

# **Civil Service Reforms: Evidence from U.S. Police Departments**

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**ONLINE APPENDIX**

## Online Appendix A - Tables

**Online Appendix Table 1:** Effect on Crime and Clearance Rates, Robustness to Dropping Outliers

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.310 (0.199)	-0.195 (0.170)	-0.056 (0.164)	-0.228 (0.231)	-0.575*** (0.222)	-0.450** (0.187)	-0.381** (0.166)	-0.567** (0.226)
Clusters	80	101	123	62	89	113	137	88
Observations	5803	7403	8919	4433	8897	11233	13609	8786
Bandwidth	750	1000	1250	623	750	1000	1250	735
Log Property Crime Rate	-0.295 (0.190)	-0.180 (0.162)	-0.034 (0.158)	-0.219 (0.218)	-0.585*** (0.213)	-0.459** (0.180)	-0.391** (0.160)	-0.616*** (0.229)
Clusters	80	101	123	62	89	113	137	72
Observations	5707	7292	8780	4374	8881	11205	13577	7259
Bandwidth	750	1000	1250	621	750	1000	1250	630
Log Violent Crime Rate	0.102 (0.335)	0.017 (0.294)	0.061 (0.263)	0.299 (0.362)	0.079 (0.405)	0.086 (0.327)	0.114 (0.298)	0.091 (0.419)
Clusters	65	88	109	38	89	113	137	79
Observations	944	1165	1448	551	3022	3766	4391	2736
Bandwidth	750	1000	1250	483	750	1000	1250	690
Property Crime Clearance Rate	0.034 (0.000)	0.030 (0.000)	0.034 (0.000)	0.046 (0.000)	0.018 (0.000)	0.030 (0.000)	0.032 (0.000)	0.008 (0.000)
Clusters	80	101	122	55	89	113	137	76
Observations	4285	5516	6588	2902	8772	11064	13416	7605
Bandwidth	750	1000	1250	555	750	1000	1250	662
Violent Crime Clearance Rate	-0.090 (0.000)	-0.077 (0.000)	-0.065 (0.000)	-0.100 (0.000)	0.110** (0.000)	0.100** (0.000)	0.081* (0.000)	0.069 (0.000)
Clusters	62	84	105	51	89	113	137	70
Observations	812	1021	1261	666	2978	3711	4327	2385
Bandwidth	750	1000	1250	663	750	1000	1250	614

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables robustness to restricting the sample to dropping outliers. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 2: Effect on Crime Rates, Robustness to Using Smoothed UCR Population**

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.337*	-0.256*	-0.083	-0.170	-0.601***	-0.490***	-0.415**	-0.605**
	(0.182)	(0.155)	(0.150)	(0.206)	(0.217)	(0.184)	(0.163)	(0.235)
Clusters	80	101	123	60	89	113	137	70
Observations	5811	7413	8929	4275	8906	11242	13623	7107
Bandwidth	750	1000	1250	598	750	1000	1250	621
Log Property Crime Rate	-0.318*	-0.239	-0.060	-0.296	-0.613***	-0.501***	-0.426***	-0.584***
	(0.174)	(0.148)	(0.145)	(0.183)	(0.210)	(0.178)	(0.158)	(0.212)
Clusters	80	101	123	65	89	113	137	87
Observations	5715	7302	8790	4602	8891	11215	13589	8668
Bandwidth	750	1000	1250	635	750	1000	1250	728
Log Violent Crime Rate	0.023	-0.111	0.009	0.035	0.032	0.020	0.056	0.038
	(0.321)	(0.288)	(0.249)	(0.339)	(0.364)	(0.298)	(0.271)	(0.378)
Clusters	65	88	109	47	89	113	137	78
Observations	950	1171	1454	706	3036	3780	4407	2720
Bandwidth	750	1000	1250	599	750	1000	1250	679

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to using UCR population to define crime rates. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 2: Effect on Crime and Clearance Rates, Robustness to Using Yearly Data**

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.569*	-0.368	-0.269	-0.510*	-0.539**	-0.463**	-0.379**	-0.642***
	(0.291)	(0.261)	(0.247)	(0.294)	(0.215)	(0.200)	(0.172)	(0.227)
Clusters	80	101	123	78	89	113	137	79
Observations	613	784	957	596	743	945	1155	664
Bandwidth	750	1000	1250	730	750	1000	1250	689
Log Property Crime Rate	-0.591**	-0.385	-0.249	-0.589*	-0.555***	-0.460**	-0.383**	-0.659***
	(0.282)	(0.254)	(0.240)	(0.309)	(0.207)	(0.186)	(0.164)	(0.218)
Clusters	80	101	123	73	89	113	137	79
Observations	612	783	952	561	743	943	1152	664
Bandwidth	750	1000	1250	701	750	1000	1250	689
Log Violent Crime Rate	-0.110	-0.179	-0.126	-0.100	-0.502	-0.396	-0.310	-0.513
	(0.440)	(0.376)	(0.345)	(0.445)	(0.427)	(0.347)	(0.315)	(0.386)
Clusters	76	97	117	73	89	113	137	101
Observations	343	447	545	333	629	794	953	714
Bandwidth	750	1000	1250	719	750	1000	1250	856
Property Crime Clearance Rate	0.017	0.014	0.016	0.001	0.006	0.020	0.026	-0.011
	(0.033)	(0.030)	(0.028)	(0.034)	(0.034)	(0.030)	(0.027)	(0.037)
Clusters	80	101	123	62	89	113	137	66
Observations	612	783	952	474	743	943	1152	560
Bandwidth	750	1000	1250	617	750	1000	1250	582
Violent Crime Clearance Rate	-0.133	-0.093	-0.091	-0.138	0.147**	0.150***	0.090*	0.136**
	(0.086)	(0.077)	(0.067)	(0.088)	(0.059)	(0.052)	(0.051)	(0.064)
Clusters	76	97	117	67	89	113	137	71
Observations	343	447	545	308	629	794	953	498
Bandwidth	750	1000	1250	692	750	1000	1250	624

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to using yearly data. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-year fixed effects are included in all columns.

**Online Appendix Table 3:** Effect on Crime and Clearance Rates, Robustness to Controlling for 1980 Population

Sample	post-treatment			
	(1)	(2)	(3)	(4)
Log Crime Rate	-0.538** (0.226)	-0.393** (0.192)	-0.315* (0.172)	-0.609*** (0.236)
Clusters	89	113	137	76
Observations	8906	11242	13623	7730
Bandwidth	750	1000	1250	661
Log Property Crime Rate	-0.549** (0.218)	-0.404** (0.185)	-0.323* (0.165)	-0.608*** (0.225)
Clusters	89	113	137	77
Observations	8891	11215	13589	7822
Bandwidth	750	1000	1250	666
Log Violent Crime Rate	0.083 (0.387)	0.067 (0.314)	0.054 (0.284)	0.110 (0.400)
Clusters	89	113	137	79
Observations	3036	3780	4407	2750
Bandwidth	750	1000	1250	687
Property Crime Clearance Rate	0.019 (0.034)	0.032 (0.030)	0.035 (0.027)	0.007 (0.036)
Clusters	89	113	137	76
Observations	8891	11215	13589	7719
Bandwidth	750	1000	1250	662
Violent Crime Clearance Rate	0.110** (0.047)	0.103** (0.042)	0.086** (0.042)	0.058 (0.052)
Clusters	89	113	137	59
Observations	3036	3780	4407	2127
Bandwidth	750	1000	1250	542

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to controlling for 1980 population. It presents RD estimates on crime rates and clearance rates for post-treatment years (1970 to 1979, columns 1 to 4). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 4:** Effect on Crime and Clearance Rates, Robustness to Dropping Population Growth Outliers

Sample	post-treatment			
	(1)	(2)	(3)	(4)
Log Crime Rate	-0.442* (0.247)	-0.385* (0.213)	-0.294 (0.191)	-0.542** (0.265)
Clusters	73	89	110	59
Observations	7187	8702	10759	6000
Bandwidth	750	1000	1250	634
Log Property Crime Rate	-0.455* (0.237)	-0.398* (0.204)	-0.303* (0.183)	-0.560** (0.257)
Clusters	73	89	110	58
Observations	7173	8676	10727	5884
Bandwidth	750	1000	1250	626
Log Violent Crime Rate	0.160 (0.407)	0.152 (0.375)	0.126 (0.334)	0.156 (0.402)
Clusters	71	89	110	75
Observations	2256	2643	3138	2379
Bandwidth	750	1000	1250	777
Property Crime Clearance Rate	0.026 (0.035)	0.039 (0.033)	0.046 (0.030)	0.015 (0.037)
Clusters	73	89	110	68
Observations	7173	8676	10727	6674
Bandwidth	750	1000	1250	715
Violent Crime Clearance Rate	0.069 (0.054)	0.075 (0.050)	0.058 (0.050)	0.018 (0.058)
Clusters	71	89	110	47
Observations	2256	2643	3138	1589
Bandwidth	750	1000	1250	533

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to dropping municipalities with population growth above 20% between 1970 and 1980. It presents RD estimates on crime rates and clearance rates for post-treatment years (1970 to 1979). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 5: Effect on Crime and Clearance Rates, Robustness to Quasi-balanced Sample**

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.336*	-0.224	-0.081	-0.257	-0.574**	-0.476**	-0.378**	-0.612**
	(0.200)	(0.170)	(0.165)	(0.231)	(0.236)	(0.199)	(0.177)	(0.250)
Clusters	74	92	112	58	74	92	112	63
Observations	5698	7188	8692	4348	7885	9814	11885	6775
Bandwidth	750	1000	1250	613	750	1000	1250	648
Log Property Crime Rate	-0.311	-0.202	-0.052	-0.239	-0.581**	-0.486**	-0.386**	-0.531**
	(0.191)	(0.163)	(0.159)	(0.218)	(0.227)	(0.192)	(0.170)	(0.266)
Clusters	74	92	112	58	74	92	112	52
Observations	5609	7089	8567	4295	7875	9799	11867	5600
Bandwidth	750	1000	1250	614	750	1000	1250	564
Log Violent Crime Rate	0.076	-0.007	0.043	0.097	0.127	0.126	0.160	0.123
	(0.344)	(0.303)	(0.270)	(0.358)	(0.427)	(0.353)	(0.324)	(0.423)
Clusters	61	81	100	53	74	92	112	76
Observations	917	1117	1399	790	2583	3166	3728	2654
Bandwidth	750	1000	1250	682	750	1000	1250	764
Property Crime Clearance Rate	0.029	0.025	0.028	0.048	0.007	0.024	0.022	-0.009
	(0.043)	(0.041)	(0.040)	(0.044)	(0.038)	(0.033)	(0.028)	(0.047)
Clusters	74	92	112	49	74	92	112	34
Observations	4280	5431	6507	2829	7875	9799	11867	3766
Bandwidth	750	1000	1250	530	750	1000	1250	363
Violent Crime Clearance Rate	-0.094	-0.073	-0.065	-0.081	0.108**	0.110**	0.085*	0.048
	(0.098)	(0.092)	(0.083)	(0.089)	(0.051)	(0.045)	(0.045)	(0.057)
Clusters	58	77	96	36	74	92	112	44
Observations	807	996	1236	533	2583	3166	3728	1557
Bandwidth	750	1000	1250	550	750	1000	1250	496

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . The tables shows robustness to restricting the sample to municipalities reporting at least half of the times. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 6a:** Effect on Crime and Clearance Rates, Robustness to Including Municipality Controls

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.256 (0.183)	-0.134 (0.166)	0.012 (0.166)	-0.197 (0.207)	-0.554*** (0.195)	-0.430** (0.178)	-0.326** (0.166)	-0.610*** (0.207)
Clusters	80	101	123	62	89	113	137	76
Observations	5811	7413	8929	4437	8906	11242	13623	7730
Bandwidth	750	1000	1250	623	750	1000	1250	661
Log Property Crime Rate	-0.242 (0.177)	-0.122 (0.162)	0.033 (0.163)	-0.138 (0.227)	-0.559*** (0.190)	-0.436** (0.173)	-0.331** (0.162)	-0.606*** (0.201)
Clusters	80	101	123	59	89	113	137	77
Observations	5715	7302	8790	4113	8891	11215	13589	7822
Bandwidth	750	1000	1250	583	750	1000	1250	666
Log Violent Crime Rate	0.112 (0.239)	0.011 (0.189)	-0.015 (0.166)	0.094 (0.262)	-0.168 (0.142)	-0.073 (0.132)	-0.062 (0.130)	-0.173 (0.146)
Clusters	65	88	109	59	89	113	137	79
Observations	950	1171	1454	858	3036	3780	4407	2750
Bandwidth	750	1000	1250	698	750	1000	1250	687
Property Crime Clearance Rate	0.010 (0.045)	0.014 (0.042)	0.019 (0.039)	-0.006 (0.047)	0.006 (0.038)	0.028 (0.032)	0.027 (0.027)	-0.003 (0.038)
Clusters	80	101	122	55	89	113	137	76
Observations	4329	5570	6648	2940	8891	11215	13589	7719
Bandwidth	750	1000	1250	546	750	1000	1250	662
Violent Crime Clearance Rate	-0.170 (0.122)	-0.117 (0.098)	-0.108 (0.087)	-0.228* (0.129)	0.060 (0.055)	0.063 (0.045)	0.040 (0.044)	0.003 (0.063)
Clusters	62	84	105	46	89	113	137	59
Observations	830	1039	1280	637	3036	3780	4407	2127
Bandwidth	750	1000	1250	615	750	1000	1250	542

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to the inclusion of controls. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The controls included in the regression are percentage male, percentage non-white, percentage with high school degree, percentage unemployed and percentage below poverty line according to the 1970 census. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.



**Online Appendix Table 6b:** Effect on Crime and Clearance Rates, Robustness to Including Municipality Controls Including Median HH Income

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.467*** (0.167)	-0.464*** (0.151)	-0.218 (0.163)	-0.435** (0.176)	-0.652*** (0.215)	-0.661*** (0.192)	-0.461** (0.181)	-0.664*** (0.217)
Clusters	80	101	123	62	89	113	137	76
Observations	5811	7413	8929	4437	8906	11242	13623	7730
Bandwidth	750	1000	1250	623	750	1000	1250	661
Log Property Crime Rate	-0.470*** (0.161)	-0.465*** (0.147)	-0.199 (0.161)	-0.416** (0.183)	-0.658*** (0.212)	-0.668*** (0.190)	-0.465*** (0.179)	-0.661*** (0.214)
Clusters	80	101	123	59	89	113	137	77
Observations	5715	7302	8790	4113	8891	11215	13589	7822
Bandwidth	750	1000	1250	583	750	1000	1250	666
Log Violent Crime Rate	0.209 (0.247)	0.018 (0.202)	-0.031 (0.177)	0.194 (0.267)	-0.166 (0.151)	-0.100 (0.135)	-0.077 (0.131)	-0.171 (0.154)
Clusters	65	88	109	59	89	113	137	79
Observations	950	1171	1454	858	3036	3780	4407	2750
Bandwidth	750	1000	1250	698	750	1000	1250	687
Property Crime Clearance Rate	0.036 (0.045)	0.034 (0.043)	0.030 (0.039)	0.000 (0.047)	0.019 (0.041)	0.028 (0.034)	0.028 (0.028)	0.005 (0.039)
Clusters	80	101	122	55	89	113	137	76
Observations	4329	5570	6648	2940	8891	11215	13589	7719
Bandwidth	750	1000	1250	546	750	1000	1250	662
Violent Crime Clearance Rate	-0.104 (0.145)	-0.061 (0.113)	-0.061 (0.097)	-0.167 (0.142)	0.069 (0.053)	0.108** (0.045)	0.071 (0.044)	-0.005 (0.056)
Clusters	62	84	105	46	89	113	137	59
Observations	830	1039	1280	637	3036	3780	4407	2127
Bandwidth	750	1000	1250	615	750	1000	1250	542

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to the inclusion of controls. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The controls included in the regression are percentage male, percentage non-white, percentage with high school degree, percentage unemployed, percentage below poverty line and median income according to the 1970 census. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 7:** Effect on Crime and Clearance Rates, Robustness to Using a Differences-in-Differences Specification

Sample	post-treatment		
	(1)	(2)	(3)
Log Crime Rate	-0.301*	-0.276*	-0.299**
	(0.165)	(0.149)	(0.138)
Clusters	89	113	137
Observations	14717	18655	22552
Bandwidth	750	1000	1250
Log Property Crime Rate	-0.297*	-0.279*	-0.314**
	(0.163)	(0.147)	(0.136)
Clusters	89	113	137
Observations	14606	18517	22379
Bandwidth	750	1000	1250
Log Violent Crime Rate	-0.129	-0.028	0.072
	(0.229)	(0.192)	(0.182)
Clusters	88	112	136
Observations	3985	4950	5860
Bandwidth	750	1000	1250
Property Crime Clearance Rate	-0.004	0.011	0.004
	(0.049)	(0.044)	(0.042)
Clusters	89	113	137
Observations	13220	16785	20237
Bandwidth	750	1000	1250
Violent Crime Clearance Rate	0.188**	0.168**	0.157**
	(0.086)	(0.080)	(0.074)
Clusters	88	112	136
Observations	3865	4818	5686
Bandwidth	750	1000	1250

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to using a differences-in-differences specification. It presents RD estimates on crime rates and clearance rates for 1960 to 1979. Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a uniform kernel for three different bandwidths: 750, 1000, 1250. The running variable is allowed to vary by year. Standard errors clustered at the municipality level are shown in parentheses. State-month and municipality fixed effects are included in all columns.

**Online Appendix Table 8: Effect on Crime and Clearance Rates, Robustness to two-way Clustering**

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.308*	-0.194	-0.055	-0.226	-0.575***	-0.451**	-0.383**	-0.625***
	(0.184)	(0.161)	(0.156)	(0.210)	(0.211)	(0.180)	(0.161)	(0.220)
Clusters (municipality)	80	101	123	62	89	113	137	76
Clusters (county-month)	677	683	683	646	659	659	659	659
Observations	5811	7413	8929	4437	8906	11242	13623	7730
Bandwidth	750	1000	1250	623	750	1000	1250	661
Log Property Crime Rate	-0.293*	-0.179	-0.034	-0.098	-0.587***	-0.461***	-0.394**	-0.628***
	(0.176)	(0.154)	(0.151)	(0.210)	(0.203)	(0.173)	(0.155)	(0.210)
Clusters (municipality)	80	101	123	59	89	113	137	77
Clusters (county-month)	669	677	677	639	659	659	659	659
Observations	5715	7302	8790	4113	8891	11215	13589	7822
Bandwidth	750	1000	1250	583	750	1000	1250	666
Log Violent Crime Rate	0.117	0.028	0.071	0.127	0.081	0.087	0.115	0.093
	(0.296)	(0.265)	(0.240)	(0.306)	(0.364)	(0.298)	(0.272)	(0.377)
Clusters (municipality)	65	88	109	59	89	113	137	79
Clusters (county-month)	195	220	248	181	431	485	527	393
Observations	950	1171	1454	858	3036	3780	4407	2750
Bandwidth	750	1000	1250	698	750	1000	1250	687
Property Crime Clearance Rate	0.029	0.025	0.029	0.040	0.015	0.028	0.030	0.005
	(0.040)	(0.038)	(0.038)	(0.040)	(0.034)	(0.030)	(0.027)	(0.035)
Clusters (municipality)	80	101	122	55	89	113	137	76
Clusters (county-month)	482	486	486	445	659	659	659	659
Observations	4329	5570	6648	2940	8891	11215	13589	7719
Bandwidth	750	1000	1250	546	750	1000	1250	662
Violent Crime Clearance Rate	-0.096	-0.078	-0.067	-0.143	0.109**	0.106***	0.089**	0.055
	(0.091)	(0.085)	(0.077)	(0.096)	(0.044)	(0.039)	(0.039)	(0.048)
Clusters (municipality)	62	84	105	46	89	113	137	59
Clusters (county-month)	160	182	204	132	431	485	527	329
Observations	830	1039	1280	637	3036	3780	4407	2127
Bandwidth	750	1000	1250	615	750	1000	1250	542

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to clustering standard errors by municipality and by county-month. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality and county-month level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 9: Effect on Crime and Clearance Rates, Robustness to other Policies Changing at the Same Threshold**

Sample State being excluded	pre-treatment											
	AZ						IL					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Log Crime Rate	-0.293 (0.189)	-0.179 (0.162)	-0.034 (0.157)	-0.217 (0.217)	0.086 (0.251)	0.237 (0.188)	0.293* (0.174)	-0.002 (0.268)	-0.484** (0.209)	-0.329* (0.169)	-0.181 (0.163)	-0.428* (0.223)
Clusters	80	101	123	62	40	50	62	23	72	89	109	61
Observations	5715	7302	8790	4378	2971	3863	4740	1522	4842	5986	7269	4204
Bandwidth	750	1000	1250	619	750	1000	1250	458	750	1000	1250	640
Log Property Crime Rate	-0.293 (0.189)	-0.179 (0.162)	-0.034 (0.157)	-0.217 (0.217)	0.086 (0.251)	0.237 (0.188)	0.293* (0.174)	-0.002 (0.268)	-0.484** (0.209)	-0.329* (0.169)	-0.181 (0.163)	-0.428* (0.223)
Clusters	80	101	123	62	40	50	62	23	72	89	109	61
Observations	5715	7302	8790	4378	2971	3863	4740	1522	4842	5986	7269	4204
Bandwidth	750	1000	1250	619	750	1000	1250	458	750	1000	1250	640
Log Violent Crime Rate	0.117 (0.334)	0.028 (0.294)	0.071 (0.263)	0.017 (0.324)	0.348 (0.320)	0.257 (0.244)	0.267 (0.227)	0.386 (0.379)	0.158 (0.358)	0.029 (0.314)	0.080 (0.283)	0.016 (0.342)
Clusters	65	88	109	72	26	38	49	23	57	76	95	64
Observations	950	1171	1454	1022	202	286	380	166	842	997	1218	901
Bandwidth	750	1000	1250	776	750	1000	1250	714	750	1000	1250	824
Property Crime Clearance Rate	0.029 (0.043)	0.025 (0.041)	0.029 (0.040)	0.036 (0.045)	0.088 (0.074)	0.037 (0.073)	0.040 (0.066)	0.183* (0.110)	0.001 (0.042)	0.001 (0.040)	0.002 (0.040)	0.009 (0.034)
Clusters	80	101	122	51	40	50	62	26	72	89	108	38
Observations	4329	5570	6648	2745	2201	2872	3529	1387	3705	4622	5555	1891
Bandwidth	750	1000	1250	502	750	1000	1250	504	750	1000	1250	440
Violent Crime Clearance Rate	-0.096 (0.098)	-0.078 (0.090)	-0.067 (0.082)	-0.117 (0.102)	0.120 (0.131)	0.136 (0.099)	0.184* (0.110)	22.368** (4.693)	-0.127 (0.104)	-0.106 (0.095)	-0.109 (0.088)	-0.140 (0.103)
Clusters	62	84	105	52	24	35	46	7	54	72	91	50
Observations	830	1039	1280	706	189	269	356	43	722	867	1053	677
Bandwidth	750	1000	1250	676	750	1000	1250	426	750	1000	1250	705

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The table shows that the results are not driven by any single state and thus do not depend on other state-specific laws also changing at the same threshold. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969) and post-treatment years (1970 to 1979). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

pre-treatment															
LA				MT				NE				WICITY			
(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
-0.311* (0.189)	-0.198 (0.163)	-0.052 (0.160)	-0.107 (0.232)	-0.292 (0.188)	-0.214 (0.162)	-0.049 (0.158)	-0.096 (0.231)	-0.242 (0.184)	-0.170 (0.163)	-0.039 (0.162)	-0.104 (0.158)	-0.342 (0.229)	-0.200 (0.197)	0.007 (0.193)	-0.369 (0.265)
76	97	119	55	76	96	118	56	74	94	114	107	65	82	98	43
5516	7103	8591	3914	5421	6890	8378	3823	5361	6875	8169	7736	4748	6077	7289	3011
750	1000	1250	581	750	1000	1250	586	750	1000	1250	1131	750	1000	1250	523
-0.311* (0.189)	-0.198 (0.163)	-0.052 (0.160)	-0.107 (0.232)	-0.292 (0.188)	-0.214 (0.162)	-0.049 (0.158)	-0.096 (0.231)	-0.242 (0.184)	-0.170 (0.163)	-0.039 (0.162)	-0.104 (0.158)	-0.342 (0.229)	-0.200 (0.197)	0.007 (0.193)	-0.369 (0.265)
76	97	119	55	76	96	118	56	74	94	114	107	65	82	98	43
5516	7103	8591	3914	5421	6890	8378	3823	5361	6875	8169	7736	4748	6077	7289	3011
750	1000	1250	581	750	1000	1250	586	750	1000	1250	1131	750	1000	1250	522
0.078 (0.341)	-0.002 (0.303)	0.043 (0.274)	0.078 (0.341)	0.116 (0.334)	0.024 (0.294)	0.070 (0.263)	0.312 (0.358)	0.117 (0.334)	0.029 (0.294)	0.071 (0.264)	0.117 (0.334)	0.115 (0.334)	0.029 (0.294)	0.073 (0.264)	0.115 (0.334)
61	84	105	61	61	83	104	36	65	85	102	65	57	76	95	57
892	1113	1396	892	942	1154	1437	551	950	1167	1444	950	928	1144	1423	928
750	1000	1250	734	750	1000	1250	480	750	1000	1250	746	750	1000	1250	744
0.032 (0.043)	0.032 (0.042)	0.037 (0.040)	0.003 (0.046)	0.032 (0.042)	0.038 (0.040)	0.038 (0.039)	0.022 (0.046)	0.031 (0.044)	0.034 (0.041)	0.044 (0.040)	0.055 (0.045)	0.017 (0.049)	0.021 (0.047)	0.028 (0.045)	-0.015 (0.049)
76	97	118	55	76	96	117	57	74	94	113	39	65	82	97	49
4183	5424	6502	3035	4124	5279	6357	3059	4070	5278	6225	2177	3601	4614	5474	2720
750	1000	1250	584	750	1000	1250	591	750	1000	1250	444	750	1000	1250	612
-0.094 (0.098)	-0.076 (0.092)	-0.064 (0.084)	-0.096 (0.095)	-0.094 (0.098)	-0.075 (0.091)	-0.066 (0.082)	-0.152 (0.111)	-0.096 (0.098)	-0.080 (0.090)	-0.066 (0.082)	-0.120 (0.106)	-0.099 (0.098)	-0.083 (0.090)	-0.067 (0.082)	-0.096 (0.094)
58	80	101	68	58	79	100	41	62	82	99	47	56	74	93	67
783	992	1233	891	822	1022	1263	615	830	1037	1272	660	810	1014	1251	926
750	1000	1250	851	750	1000	1250	603	750	1000	1250	630	750	1000	1250	874

pre-treatment										post-treatment									
WIVILL										AZ									
(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)	(41)	(42)	(43)	(44)				
-0.285 (0.188) 77	-0.175 (0.165) 98	-0.048 (0.163) 118	-0.092 (0.231) 57	-0.587*** (0.213) 89	-0.461** (0.180) 113	-0.394** (0.160) 137	-0.620** (0.230) 73	-0.529* (0.272) 48	-0.442** (0.225) 60	-0.380* (0.201) 74	-1.100*** (0.167) 9	-0.667*** (0.231) 81	-0.505*** (0.191) 101	-0.435** (0.172) 123	-0.671*** (0.234) 71				
5431 750	7018 1000	8304 1250	3941 587	8891 750	11215 1000	13589 1250	7387 635	4729 750	5957 1000	7479 1250	801 224	8033 750	9896 1000	12031 1250	7137 652				
-0.285 (0.188) 77	-0.175 (0.165) 98	-0.048 (0.163) 118	-0.092 (0.231) 57	-0.587*** (0.213) 89	-0.461** (0.180) 113	-0.394** (0.160) 137	-0.620** (0.230) 73	-0.529* (0.272) 48	-0.442** (0.225) 60	-0.380* (0.201) 74	#VALUE! (0.000) 9	-0.667*** (0.231) 81	-0.505*** (0.191) 101	-0.435** (0.172) 123	-0.671*** (0.234) 71				
5431 750	7018 1000	8304 1250	3941 587	8891 750	11215 1000	13589 1250	7387 635	4729 750	5957 1000	7479 1250	801 224	8033 750	9896 1000	12031 1250	7137 652				
0.117 (0.334) 63	0.031 (0.294) 86	0.074 (0.264) 104	0.327 (0.370) 37	0.081 (0.395) 89	0.087 (0.320) 113	0.115 (0.293) 137	0.074 (0.361) 100	-0.103 (0.317) 48	0.027 (0.264) 60	0.101 (0.216) 74	-0.146 (0.324) 41	0.088 (0.423) 81	0.094 (0.335) 101	0.110 (0.315) 123	0.088 (0.423) 82				
944 750	1165 1000	1426 1250	544 458	3036 750	3780 1000	4407 1250	3445 848	1028 750	1338 1000	1653 1250	866 644	2819 750	3409 1000	3935 1250	2826 761				
0.023 (0.042) 77	0.014 (0.042) 98	0.016 (0.040) 117	0.046 (0.043) 51	0.015 (0.036) 89	0.028 (0.031) 113	0.030 (0.028) 137	0.010 (0.037) 79	0.063 (0.069) 48	0.078 (0.057) 60	0.077 (0.047) 74	0.071 (0.100) 19	0.020 (0.038) 81	0.028 (0.033) 101	0.026 (0.030) 123	0.021 (0.036) 84				
4090 750	5331 1000	6246 1250	2709 537	8891 750	11215 1000	13589 1250	7948 682	4729 750	5957 1000	7479 1250	1851 317	8033 750	9896 1000	12031 1250	8312 771				
-0.095 (0.098) 60	-0.083 (0.091) 82	-0.071 (0.082) 100	-0.101 (0.095) 68	0.109** (0.047) 89	0.106** (0.042) 113	0.089** (0.042) 137	0.105** (0.052) 77	0.237*** (0.072) 48	0.258*** (0.068) 60	0.218*** (0.063) 74	0.391** (0.167) 21	0.109** (0.050) 81	0.101** (0.044) 101	0.071* (0.042) 123	0.065 (0.051) 66				
824 750	1033 1000	1252 1250	918 814	3036 750	3780 1000	4407 1250	2699 666	1028 750	1338 1000	1653 1250	385 346	2819 750	3409 1000	3935 1250	2326 626				

post-treatment															
MT								LA							
								NE							
								WI CITY							
(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	(56)	(57)	(58)	(59)	(60)
-0.562** (0.213)	-0.465** (0.182)	-0.410** (0.163)	-0.616** (0.222)	-0.586** (0.213)	-0.467** (0.182)	-0.396** (0.160)	-0.635** (0.223)	-0.591** (0.224)	-0.453** (0.192)	-0.356** (0.171)	-0.651** (0.238)	-0.575** (0.248)	-0.439** (0.214)	-0.391** (0.187)	-0.501** (0.221)
80	103	127	73	85	108	132	73	82	105	126	69	72	91	108	88
8280	10552	12926	7568	8699	10968	13342	7539	8089	10303	12370	6917	6984	8758	10391	8468
750	1000	1250	709	750	1000	1250	660	750	1000	1250	646	750	1000	1250	929
-0.562** (0.213)	-0.465** (0.182)	-0.410** (0.163)	-0.616** (0.222)	-0.586** (0.213)	-0.467** (0.182)	-0.396** (0.160)	-0.635** (0.223)	-0.591** (0.224)	-0.453** (0.192)	-0.356** (0.171)	-0.651** (0.238)	-0.575** (0.248)	-0.439** (0.214)	-0.391** (0.187)	-0.501** (0.221)
80	103	127	73	85	108	132	73	82	105	126	69	72	91	108	88
8280	10552	12926	7568	8699	10968	13342	7539	8089	10303	12370	6917	6984	8758	10391	8468
750	1000	1250	709	750	1000	1250	660	750	1000	1250	646	750	1000	1250	929
0.136 (0.424)	0.123 (0.352)	0.138 (0.325)	0.121 (0.351)	0.081 (0.395)	0.082 (0.320)	0.113 (0.292)	0.093 (0.409)	0.075 (0.401)	0.077 (0.326)	0.123 (0.302)	0.069 (0.366)	0.068 (0.396)	0.066 (0.325)	0.099 (0.297)	0.090 (0.409)
80	103	127	100	85	108	132	76	82	105	126	91	72	91	108	67
2669	3376	4003	3310	3026	3742	4369	2742	2820	3543	4076	3165	2832	3506	4066	2673
750	1000	1250	984	750	1000	1250	690	750	1000	1250	826	750	1000	1250	703
0.015 (0.036)	0.032 (0.032)	0.034 (0.028)	0.005 (0.040)	0.014 (0.036)	0.026 (0.031)	0.029 (0.028)	0.012 (0.039)	0.000 (0.036)	0.016 (0.032)	0.013 (0.028)	0.006 (0.041)	0.010 (0.036)	0.013 (0.030)	0.023 (0.028)	0.011 (0.033)
80	103	127	51	85	108	132	57	82	105	126	54	72	91	108	81
8280	10552	12926	5454	8699	10968	13342	5940	8089	10303	12370	5493	6984	8758	10391	7859
750	1000	1250	514	750	1000	1250	540	750	1000	1250	518	750	1000	1250	833
0.094* (0.049)	0.091** (0.044)	0.077* (0.044)	0.095* (0.052)	0.110** (0.047)	0.103** (0.042)	0.087** (0.042)	0.057 (0.050)	0.102** (0.049)	0.102** (0.044)	0.086** (0.043)	0.097* (0.054)	0.105** (0.049)	0.099** (0.044)	0.086** (0.043)	0.048 (0.054)
80	103	127	73	85	108	132	59	82	105	126	70	72	91	108	47
2669	3376	4003	2465	3026	3742	4369	2188	2820	3543	4076	2483	2832	3506	4066	2024
750	1000	1250	701	750	1000	1250	561	750	1000	1250	675	750	1000	1250	524

post-treatment			
WI VLL			
(61)	(62)	(63)	(64)
-0.591** (0.214)	-0.476** (0.184)	-0.417** (0.164)	-0.457** (0.172)
86	110	132	122
8532	10856	12995	11933
750	1000	1250	1140
-0.591** (0.214)	-0.476** (0.184)	-0.417** (0.164)	-0.457** (0.172)
86	110	132	122
8532	10856	12995	11933
750	1000	1250	1140
0.082 (0.394)	0.087 (0.320)	0.110 (0.292)	0.094 (0.408)
86	110	132	76
3022	3766	4340	2736
750	1000	1250	685
0.013 (0.036)	0.027 (0.032)	0.030 (0.028)	0.030 (0.030)
86	110	132	121
8532	10856	12995	11836
750	1000	1250	1123
0.109** (0.047)	0.105** (0.042)	0.090** (0.042)	0.049 (0.051)
86	110	132	65
3022	3766	4340	2389
750	1000	1250	600



**Online Appendix Table 10: Effect on Crime and Clearance Rates, Robustness to using a Triangular Kernel**

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.278 (0.191)	-0.280 (0.171)	-0.177 (0.155)	-0.276 (0.192)	-0.589*** (0.222)	-0.558*** (0.197)	-0.485*** (0.174)	-0.591*** (0.210)
Clusters	80	101	122	79	89	113	136	101
Observations	5715	7302	8769	5678	8891	11215	13485	10061
Bandwidth	750	1000	1250	735	750	1000	1250	857
Log Property Crime Rate	-0.278 (0.191)	-0.280 (0.171)	-0.177 (0.155)	-0.276 (0.192)	-0.589*** (0.222)	-0.558*** (0.197)	-0.485*** (0.174)	-0.591*** (0.210)
Clusters	80	101	122	79	89	113	136	101
Observations	5715	7302	8769	5678	8891	11215	13485	10061
Bandwidth	750	1000	1250	735	750	1000	1250	857
Log Violent Crime Rate	0.232 (0.346)	0.118 (0.322)	0.100 (0.297)	0.332 (0.351)	0.136 (0.438)	0.108 (0.389)	0.090 (0.354)	0.119 (0.414)
Clusters	65	88	108	49	89	113	136	103
Observations	950	1171	1452	722	3036	3780	4394	3502
Bandwidth	750	1000	1250	621	750	1000	1250	879
Property Crime Clearance Rate	0.018 (0.034)	0.026 (0.035)	0.030 (0.035)	0.027 (0.033)	0.007 (0.035)	0.013 (0.032)	0.020 (0.030)	0.016 (0.036)
Clusters	80	101	121	55	89	113	136	58
Observations	4329	5570	6633	2940	8891	11215	13485	5959
Bandwidth	750	1000	1250	552	750	1000	1250	518
Violent Crime Clearance Rate	-0.139* (0.081)	-0.115 (0.083)	-0.097 (0.082)	-0.137* (0.081)	0.074 (0.048)	0.082* (0.044)	0.088** (0.040)	0.060 (0.048)
Clusters	62	84	104	66	89	113	136	78
Observations	830	1039	1278	895	3036	3780	4394	2720
Bandwidth	750	1000	1250	774	750	1000	1250	680

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to using a triangular kernel. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a triangular kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 11: Effect on Crime and Clearance Rates, Robustness to using a Epanechnikov Kernel**

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.304 (0.206)	-0.301* (0.179)	-0.166 (0.161)	-0.267 (0.218)	-0.596** (0.232)	-0.541*** (0.202)	-0.451** (0.178)	-0.592*** (0.219)
Clusters	80	101	122	69	89	113	136	100
Observations	5811	7413	8905	5055	8906	11242	13519	9971
Bandwidth	750	1000	1250	673	750	1000	1250	846
Log Property Crime Rate	-0.294 (0.193)	-0.284* (0.170)	-0.150 (0.153)	-0.235 (0.206)	-0.605*** (0.221)	-0.548*** (0.193)	-0.459*** (0.170)	-0.606*** (0.211)
Clusters	80	101	122	65	89	113	136	98
Observations	5715	7302	8769	4602	8891	11215	13485	9772
Bandwidth	750	1000	1250	639	750	1000	1250	819
Log Violent Crime Rate	0.182 (0.343)	0.066 (0.315)	0.069 (0.287)	0.407 (0.367)	0.095 (0.423)	0.081 (0.364)	0.070 (0.329)	0.086 (0.399)
Clusters	65	88	108	41	89	113	136	100
Observations	950	1171	1452	630	3036	3780	4394	3445
Bandwidth	750	1000	1250	507	750	1000	1250	844
Property Crime Clearance Rate	0.019 (0.037)	0.030 (0.038)	0.033 (0.038)	0.034 (0.037)	0.008 (0.035)	0.016 (0.032)	0.023 (0.029)	0.014 (0.038)
Clusters	80	101	121	56	89	113	136	58
Observations	4329	5570	6633	2989	8891	11215	13485	5959
Bandwidth	750	1000	1250	559	750	1000	1250	511
Violent Crime Clearance Rate	-0.125 (0.090)	-0.101 (0.089)	-0.084 (0.085)	-0.118 (0.090)	0.082* (0.048)	0.088** (0.044)	0.094** (0.040)	0.062 (0.049)
Clusters	62	84	104	71	89	113	136	77
Observations	830	1039	1278	925	3036	3780	4394	2699
Bandwidth	750	1000	1250	836	750	1000	1250	676

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to using a Epanechnikov kernel. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a Epanechnikov kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 12: Effect on Crime and Clearance Rates, Robustness to using Locally Quadratic Regression**

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.162 (0.263)	-0.404* (0.235)	-0.403* (0.227)	-0.360 (0.230)	-0.520* (0.291)	-0.632** (0.274)	-0.595** (0.255)	-0.596** (0.258)
Clusters	80	101	123	110	89	113	137	133
Observations	5811	7413	8929	7933	8906	11242	13623	13212
Bandwidth	750	1000	1250	1084	750	1000	1250	1171
Log Property Crime Rate	-0.168 (0.242)	-0.396* (0.220)	-0.397* (0.214)	-0.376* (0.220)	-0.533* (0.274)	-0.640** (0.259)	-0.602** (0.243)	-0.620** (0.267)
Clusters	80	101	123	102	89	113	137	108
Observations	5715	7302	8790	7377	8891	11215	13589	10706
Bandwidth	750	1000	1250	1019	750	1000	1250	947
Log Violent Crime Rate	0.438 (0.367)	0.263 (0.343)	0.084 (0.337)	0.287 (0.339)	0.232 (0.470)	0.128 (0.454)	0.047 (0.420)	0.132 (0.455)
Clusters	65	88	109	84	89	113	137	114
Observations	950	1171	1454	1138	3036	3780	4407	3788
Bandwidth	750	1000	1250	956	750	1000	1250	1033
Property Crime Clearance Rate	0.039 (0.048)	0.049 (0.048)	0.049 (0.047)	0.052 (0.048)	-0.010 (0.039)	-0.007 (0.040)	0.010 (0.038)	-0.006 (0.040)
Clusters	80	101	122	69	89	113	137	79
Observations	4329	5570	6648	3802	8891	11215	13589	7948
Bandwidth	750	1000	1250	665	750	1000	1250	682
Violent Crime Clearance Rate	-0.235* (0.122)	-0.186* (0.105)	-0.106 (0.098)	-0.180* (0.107)	0.032 (0.058)	0.067 (0.057)	0.118** (0.057)	0.084 (0.057)
Clusters	62	84	105	72	89	113	137	95
Observations	830	1039	1280	938	3036	3780	4407	3286
Bandwidth	750	1000	1250	850	750	1000	1250	802

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to using locally quadratic regressions. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally quadratic regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 13: Effect on Crime and Clearance Rates, Robustness to using Locally Cubic Regression**

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.055 (0.291)	-0.021 (0.265)	-0.181 (0.260)	-0.318 (0.260)	-0.384 (0.310)	-0.428 (0.291)	-0.540* (0.299)	-0.435 (0.293)
Clusters	80	101	123	128	89	113	137	114
Observations	5811	7413	8929	9195	8906	11242	13623	11283
Bandwidth	750	1000	1250	1336	750	1000	1250	1028
Log Property Crime Rate	-0.057 (0.256)	-0.036 (0.236)	-0.181 (0.238)	-0.084 (0.232)	-0.410 (0.280)	-0.451* (0.269)	-0.562** (0.280)	-0.562** (0.280)
Clusters	80	101	123	107	89	113	137	137
Observations	5715	7302	8790	7672	8891	11215	13589	13589
Bandwidth	750	1000	1250	1064	750	1000	1250	1255
Log Violent Crime Rate	0.734 (0.479)	0.635* (0.386)	0.477 (0.349)	0.657* (0.396)	0.457 (0.513)	0.342 (0.485)	0.321 (0.467)	0.338 (0.484)
Clusters	65	88	109	85	89	113	137	114
Observations	950	1171	1454	1140	3036	3780	4407	3788
Bandwidth	750	1000	1250	979	750	1000	1250	1024
Property Crime Clearance Rate	0.047 (0.052)	0.038 (0.049)	0.046 (0.051)	0.035 (0.048)	0.030 (0.040)	0.008 (0.039)	0.009 (0.043)	-0.002 (0.039)
Clusters	80	101	122	96	89	113	137	108
Observations	4329	5570	6648	5207	8891	11215	13589	10706
Bandwidth	750	1000	1250	927	750	1000	1250	956
Violent Crime Clearance Rate	-0.228* (0.138)	-0.223* (0.121)	-0.204* (0.113)	-0.217* (0.123)	0.054 (0.065)	0.056 (0.059)	0.038 (0.062)	0.057 (0.058)
Clusters	62	84	105	80	89	113	137	115
Observations	830	1039	1280	1006	3036	3780	4407	3796
Bandwidth	750	1000	1250	930	750	1000	1250	1040

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to using locally cubic regressions. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally cubic regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

**Online Appendix Table 14:** Effect on Crime and Clearance Rates, Robustness to not Including State-month Fixed Effects

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.268 (0.189)	-0.184 (0.173)	-0.032 (0.170)	-0.267 (0.201)	-0.464** (0.227)	-0.403** (0.202)	-0.340* (0.182)	-0.511** (0.237)
Clusters	80	101	124	67	89	113	138	79
Observations	5845	7441	9071	4936	8907	11243	13743	7963
Bandwidth	750	1000	1250	642	750	1000	1250	686
Log Property Crime Rate	-0.266 (0.176)	-0.173 (0.163)	-0.017 (0.161)	-0.064 (0.205)	-0.492** (0.215)	-0.422** (0.192)	-0.357** (0.174)	-0.508** (0.208)
Clusters	80	101	124	59	89	113	138	95
Observations	5755	7334	8936	4188	8892	11216	13709	9515
Bandwidth	750	1000	1250	586	750	1000	1250	798
Log Violent Crime Rate	0.188 (0.302)	0.041 (0.286)	0.002 (0.263)	0.224 (0.313)	0.168 (0.316)	0.132 (0.268)	0.142 (0.247)	0.129 (0.294)
Clusters	76	97	118	56	89	113	138	101
Observations	1138	1383	1791	867	3216	3941	4682	3633
Bandwidth	750	1000	1250	579	750	1000	1250	854
Property Crime Clearance Rate	0.040 (0.043)	0.037 (0.040)	0.038 (0.038)	0.078 (0.048)	0.016 (0.036)	0.033 (0.034)	0.037 (0.032)	-0.004 (0.039)
Clusters	80	101	123	45	89	113	138	47
Observations	4349	5586	6748	2453	8892	11216	13709	4829
Bandwidth	750	1000	1250	446	750	1000	1250	398
Violent Crime Clearance Rate	-0.096 (0.106)	-0.059 (0.095)	-0.074 (0.088)	-0.048 (0.112)	0.139** (0.062)	0.176*** (0.063)	0.121** (0.062)	0.096 (0.067)
Clusters	73	94	115	52	89	113	138	54
Observations	976	1194	1514	718	3216	3941	4682	2088
Bandwidth	750	1000	1250	568	750	1000	1250	463

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . The tables shows robustness to excluding the state-month fixed effects. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses.

**Online Appendix Table 15: Effect on Crime and Clearance Rates, Robustness to More Flexible Running Variable**

Sample	pre-treatment				post-treatment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log Crime Rate	-0.306 (0.196)	-0.197 (0.168)	-0.059 (0.163)	-0.235 (0.227)	-0.577*** (0.222)	-0.452** (0.187)	-0.384** (0.167)	-0.625*** (0.233)
Clusters	80	101	123	62	89	113	137	76
Observations	5811	7413	8929	4437	8906	11242	13623	7730
Bandwidth	750	1000	1250	623	750	1000	1250	661
Log Property Crime Rate	-0.292 (0.187)	-0.182 (0.161)	-0.037 (0.157)	-0.114 (0.230)	-0.588*** (0.213)	-0.462** (0.180)	-0.395** (0.160)	-0.628*** (0.222)
Clusters	80	101	123	59	89	113	137	77
Observations	5715	7302	8790	4113	8891	11215	13589	7822
Bandwidth	750	1000	1250	583	750	1000	1250	666
Log Violent Crime Rate	0.136 (0.339)	0.022 (0.290)	0.056 (0.252)	0.128 (0.354)	0.091 (0.395)	0.092 (0.320)	0.115 (0.291)	0.099 (0.406)
Clusters	65	88	109	59	89	113	137	79
Observations	950	1171	1454	858	3036	3780	4407	2750
Bandwidth	750	1000	1250	698	750	1000	1250	687
Property Crime Clearance Rate	0.030 (0.043)	0.025 (0.041)	0.030 (0.040)	0.043 (0.043)	0.015 (0.036)	0.028 (0.031)	0.029 (0.028)	0.007 (0.037)
Clusters	80	101	122	55	89	113	137	76
Observations	4329	5570	6648	2940	8891	11215	13589	7719
Bandwidth	750	1000	1250	546	750	1000	1250	662
Violent Crime Clearance Rate	-0.078 (0.095)	-0.058 (0.086)	-0.064 (0.081)	-0.114 (0.100)	0.111** (0.048)	0.099** (0.042)	0.088** (0.041)	0.056 (0.051)
Clusters	62	84	105	46	89	113	137	59
Observations	830	1039	1280	637	3036	3780	4407	2127
Bandwidth	750	1000	1250	615	750	1000	1250	542

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. The tables shows robustness to allowing the running variable to vary by census and outcome year. It presents RD estimates on crime rates and clearance rates for pre-treatment years (1960 to 1969, columns 1 to 4) and post-treatment years (1970 to 1979, columns 5 to 8). Variation in treatment status is from the 1970 census experiment. Crime rates are crimes per 100,000 people and clearance rates are number of crimes cleared by arrest over total number of crimes. Variation in treatment status is from the 1970 census experiment. The coefficients are estimated using locally linear regression and a uniform kernel for four different bandwidths: 750, 1000, 1250 and an outcome and sample specific MSE-optimal bandwidth. Standard errors clustered at the municipality level are shown in parentheses. State-month fixed effects are included in all columns.

## Online Appendix B - Municipal merit system legislation

### Procedure followed to identify merit system mandates

This section documents the procedure followed to identify the legislation on municipal merit systems and choices made in the final definition of the sample. The procedure was conducted separately for two time periods because of different primary source availability. First, I performed a search until 1940. Second, I extended the legislative review from 1940 to 2000.

### Legislation until 1940

1. I exclude states which according to the Civil Service Agencies census of 1940 either did not have municipal civil service boards or did not have municipal civil service boards with legal base in State statutes or constitutions. This excludes 13 states.
2. For the remaining states, I search through legislative records (in particular Session Laws and Statutes on HeinOnline) to identify the specifics of civil service reforms and use this information to classify the reform. The search is conducted as follows: I first identify any legislation introducing merit systems by searching all session laws 1900-1940 for keywords such as "civil service commission", "merit system", "board of police and fire commissioners". Once I identify the specific wording on the reform for the state, I proceed searching session laws with the appropriate wording. When the legislation changes over a few years (in particular, if the threshold is changed over a 1 to 3 years periods), I consider the final legislation. Utah and Wisconsin villages are the ones affected.
3. I classify whether:
  - The reform was introduced by the legislature but was city specific;
  - The reform imposed a mandate;
  - The reform took a population threshold form. If yes, I also classify whether the legislation directly imposes the reform for municipalities above a particular threshold or it imposes the reform for classes/types of municipalities that in turn are defined based on population thresholds;
  - The population thresholds were higher than 15,000, which suggests that they were targeted to specific cities (and also that there are not going to be cities around the discontinuity).

### Legislation from 1940 to 1990

1. I take a snapshot of the legislation at three different points in time: 1940, 1978 and 1993. The information for 1940 is based on my previous 50 state survey; the information for 1978 and

1990 is based on Hill (1978, 1990).

2. To ensure that there is no state missing, if a state is not reported having a mandate for a municipal merit system in 1978 or 1993, I perform an additional check looking at state statutes. For each of these states:

- I access the oldest statute available through the Historical Statutes on WestLaw (or 1990 or closest year to 1990 available) and/or the current statute and perform the following keyword searches in the statutory text:
  - (Board /s police) /p (municipal! or cit! or town!) % "state police"
  - "merit system" /p (municipal! or cit! or town!)
- Also, I search through the Index of the statute and skim through the following entries to identify whether there is specific legislation on merit systems for cities and if so, what is the content of the legislation:
  - Municipalities;
  - Civil service;
  - Police.

3. For the states that are reported in 1940 to have legislation of the relevant form or to have a mandate for a merit system to be instituted in cities (not restricted to legislation for cities above certain population) in 1978 or 1993:

- First, I identify the text of the legislation. I proceed as follows:
  - I use West Law to identify the wording of the legislation and references in the State Session Laws. This covers 1990 and current statutes. I mainly use the references in the secondary source.
  - For the states for which I cannot find a reference, I use the reference given in the secondary source and look up the historical state statutes around 1980 on microfiches (since these are non-searchable I only check the specific reference reported in the secondary source).
- If I identify that at any of these points in time the legislation the form I am interested in I use Session Laws to get the details.

## **Final state sample selection**

This identifies a set of states potentially in the sample. From these, I select the final set of states in the sample based on the following considerations separately for the main analysis and the historic census analysis (this is because they are based on different census experiments).

1. Historic census analysis (1900, 1910, 1920 and 1930 census experiments).



- Potential sample: Arkansas, Iowa, Montana, Ohio, Utah, West Virginia, Wisconsin cities.
- Final sample: Iowa, Montana, Ohio, West Virginia, Wisconsin cities.
  - Arkansas is excluded as there is no first stage in the 1930 census experiment.
  - Ohio is excluded as tenure is granted both to places above and below the threshold.
  - Utah is excluded as there is no first stage in the 1920 and 1930 census experiments (and there are no cities around the threshold).

## 2. Crime analysis

- Potential sample: Alabama, Arizona, Illinois, Louisiana, Montana, Nebraska, Ohio, West Virginia, Wisconsin cities and Wisconsin villages.
- Final sample: Arizona, Illinois, Louisiana, Montana (only for outcomes measured before 1975), Nebraska, Ohio, West Virginia, Wisconsin cities and Wisconsin villages.
  - Alabama is excluded as the legislation does not specify what is required for a city to institute a merit system and, in particular, it does not require the removal of the power to appoint law enforcement officers from the political authority of the city.
  - Ohio is excluded as tenure is granted both to places above and below the threshold.

## Legislation for states included in the sample

### Arizona

#### *History of the reform*

- Mandate for civil service merit system for municipal law enforcement officers introduced for municipalities 15,000+ which have a full-time police department of more than 15 men in 1969.<sup>1</sup> Current statutes include amendments post-2000 but are otherwise the same.

#### *Content of the reform*

- Merit system council:
  - 5 members;
  - Appointed by the governing body of the city;
  - Overlapping 5 years terms;
  - No more than three members shall belong to the same political party. All members shall be persons having recognized knowledgeable interest in the merit principles of personnel administration. Members cannot be elected or appointed to public office.

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<sup>1</sup>More precisely, the 1969 act mandates the law enforcement merit system for all cities and towns, with the exception of cities and towns with population of less than 15,000 inhabitants or with a full-time police department of less than 15 men. According to UCRs cities at the discontinuity have more than 15 policemen.

- Provisions:
  - Duties of the merit system council:
    - \* Classifying all positions in the police department and fixing standards and qualifications for classified positions;
    - \* Providing a plan for selection, appointment, retention and separation or removal from service by resignation or dismissal of all classified law enforcement officers.<sup>2</sup>;
    - \* Providing a plan for promotion of law enforcement officers (promotions should be based on competitive examinations);
    - \* Hearing and reviewing appeals from any order of the department head in connection with suspension, demotion, or dismissal of a classified law enforcement officer.
  - Previous employees are grandfathered into the reform without examinations.
- Chief of police:
  - Whether the chief of police is covered by the provisions depends on the classification of the council.
- Additional notes:
  - Each municipality subject to the act can either institute its own council or use the services of the county merit system council.

## *References*

- Merit system: Laws 1969, Ch. 102 and A.R.S. T. 38-1001 et seq.;
- Non-civil service appointments: A.R.S. T. 9-240 and A.R.S. T. 9-274.

## **Illinois**

### *History of the reform*

- Possibility to institute board of fire and police commissioners introduced for cities 7,000+ and 100,000- in 1903. Mandate for cities 15,000+ instituted in 1949. Threshold lowered to 13,000+ in 1951 and 5,000+ in 1957.

### *Content of the reform*

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<sup>2</sup>Even though the act does not directly institute competitive examinations, in *Taylor vs. McSwain* (1939), as cited in *Hamilton vs. City of Mesa* (1995): "A merit system is defined to include the following: the appointment of all employees who come under the system is made on the basis, and as the result, of open and competitive examinations arranged to determine which of the applicants for the position is best fitted to perform its duties, regardless of political affiliations, or past record, and that once an appointment is made, removal from the position should be based only on unfitness for the work for one reason or another, and not upon personal considerations."

- Board of Fire and Police Commissioners:
  - 3 members;
  - Appointed by the mayor of the city with the consent of the city council or by the president of the village or incorporated town with the consent of the board of trustees;
  - Overlapping 3 years terms;
  - No nominations by the mayor or president in the last 30 days of his mandate;
  - One shall be a representative citizen of the employee class, one shall be a representative citizen of the employing class, one shall be a representative citizen not identified with either the employing of the employee class;
  - No more than two members of the board may belong to the same political party.
- Provisions:
  - Duties of the board:
    - \* Appoint all officers and members of the department;
    - \* Hold examinations.
  - All applications for a position in the police department are subject to an examination that is public, competitive and open to all applicants. Appointments should be made in order of relative excellence as determined by the examination.
  - Promotions should be made from members of the department through a competitive examination. Promotions should be from the top three applications.
  - Dismissals are only permitted for just cause and after an opportunity to appeal has been granted.
  - Previous employees are grandfathered into the reform without examinations.
  - Publicity is required for all rules made by the board and examinations.
- Chief of police:
  - By default the commission also nominates the chief (but can be changed by ordinance).
- Other notes:
  - In municipalities not under the act, the power to appoint a city police officer is vested in the mayor with the approval of the council. Policemen can be discharged with or without cause.

## *References*

- Merit system: Laws 1961, p. 576, § 10-2.1 et seq. and 65 ILCS 5/10-2.1-1 formerly cited as IL ST CH 24 § 10-2.1-1;
- Non-civil service appointments: 8 Ill. Law and Prac. Cities, Villages, Etc. § 139.

## Iowa

### *History of the reform*

- Mandate to institute a board of fire and police commissioners for cities of the first class introduced in 1907. Threshold lowered in 1909. Mandate to introduce a board of fire and police commissioners introduced for all cities 8,000+ with a paid fire or police department in 1917.

### *Content of the reform*

- Civil Service Commission:
  - 3 members;
  - Appointed by the mayor of the city with the consent of the city council;
  - Overlapping 3 years terms;
  - The commissioners must be citizens of Iowa and residents of the city for more than five years next preceding their appointment, and shall serve without compensation. No person while on said commission, shall hold or be a candidate for any office of public trust.
- Provisions:
  - Duties of the board:
    - \* Hold examinations yearly and when necessary for appointments and promotions.
  - Appointments are conditional upon probation. The ultimate power of appointment in the fire and police chiefs with approval from city council.
  - Examinations are to be used to determine eligibility lists to be used for appointment.
  - Promotions should be made from members of the department.
  - Dismissals are only permitted for just cause and after an opportunity to appeal has been granted.
  - Previous employees are grandfathered into the reform without examinations (the only exception is the chief of police).
  - Employees are prohibited from campaign contributions.
  - Political activities (taking advantage of civil service position) are prohibited to employees.
- Chief of police:
  - The chief of police is not covered by the provisions. The appointment is made by the political authority but can only be made from the chief of police eligibility list.

- Other notes:
  - The current version of the act mandates using the federal census of 1980.
  - In municipalities not under the act, the mayor has the power to appoint policemen (though this has to be provided for by an ordinance of the city council).

## *References*

- Merit system: I.C.A. T. IX, Subt. 4, Ch. 400;
- Non-civil service appointments: IA ST § 363.40 and 1973 WL 324501 (Iowa A.G.).

## **Louisiana**

### *History of the reform*

- Mandate for fire and police departments introduced for municipalities 50,000+ in 1920 and for cities 13,000+ in 44. Threshold lowered to 7,000 in 1964.

### *Content of the reform*

- Fire and Police Civil Service Board:
  - 3 members;
  - Appointed by governing body of the municipality;
  - Overlapping 3 years terms;
  - Members must be residents of the municipality and not be member of political organizations. One is nominated by the governing body upon its own nomination, one is appointed from a list of two nominees from an institution of higher education, one should be elected by the members of the police and fire department.
- Provisions:
  - Duties of the board:
    - \* Create eligible lists;
    - \* Conduct investigations in case of wrongdoing and make decisions on eventual disciplinary actions upon request of the appointing authority;
    - \* Grant and administer appeals procedures.
  - Appointments and promotion are to be made upon certification based on competitive examinations. The appointing authority (check) makes the appointment from the list provided by the commission.

- Dismissals are permitted for just cause.
- Political activities are prohibited to employees.
- Chief of police:
  - The chief of police is not under civil service.
- Other notes:
  - In municipalities not under the act, the mayor is in control of the department and has the power to appoint and remove policemen. The current version of the code includes the possibility for municipalities to have an elected chief of police (in which case he makes suggestions for hiring and promotions). In the historic version of the code, the marshal is elected and has control over the policy of the department while the mayor is in charge of appointments.

## *References*

- Merit system: Acts 1964, No. 282, § 1 and LSA-R.S. 33:2531 et seq.;
- Non-civil service appointments: LSA-R.S. 33:404 and General Statutes of the State of Louisiana 1939 2:5365 and 2:5422.

## **Montana**

### *History of the reform*

- Mandate for police commission introduced for all cities of the first class (10,000+) in 1907. Mandate extended to all cities of the second class (5,000+) in 1947 and to all cities in 1975. Civil service commission mandated for all municipalities under the municipal commission-manager form of government in 1911 and 1917 respectively.

### *Content of the reform*

- Police Commission:
  - 3 members;
  - Appointed by mayor or city manager;
  - Overlapping 3 years terms;
  - Members shall have the qualifications required by law to hold a municipal officer therein.
- Provisions:

- Duties of the commission:
  - \* Hold examinations and certify eligibility of applicants.
- The power of appointment is in the mayor but in cities where a police commission exists the mayor may appoint only individuals who have passed the examination provided by the commission.
- There is no inherent right to indefinite tenure given to policemen but policemen can be removed for cause (when they are remiss in their duties).
- Political activities (participating in political conventions and soliciting votes) are prohibited to employees.
- Chief of police:
  - The chief of police is covered by the provisions. The appointment is made by the political authority but can only be made from the chief of police eligibility list.
- Other notes:
  - Important for the classification: municipalities 2,500+ are cities, 1,000 to 2,500 can be either cities or towns and 1,000- are towns (in 1947).
  - In cities without a police board, the mayor (or corresponding governing authority) has power over the police department.

## *References*

- Merit system: Laws 1907, Ch. 136 and Mont. Code Ann. 1947 § 11-1801 et seq. and Mont. Code Ann. 1978 § 7-32-4151.
- Non-civil service appointments: Mont. Code Ann. 1947 § 11-1801 et seq.

## **Nebraska**

### *History of the reform*

- Mandate for all members of fire departments of municipalities 5,000+ and 40,000- introduced in 1943. Expanded to police departments of the same municipalities in 1957.

### *Content of the reform*

- Civil Service Commission:
  - 3 members;
  - Appointed by mayor or authority who previously appointed the chief of police;

- Overlapping 6 years terms;
- No person shall be appointed a member of such commission who is not a citizen of the United States, a resident of such city for at least three years immediately preceding such appointment, and an elector of the county wherein such person resides.
- Provisions:
  - Duties of the commission:
    - \* Hold tests and create eligible lists. Appointments should be made following the eligible list.
  - All appointments to and promotions in such departments shall be made solely on merit, efficiency, and fitness, which shall be ascertained by open competitive examination and impartial investigation.
  - Dismissals are only possible for just cause after an opportunity to appeal has been granted.
  - Previous employees are grandfathered into the reform without examinations.
- Chief of police:
  - The commission also nominates the chief.
- Other notes:
  - In cities which do not adopt the act, all police officers are appointed by the mayor and council and can be removed anytime by the mayor.
  - The threshold corresponds to the threshold classifying cities of the first class.

### *References*

- Merit system: Laws 1957, LB 305, Neb.Rev.St. § 19-1825;
- Non-civil service appointments: Neb.Rev.St. § 19-1825.

## **West Virginia**

### *History of the reform*

- Before 1937 civil service for specific (generally large) cities, provided in charters approved by state legislation. In 1937, civil service mandated for paid police departments of municipalities with population 5,000+. In 1969, mandate only for cities of first and second class (10,000+). Cities that already have a civil service commissions are to keep it. Cities of the third class which do not have civil service already may introduce it with an election. Current legislation has the same form.



### *Content of the reform*

- Civil Service Commission:
  - 3 members;
  - One appointed by the governor, one appointed by the local fraternal order of the police, one appointed by the local chamber of commerce or if there is not one by a business man's association;
  - Overlapping 5 years terms;
  - Commissioners should be residents of the city, no more than two of them shall be from the same political party and no commissioner should hold an office.
- Provisions:
  - Duties of the commission
    - \* Make rules and regulations providing for examinations for positions in police departments and for appointments and promotions;
    - \* Hold examinations and create eligible list;
    - \* Hear and review appeals for dismissals or disciplinary actions.
  - Appointments are made by the appointing officer from three names certified by the civil service commission from the eligible list.
  - Promotions should be made internally whenever possible.
  - Dismissals are not acceptable for just cause ("which shall not be religious or political").
  - Political activities (taking advantage of civil service position) are prohibited to employees.
- Previous employees are grandfathered into the reform without examinations.
- Chief of police:
  - The chief is not covered by these provisions.
- Other notes:
  - In cities which are not under the provisions of the reform, the police department is under the authority of the mayor.

### *References*

- Merit system: Acts 1937, c. 57, W. Va. Code, § 8-10-14;
- Non-civil service appointments: W. Va. Code, § 8-10-1.

## Wisconsin, cities

### *History of the reform*

- In 1897, civil service introduced for all cities of the second and third class. In 1909, extended to cities of the fourth class. Shortly after, in 1911, civil service mandated for cities of the fourth class with population 4,000+. Cities of the fourth class with population 4,000- may introduce a civil service board with an election (later: by ordinance). In 1933, introduced for cities under city manager form of government. The legislation survived in essentially the same form until today, with the exception of the inclusion of provisions providing for the possibility for contracting law enforcement services across local governments introduced starting from 1980.<sup>3</sup>

### *Content of the reform*

- Board of Police and Fire Commissioners:
  - 5 members;
  - Appointed by mayor;
  - Overlapping 5 years terms;
  - No more than 3 members of the board can belong to the same political party.
- Provisions:
  - The board of police and fire is the only mechanism for the appointment, removal or disciplining of policemen.
  - Duties of the commission:
    - \* Appoints the chief;
    - \* Approves all appointments and promotions (which have to be made from eligible lists provided by examinations);
    - \* Recommends salary decreases to the common council;
    - \* Suspend or dismiss members of the police force for cause;
    - \* Receive charges and holds disciplinary hearings.
  - Under optional provisions the board also has the power to supervise the police force, prescribes rule for its management and contracts for police department purchases.
  - The chief appoints policemen subject to the board approval. Appointments are from eligibility lists. Promotions are to be made from within the department.

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<sup>3</sup>The amendments allowing to contract protective services with a city, another village or the county does not matter for my design. If a local government unit were to contract out their law enforcement services they would not appear in the UCR data.

- Previous employees are grandfathered into the reform without examinations.
- Chief of police:
  - The chief of police is covered by the provisions and appointed by the board. The appointment is made by the political authority but can only be made from the chief of police eligibility list.
- Other notes:
  - In cities without a police board, the mayor has power over the police department.
  - In 1979 protection from political dismissals was granted to all law enforcement employees.
  - The legislation continues to today in a very similar form, with the exception of provisions allowing for out-contracting of police services starting from 1985.

### *References*

- Merit system: W.S.A. 62.13;
- Non-civil service appointments: W.S.A. 62.09 § 8;
- Other: W.S.A. 164.

## **Wisconsin, villages**

### *History of the reform*

- Mandate for villages with population 5,000+ introduced in 1937. In 1941, threshold increased to 5,500. In 1979, the possibility to contract protective services with a city, another village or the county is introduced. In 1981, the possibility to create a joint police department with another city, village, town or county is introduced. If a village 5,500+ creates a joint police department it should appoint a joint board of police and fire (threshold lowered to 5,000 in 1981).

### *Content of the reform*

- The content of the legislation is the same as the one for cities.

### *References*

- Merit system and non-civil service appointments: W.S.A. 61.65.

## **Procedure followed to identify provisions implying policy discontinuity at the same threshold**

To check whether there is overlapping legislation for the states in my sample:

1. I search through the oldest statute available on WestLaw using the threshold in the form appearing in the civil service legislation (e.g. for Iowa "eight thousand").
  - When the threshold is expressed as a number I perform the search excluding the number + dollars (e.g. for Iowa "eight thousand" % "eight thousand dollars").
  - If there is overlap with city classification, I search for the classification.
2. I search through State Session Laws using the threshold in the form appearing in the civil service legislation.

## Online Appendix C - Uniform Crime Reports

### Data cleaning

The source I use for the crime data are the Uniform Crime Reports Return A data files distributed by the FBI. As noted by Evans and Owens (2007), "the UCR data are essentially unedited by the FBI. As a result, the data requires thorough cleaning before use." In this Appendix, I discuss the steps I take to clean the data and, in particular, how I identify missing data.

The main issue with the data files is that a zero observation can be either a true zero or missing. As noted by Maltz (2006), zeros can mean that no crimes occurred in that month or that:

1. The department had not yet begun reporting data to the FBI;
2. The department reported its crime data through another agency;
3. The data were aggregated and reported on lower frequencies (e.g. quarterly, annually);
4. The department did not report data for one month and compensated for the omission by reporting in the next month;
5. The department did not submit data for that month.

The original files contain indicators flagging these issues, but they are not always accurate. First, I use these indicators and set to missing all observations that are flagged to be indeed missing. Since I am interested in monthly data, I also set as missing observations that include information for more than one month. Second, I also include the following additional corrections:

1. I set a zero observation to missing for all months before the first non-zero non-missing report is submitted;
2. I set a zero observation to missing if the department only reports zeros for that year;
3. I set a zero observation to missing if the department only reports zeros or missing for that year;
4. I set a zero observation to missing if it is part of a spell of missing or zero data longer than three months.

As part of a robustness check, I show that my results are robust to an additional data cleaning procedure aimed at identifying outliers in the data following Evans and Owens (2007), Chalfin and McCrary (2018) and, in particular, Mello (2018). For each city, I fit the monthly time series of crimes and arrests using a local linear regression with bandwidth 12 for the 1960 to 1979 period. I then compute the absolute value of the percentage difference between the outcome and the predicted value for the same outcome. I flag as outliers observations that are above the 99th percentile of this absolute percentage deviation. Following Mello (2018), I add 1 to the violent crime and arrest time series to avoid dealing with zeros.