Supplemental Material (not copyedited or formatted) for: Bryan C. McCannon, Claudio Detotto. 2020. "Consolidation of Prosecutor Offices."
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Supplemental Appendix

First, the appendix provides the second-stage results using, alternatively, fractional regression results (Papke and Woolridge, 1996). This is important since the dependent variable is restricted to values between zero and one. Fractional regressions have been applied to the second-stage analysis of DEA (Ramalho *et al*., 2010) as well.

Table A1: Fractional Regression Model

	(1)	(2)
Multiple	0.332 ***	0.319 ***
	(0.059)	(0.062)
Controls?	Yes	Yes
AIC	0.657	0.659

*** 1%; ** 5%; * 10% level of significance.
Heteroscedasticity-robust standard errors are presented in parentheses.
All controls listed in Table 2 are included in each specification, along with a constant term.

This confirms the results previously presented. The consolidation of counties into prosecutorial districts corresponds with more efficient functioning of the criminal justice system. Again, it is whether or not there is consolidation, and not the number of counties consolidated, that matters. Controlling for the characteristics of the population served, having multiple counties in a prosecutorial district increases the measured efficiency of the office by 45.9% at the mean, or rather, approximately three-fourths of a standard deviation. Again, if unadjusted standard errors or standard errors clustered by state are calculated, the main result persists. Also, if log transformations of the dependent and control variables are considered, the significance of *Multiple* remains.

Data Envelopment Analysis is also able to take alternative measurements of production. Two are *pure technical efficiency* (*PTE*) and *scale efficiency* (*SE*). Pure technical efficiency contrasts with technical efficiency in that the former allows for variable returns to scale, while the latter assumes constant returns to scale. If a district is experiencing scale inefficiency, then

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PTE will be larger than *TE*. Thus, we also consider the ratio of the two, *SE* (where *SE* = *TE* / *PTE*. Larger values of *SE* are associated with higher scale inefficiencies. Table A2 considers these alternative measurements of efficiency.

Table A2: Additional Results

	PTE (1)	*SE* (2)
Multiple	0.073 ***	0.244 ***
	(0.007)	(0.013)
Controls?	Yes	Yes
Adj R^2	0.140	0.307
F	20.5 ***	86.9 ***
AIC	-499.6	-54.0

*** 1%; ** 5%; * 10% level of significance.
Heteroscedasticity-robust standard errors are presented in parentheses.
All controls listed in Table 2 are included in each specification, along with a constant term.

Again, having multiple counties merged into a prosecutorial district is associated with increased efficiency of production and, specifically, is associated with increasing returns to scale.

In the PSM method, it is common to employ a caliper to restrict the control subsample to only those observations sufficiently close in propensity scores. A common caliper used in the literature is 0.001. Table A3 compares the means of the subsample of controls when this caliper is used. The first column also restricts the subsample of treated observations which have a match using this caliper. The third column provides the full sample of observations with *Multiple* = 0.

Table A2: PSM with Caliper

	Multiple =1 N =205	control N =191	*Multiple* = 0 full sample
TE	0.225	0.152	0.148
No. of cases closed	1866.8	1890.0	1146.0
No. of convictions	1397.4	1435.9	869.1
Convictions/Closed	0.749	0.760	0.758
No of jury trials	44.53	40.96	29.26
Jury/Closed	0.024	0.022	0.026

No. of investigators	2.66	4.05	2.49
% with an investigator	69.8%	46.6%	36.7%
No. of prosecutors	12.83	20.93	11.73
No. of supporting staff	25.15	34.62	21.68
budget	2,194,297	4.969.548	2,615,133

*** 1%; ** 5%; * 10% level of significance.
Heteroscedasticity-robust standard errors are presented in parentheses.
All controls listed in Table 2 are included in each specification, along with a constant term.

An alternative econometric matching method is to account for the fact that two or more observations with *Multiple* = 1 can be matched to the same control observation. For example, the results presented in Table 5 have 346 treated observations, but only 273 observations in the control subsample. An alternative is to use Weighted Least Squares where the weight assigned to the control subsample is equal to the number of times it is the best match to an observation in the treatment subsample. Table A4 presents the results.

Table A4: Results Using Treated and Control Samples

	OLS (1)	WLS (2)
Multiple	0.081 *** (0.020)	0.084 *** (0.019)
Number of counties in the prosecutorial district	0.006 (0.006)	0.006 (0.007)
Controls?	Yes	Yes
adj R^2	0.111	0.116
F	6.4 ***	6.6 ***
AIC	-500.3	-464.6
N	601	601

*** 1%; ** 5%; * 10% level of significance.
All controls listed in Table 2 are included in each specification, along with a constant term.

Table A5 presents the first-stage results from the Propensity Score Matching protocol.

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Table A5: Propensity Scoring

	Logit Coefficient	Standard error
White	-5.095 ***	(0.517)
Male	-12.251***	(3.979)
Unemployment	0.098 *	(0.051)
Labor Force Participation	-0.026	(1.678)
Income	-5.2×10^{-7}	(8.7×10^{-6})
Education	-0.091 ***	(0.011)
Poverty	-0.038 *	(0.205)
Population	1.7×10^{-6} ***	(5.6×10^{-7})
Republican Vote Share	6.609 ***	(0.698)
Voter Participation	0.126	(0.206)
Violent Crime	-2.6×10^{-4} ***	(8.7×10^{-5})
Property Crime	1.1×10^{-5}	(1.5×10^{-5})
Constant	11.891 ***	(2.319)
McFadden R^2	0.208	
AIC	1566.3	
% correct	85.6%	

*** 1%; ** 5%; * 10% level of significance.
Heteroscedasticity-robust standard errors are presented in parentheses.