unity, there is additional support for the decision.

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