

**Effects on Reelection Rates  
of the Introduction of Merit Civil  
Service Appointments in U.S. States**

**Miriam Golden (European University Institute)  
Eugenia Nazrullaeva (University of Warwick) and  
Stephane Wolton (London School of Economics and Political Science)**

**Pre-analysis Plan  
March 9, 2020**

**Research Motivation:** We draw on theoretical work advanced in [Golden, Nazrullaeva and Wolton \(2018\)](#). They theorize that there exists a difference in the types of individuals elected to public office depending on the rent-seeking opportunities while holding office. In settings with extensive opportunities for rent-seeking, individuals who run for office are more likely to be self-interested, whereas in settings where rent-seeking opportunities are curtailed, individuals who run for office are more likely to be public-spirited. They further theorize that voters prefer to elect public-spirited individuals. Assuming that voters are able to distinguish public-spirited from self-interested politicians, reelection rates will therefore vary systematically with the distribution of types who are elected to public office.

**Working Hypothesis:** We hypothesize that weak rule of law facilitates rent-seeking, and thus when the rule of law is strengthened, candidate types shift away from rent-seekers towards public-spirited individuals. As a testable implication, we hypothesize that reelection rates subsequently rise.

**Analysis:** We investigate this hypothesis at the level of state legislatures in the United States. State legislatures adopted civil service reform over a period that spanned 106 years — from 1883 to 1989. Of the fifty states, only one (Texas) has never adopted such legislation. Civil service reform put an end to patronage appointments in the state bureaucracy, which had allowed politicians discretion in appointing their own supporters to bureaucratic posts. As a result, civil service reform reduced the scope for rent-seeking by elected officials. We assemble and analyze data to investigate whether the adoption of civil service reform at the state level resulted in an improvement in the reelection rates of representatives in state legislatures.

Our analysis covers the period from 1946 to 2016. Although civil service reform began more than 50 years earlier — New York adopted civil service legislation in 1883, followed two years later by Massachusetts — only 19 states were under reform legislation by 1946. Thus, more than 60 percent of reform legislation was adopted in the years that followed the end of World War II. There is much greater election data availability for the entire matrix of reformed and unreformed states in the postwar period. For this reason, we confine our analysis to those years.

**Data:** We drew on data on civil service reform for different states and years from multiple sources. The first to assemble this data was [Folke, Hirano and Snyder \(2011\)](#), which however reported the underlying data only in graphical format; this was followed by [Ting et al. \(2013\)](#), which presents what appears to be data identical to that of [Folke, Hirano and Snyder \(2011\)](#) but in numerical (tabular) format. Subsequently, [Ujhelyi \(2014\)](#) released a dataset that reported different years than [Ting et al. \(2013\)](#) for the adoption of civil service reform for some states. Finally, [Ash, Morelli and Vannoni \(2019\)](#) provides a thorough review of the earlier discrepancies in coding and adjudicates among dates, identifying the year in which legislation was formally adopted. We use the adoption date as coded by them and reported in [Ash, Morelli and Vannoni \(2019, table A1, col 4, p. 33\)](#).

We combine the data on civil service reform adoption dates provided by [Ash, Morelli and Vannoni \(2019\)](#) with data drawn from a variety of sources (see below) that provides (ideally) candidate-level information

about state legislative election results. Our goal is to collect all election cycles for all fifty US states for the period from 1946 to 2016.<sup>1</sup>

For data on reelection rates, we begin with a state-level election dataset available at Dataverse and assembled by [Ansolabehere, Ban and Snyder \(2017\)](#). This dataset gives candidate-level state legislative election returns for many states between 1890 and 1978. However, data is available only very sparsely prior to 1900. We combine this dataset with one assembled and made publicly available by Carl Klarner ([Klarner, 2018](#)); his dataset extends that of [Ansolabehere, Ban and Snyder \(2017\)](#) and gives candidate-level state legislative returns from 1968 to 2016. We use data on lower houses (and the unicameral legislature for Nebraska).

After combining these two sources, we are still left with some missingness. To fill in the missingness, we collected (or are still collecting) additional data directly from state legislative offices on who served in each legislative period. These data are made available in .pdf format; we input them electronically. Some state legislatures provide candidate-level data whereas most provide only lists of elected representatives. With the latter, we can calculate reelection rates but we lose information that would allow us to calculate the size of the margin of the winner.

Table 1 shows the source of data by state for each election cycle that we study, as well as where current missingness is located as of this writing (March 9, 2020). As of this writing, we still need to collect data for approximately 57 election cycles of 1,697 that we study.

**Estimation:** To estimate the effect of civil service reform, we employ both a staggered difference-in-differences model and an event study approach.

The staggered difference-in-differences model leverages within-state over-time changes in civil service laws — here, whether patronage appointments are allowed or not — to estimate the average effect of civil service reform on reelection rates to the lower house. This allows us to compare state reelection rates before and after reform. The model is as follows, and we estimate it using OLS:

$$Y_{st} = \beta_0 + \beta_1 \text{Civil Service Reform}_{st} + D_s + T_t + \epsilon_{st} \quad (1)$$

where  $Y_{st}$  is the reelection rate in the lower house in state  $s$  and year  $t$ ; *Civil service reform* is an indicator for whether the state has enacted civil service reform (1) or not (0), thus prohibiting patronage appointments, in state  $s$  and year  $t$ ;  $D$  are state fixed effects, capturing time-invariant factors predicting state reelection rates; and  $T$  are year fixed effects accounting for common (across-state) time trends in reelection rates. Finally,  $\epsilon_{st}$  is a random error term clustered by state.

States that adopted reform prior to 1946 are always coded as treated. States that adopt reform after 1946 change state and therefore the composition of the control group changes over time.

The event study shares many similarities with the staggered difference-in-differences approach, though it also allows for more flexibility. Still denoting  $Y_{it}$  the reelection rate in the lower house in state  $i$  in time  $t$ ,  $D$  a state fixed effect, and  $T$  a year fixed effect, we run the following OLS regression:

$$Y_{st} = \beta_0 + \sum_{k=1}^K \beta_k \text{Cycle}_{st}^k + D_s + T_t + \epsilon_{st}, \quad (2)$$

where  $\text{Cycle}^k$  is an indicator variable that equals 1 if a civil service reform has been implemented  $k$  cycles ago (e.g.,  $\text{Cycle}^3$  takes value 1 if it is the *third* election post-reform of the civil service). To avoid fully

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<sup>1</sup>Alaska and Hawaii joined the Union in 1959. Alaska adopted civil service reform in 1960 and Hawaii in 1955; we have reelection data for both states only as of 1958. In effect, therefore, both states are always coded as reformed for the period for which we have reelection data.

saturating the model and have some indicator variables estimated on very few observations, we impose  $K = 10$  and group all reforms that are more than ten cycles old under *Cycle*<sup>10</sup>. In other words, *Cycle*<sup>10</sup> takes the value 1 if it is at least the tenth election occurring after the civil service reform.

In case of missing data for one (or more) election cycle(-s) in a state, our preferred specification will drop the state entirely from the analysis. We will also perform other (less conservative) estimations using the reduced dataset for that state; i.e. we will omit an election cycle.

**Expected Results:** For the difference-in-differences model, we expect to see a statistically significant improvement in reelection rates at the state level. That is, we expect  $\beta_1$  in Equation 1 to be positive.

For the event study, we have two theoretically motivated expectations. First, we expect some of the  $\beta_k$ s to be positive. Second, for all positive  $\beta$ s, we expect the regression coefficients to be weakly increasing (formally, for all  $j, m \in \{1, \dots, 10\}$  such that  $j < m$  and  $\beta_j \geq 0$ , then  $\beta_j \leq \beta_m$ ). Since we test for the statistical significance of several variables, we will also correct our statistical test for multiple hypothesis testing.

**Robustness of Results:** To examine whether the results that we expect to see are robust, we will perform the following procedures.

### 1. Sensitivity analyses: Difference-in-differences (Equation 1)

1. To check that our results are not sensitive to the inclusion of any particular state, we will reestimate our specification dropping each state one at a time. This will also allow us to verify that results hold even without the inclusion of open-primary Louisiana and unicameral Nebraska.
2. To check that the South does not exhibit different trends, we code the states from the deep South with a dummy  $\delta_S$ , and control for a trend  $t$  in reelection rates for the deep South states  $\delta_{St}$  to Equation 1.
3. To account for change in states' partisanship patterns over time, we will also run our specification including state-decade fixed effects (a common approach to long historical data; e.g., Fowler and Hall (2018)).
4. To check that our results are not sensitive to the particular elements of the staggered implementation of the reform, we will follow the approach outlined in Goodman-Bacon (2019) and study the decomposition of the difference-in-differences estimate  $\hat{\beta}_1$  in Equation 1 that compares timing groups (states that are early versus late adopters) and investigate their weights.

### 2. Sensitivity analyses: Event study (Equation 2)

1. To check that our results are not sensitive to the inclusion of any particular state, we will reestimate the model dropping each state one at a time. This will also allow us to verify that results hold even without the inclusion of open-primary Louisiana and unicameral Nebraska.
2. To check that the South does not exhibit different trends, we code the states from the deep South with a dummy  $\delta_S$ , and control for a trend  $t$  in re-election rates for the deep South states  $\delta_{St}$  to Equation 2.
3. To account for change in states' partisanship patterns over time, we will also run our specification including state-decade fixed effects (a common approach to long historical data; e.g., Fowler and Hall (2018)).
4. To check that our results are not sensitive to the particular coding of the *Cycle* variable, we will reestimate our model with the upper bound moving from  $K = 5$  to infinity (i.e., without

right-censoring of the *Cycle* variable).

5. To check that our results are not driven by pre-trends, we will reestimate [Equation 2](#) with indicator variables for three periods prior to the reform (i.e., the sum will go from  $k = -3$  to  $K = 10$ ).
6. To provide an additional check that our results are not due to spurious correlation, we will randomly allocate treatment dates (years of civil service reform) in our sample and rerun the analysis using [Equation 2](#). The empirical estimates obtained from these simulations will then be compared to the empirical estimate obtained using the actual reform dates.

### 3. Coding checks:

1. To check that our results are not sensitive to the reform dates coded by [Ash, Morelli and Vannoni \(2019\)](#), we will recode *Civil service reform* using the dates reported by [Ting et al. \(2013\)](#) and then by [Ujhelyi \(2014\)](#) and reestimate [Equation 1](#) with each alternative coding.
2. To check whether our results are not sensitive to possible systematic differences in reelection rate data assembled by [Ansolabehere, Ban and Snyder \(2017\)](#), by [Klarner \(2018\)](#), and by ourselves, we will add fixed effects for each data source.
3. The timing of reform may not be as-if random. To check that our results are not driven by legislators trying to pass civil service reform to win the upcoming election, we will (following [Folke, Hirano and Snyder \(2011\)](#)) reestimate our preferred specification dropping the electoral cycle just before the reform and the electoral cycle immediately after the reform is adopted (conditional on data availability).
4. For the same reason as the prior item, we will provide qualitative evidence on the determinants of civil service reforms and will remove states where adoption of the reform is most likely to be correlated with our dependent variable.

Table 1: Data for all states by availability and source, 1946–2016

code	state	source	first year	last year	reform date	missing data
AL	Alabama	Snyder Klarner	1946 1970	1966 2014	1939	
AK	Alaska	Snyder Klarner	1958 1968	1966 2016	1960	joined the Union in 1959
AZ	Arizona	Snyder Klarner	1946 1968	1966 2016	1968	
AR	Arkansas	Snyder Klarner	1952 1968	1966 2016	1969	1946, 1948, 1950
CA	California	Snyder Klarner	1946 1968	1966 2016	1913	
CO	Colorado	Snyder Klarner	1946 1968	1966 2016	1918	
CT	Connecticut	Snyder Klarner	1948 1968	1966 2016	1937	1946
DE	Delaware	Snyder Klarner	1950 1968	1966 2016	1966	1946, 1948
FL	Florida	Snyder Klarner	1952 1968	1966 2016	1967 1967	1946, 1948, 1950
GA	Georgia	State archives Snyder Klarner	1946 1952 1968	1954 1966 2016	1945	
HI	Hawaii	Snyder Klarner	1958 1968	1966 2016	1955	joined the Union in 1959
ID	Idaho	Snyder Klarner	1952 1968	1966 2016	1967	1946, 1948, 1950
IL	Illinois	Snyder Klarner	1952 1968	1966 2016	1905	1946, 1948, 1950
IN	Indiana	Snyder Klarner	1948 1968	1966 2016	1941	1946
IA	Iowa	Snyder Klarner	1946 1968	1966 2016	1966	
KS	Kansas	Snyder Klarner	1946 1968	1966 2016	1941	1948
KY	Kentucky	Snyder Klarner	1951 1969	1967 2016	1960	1947, 1949
LA	Louisiana	State archives Snyder Klarner	1947 1952 1968	1947 1966 1972	1952	1946, 1948, 1950

Table 1: Data for all states by availability and source, 1946–2016 (*continued*)

code	state	source	first year	last year	reform date	missing data
ME	Maine	Snyder Klarner	1952 1968	1966 2016	1937	1946, 1948, 1950
MD	Maryland	Snyder Klarner	1946 1970	1966 2014	1921	
MA	Massachusetts	Snyder Klarner	1946 1968	1966 2016	1885	
MI	Michigan	Snyder Klarner	1946 1968	1966 2016	1940	
MN	Minnesota	State archives Snyder Klarner	1946 1946 1968	1948 1966 2016	1939	
MS	Mississippi	Snyder Klarner	1951 1971	1967 2015	1976	1947
MO	Missouri	Snyder Klarner	1946 1968	1966 2016	1945	1948
MT	Montana	Snyder Klarner	1952 1968	1966 2016	1976	1946, 1948, 1950
NE	Nebraska	Snyder Klarner	1950 1958	1968 2016	1975	1946, 1948
NV	Nevada	Snyder Klarner	1952 1968	1966 2016	1953	1948, 1950
NH	New Hampshire	State archives Snyder Klarner	1946 1950 1968	1948 1966 2016	1950	1950 (no names)
NJ	New Jersey	Snyder Klarner	1947 1969	1967 2015	1908	
NM	New Mexico	Snyder Klarner	1948 1968	1966 2016	1961	1946
NY	New York	Snyder Klarner	1946 1968	1966 2016	1883	
NC	North Carolina	State archives Snyder Klarner	1946 1952 1970	1958 1966 2016	1949	
ND	North Dakota	Snyder Klarner	1952 1968	1966 2016	1975	1946, 1948, 1950
OH	Ohio	Snyder Klarner	1952 1968	1966 2016	1913	1946, 1948, 1950
OK	Oklahoma	Snyder	1946	1966	1959	

Table 1: Data for all states by availability and source, 1946–2016 (*continued*)

code	state	source	first year	last year	reform date	missing data
		Klarner	1968	2016		
OR	Oregon	Snyder	1946	1966	1945	
		Klarner	1968	2016		
PA	Pennsylvania	Snyder	1946	1966	1963	
		Klarner	1968	2016		
RI	Rhode Island	Snyder	1946	1966	1939	
		Klarner	1968	2016		
SC	South Carolina	Snyder	1952	1966	1969	1946, 1948, 1950
		Klarner	1968	2016		
SD	South Dakota	Snyder	1952	1966	1973	1946, 1948, 1950
SD	South Dakota	Klarner	1968	2016		
TN	Tennessee	State archives	1946	1946	1937	
		Snyder	1952	1966		
		Klarner	1968	2016		
TX	Texas	Snyder	1952	1966	none	1946, 1948, 1950
		Klarner	1968	2016		
UT	Utah	Snyder	1952	1966	1963	1946, 1948, 1950
		Klarner	1968	2016		
VT	Vermont	State archives	1946	1948	1950	
		Snyder	1952	1966		
		Klarner	1986	2016		
VA	Virginia	State archives	1947	1951	1943	
		Snyder	1949	1967		
		Klarner	1969	2015		
WA	Washington	Snyder	1946	1966	1961	
		Klarner	1968	2016		
WV	West Virginia	Snyder	1948	1966	1989	1946
		Klarner	1968	2016		
WI	Wisconsin	Snyder	1946	1966	1905	
		Klarner	1968	2016		
WY	Wyoming	Snyder	1950	1966	1957	1946, 1948
		Klarner	1968	2016		

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