



FIGURE 3.—The spatial distribution of the Swing riots. *Note:* This map shows the intensity and geographic pattern of the Swing riots (August 1830–February 1831). The circles indicate the number of riots within a 10 km radius of each of the 244 English constituencies. *Source:* Holland (2005).

TABLE II

LOCAL SWING RIOTS AND THE OUTCOME OF THE 1831 ELECTION. BASELINE RESULTS^a

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A</i>						
	<i>Whig Share 1831 (%)</i>					
	Least Squares					
Riots within 10 km	0.57 (0.32)* [0.25]**	0.37 (0.22)* [0.19]*	0.44 (0.18)** [0.18]**	0.47 (0.18)** [0.18]**	0.47 (0.18)** [0.19]**	0.44 (0.18)** [0.18]**
Whig share 1826		0.87 (0.19)***	0.32 (0.19)	0.35 (0.20)*	0.38 (0.20)*	0.38 (0.071)***
(Whig share 1826) ²		-0.0045 (0.0019)**	0.00055 (0.0020)	0.00035 (0.0020)	-6.8e-06 (0.0020)	
Reform support 1830		12.0 (5.60)**	12.1 (4.97)**	11.2 (5.09)**	12.1 (5.14)**	12.6 (4.77)**
County constituency			33.0 (5.14)***	37.2 (6.50)***	35.2 (7.04)***	31.6 (4.68)***
University constituency			-60.8 (9.39)***	-58.1 (10.7)***	-58.1 (8.60)***	-61.8 (10.50)***
Narrow franchise			-3.35 (5.62)	-2.85 (5.39)	-3.62 (5.26)	
Patronage index			-17.0 (3.42)***	-13.5 (3.94)***	-12.2 (3.86)***	-15.3 (3.52)***
Emp. fract. index				7.52 (30.9)	7.83 (29.49)	
Agriculture (emp. share)				-28.4 (27.5)	-27.2 (27.0)	
Trade (emp. share)				11.4 (30.9)	14.0 (31.1)	
Professionals (emp. share)				-143 (120)	-119 (120)	
Population					0.00028 (0.009)	
Population density					0.15 (2.68)	
Thriving economy					-10.1 (5.91)*	
Declining economy					-10.6 (5.86)*	-10.3 (5.72)*
Selection ratio	N.A.	0.67	2.26	2.54	2.56	2.59
Adjusted R ²	0.021	0.27	0.44	0.44	0.45	0.45
Obs. (constituencies)	244	244	244	244	244	244

TABLE II—Continued

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel B</i>						
	<i>Whig Elected 1831</i>					
	Probit					
Riots within 10 km	0.0058 [0.0029]**	0.0056 [0.0028]**	0.0062 [0.0029]**	0.0068 [0.0029]**	0.0056 [0.0027]**	0.0065 [0.0029]**
Obs. (seats)	489	489	489	489	489	489

^aPanel A reports least squares estimates associating local Swing riots to the outcome of the 1831 election (constant terms not shown). We report spatial (Conley (1999)) standard errors (50 km radius) in parentheses and White robust standard errors in brackets. The selection ratio (Altonji, Taber, and Elder (2005)) indicates how large the selection on unobserved factors must be relative to the selection on the observed factors included in each specification for the point estimate on *Riots within 10 km* to entirely result from an omitted variables bias. The regression in column (6) is tested down using a general-to-specific approach. Panel B reports probit results (marginal effects evaluated at the mean) associating local Swing riots to the likelihood that a Whig is elected to a seat in 1831. Each estimation includes the same control variables as the corresponding estimation in panel A, except that we cannot condition on *University constituency* because the two university constituencies elected Tories to all four seats. The full results are reported in Table S2 in the Supplemental Material. The standard errors in panel B are clustered at the constituency level.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

TABLE III

LOCAL SWING RIOTS AND THE OUTCOME OF THE 1831 AND 1830 ELECTIONS
 ALTERNATIVE MEASURES OF LOCAL SWING RIOTS AND SPATIAL CORRELATION^a

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A</i>						
	<i>Whig Share 1831 (%)</i>					
	Least Squares					
Riots within 1 km	2.76					
Riots within 10 km		0.47				
Riots within 20 km			0.14			
Riots within 30 km				0.066		
Riots within 50 km					0.028	
Riots between 50 and 75 km						0.021
Beta coefficient	0.11	0.13	0.12	0.11	0.11	0.07
Spatial std. errors, 20 km	(0.99)***	(0.20)**	(0.060)**	(0.030)**	(0.013)**	(0.016)
Spatial std. errors, 50 km	(1.02)***	(0.18)**	(0.058)**	(0.028)**	(0.013)**	(0.017)
Spatial std. errors, 100 km	{1.13}**	{0.17}***	{0.059}**	{0.029}**	{0.013}**	{0.019}
Spatial std. errors, 200 km	[1.12]**	[0.17]***	[0.061]**	[0.032]**	[0.014]**	[0.020]
White robust std. errors	[0.97]***	[0.19]**	[0.058]**	[0.030]**	[0.014]**	[0.017]
Adjusted R^2	0.44	0.45	0.44	0.44	0.44	0.43
<i>Panel B (Placebo Test)</i>						
	<i>Whig Share 1830 (%)</i>					
	Least Squares					
Riots within 1 km	0.59					
Riots within 10 km		0.11				
Riots within 20 km			0.014			
Riots within 30 km				-0.0010		
Riots within 50 km					-0.0069	
Riots between 50 and 75 km						-0.011
Beta coefficient	0.03	0.04	0.01	-0.002	-0.03	-0.04
Spatial std. errors, 50 km	(1.02)	(0.11)	(0.042)	(0.025)	(0.010)	(0.011)
White robust std. errors	[0.96]	[0.11]	[0.038]	[0.022]	[0.010]	[0.012]
Adjusted R^2	0.56	0.56	0.56	0.55	0.56	0.56
Difference test (p -value)	0.06	0.03	0.02	0.02	0.007	N.A.
Baseline controls included	YES	YES	YES	YES	YES	YES
Obs. (constituencies)	244	244	244	244	244	244

^aPanel A reports least squares estimates associating local Swing riots within various radiuses from the constituency to the outcome of the 1831 election. We report spatial (Conley (1999)) standard errors for four different radiuses (20 km, 50 km, 100 km, and 200 km) and White robust standard errors. Panel B reports the corresponding results for the placebo test on the outcome of the 1830 election. The difference test is a chi-squared test where the null hypothesis is that the coefficient on the *Riots within R km* variable in panel A is statistically different from the corresponding coefficient in panel B (Gelman and Stern (2006)). In both panels, the controls from column (5) in Table II are included (the coefficient in column (2) in panel A is thus the coefficient from column (5) in Table II). The beta coefficients show how many standard deviations the dependent variable will change per standard deviation increase of each of the *Riots within R km* variables.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

TABLE V

DISTANCE TO SEVENOAKS AND THE OUTCOME OF THE 1831 AND 1830 ELECTIONS
REDUCED FORM ESTIMATES^a

	(1)	(2)	(3)	(4)
<i>Panel A</i>				
	<i>Whig Share 1831 (%)</i>			<i>Whig Elected 1831</i>
	Least Squares			Probit
Distance to Sevenoaks	-1.89	-2.60	-2.60	-0.036
Spatial std. errors ^b	(0.84)**	(0.78)***	(0.86)***	
White robust std. errors	[0.67]***	[0.81]***	[0.87]***	
Clustered std. errors ^c				{0.011}***
Adjusted R^2	0.03	0.44	0.43	
Pseudo R^2				0.41
<i>Panel B (Placebo Test)</i>				
	<i>Whig Share 1830 (%)</i>			<i>Whig Elected 1830</i>
	Least Squares			Probit
Distance to Sevenoaks	-0.84	0.39	0.46	0.013
Spatial std. errors ^b	(0.60)	(0.75)	(0.79)	
White robust std. errors	[0.57]	[0.75]	[0.80]	
Clustered std. errors ^c				{0.014}
Adjusted R^2	0.005	0.55	0.55	
Pseudo R^2				0.45
Baseline controls included ^d	NO	YES	YES	YES
Spatial controls included ^e	NO	YES	YES	YES
Kent included	YES	YES	NO	YES
Observations	244	244	235	489

^aPanel A reports reduced form least squares and Probit estimates for the effect of *Distance to Sevenoaks* (the village in Kent where the riots began) on the outcome of the 1831 election. Panel B reports the corresponding placebo estimates for the outcome of the 1830 election. In column (3), we exclude the constituencies in Kent. In column (4), the point estimate is the marginal effect which is evaluated at the mean of the explanatory variables.

^bSpatial (Conley (1999)) standard errors (50 km radius).

^cClustered at the constituency level.

^dThe controls are those from column (5) in Table II. In column (4), *University constituency* is excluded because it predicts the outcome perfectly as the two university constituencies elected Tories to all four seats.

^eThe spatial controls are *Distance to urban center*, *Connection to London*, *Market integration*, *Cereal area*, and *Dairy area*.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

TABLE VI

LOCAL SWING RIOTS AND THE OUTCOME OF THE 1831 AND 1830 ELECTIONS
INSTRUMENTAL VARIABLE ESTIMATES^a

	(1)	(2)	(3)	(4)
<i>Panel A</i>				
	<i>Whig Share 1831 (%)</i>			<i>Whig Elected 1831</i>
	Second Stage			
	2SLS	2SLS	2SLS	IV-Probit
Riots within 10 km (instrumented)	1.32	2.53	3.48	0.078
Spatial GMM std. errors ^b	(0.60)**	(1.08)**	(1.60)**	
2SLS robust std. errors	[0.46]***	[0.87]***	[1.32]***	
Anderson–Rubin p -values ^g	0.006	0.002	0.003	
Clustered std. errors ^c				{0.015}***
<i>Panel B</i>				
	The Instrumented Variable Is <i>Riots Within 10 km</i>			
	First Stage			
Distance to Sevenoaks	-1.43	-1.03	-0.75	-1.06
White robust std. error	(0.17)***	(0.26)***	(0.24)***	
Clustered std. errors ^c				{0.26}***
Partial R^2 on excluded instrument	0.23	0.05	0.03	
Kleibergen–Paap F -statistic	74.3***	15.2***	9.9***	
<i>Panel C</i>				
	<i>Whig Share 1831 (%)</i>			<i>Whig Elected 1831</i>
	Least Squares			Probit
Riots within 10 km	0.57	0.50	0.52	0.0069
Spatial std. errors ^d	(0.32)*	(0.19)**	(0.25)**	
White robust std. errors	[0.25]**	[0.21]**	[0.29]*	
Clustered std. errors ^c				{0.0031}***

TABLE VI—Continued

	(1)	(2)	(3)	(4)
<i>Panel D (Placebo Test)</i>				
	<i>Whig Share 1830 (%)</i>			<i>Whig Elected 1830</i>
	Second Stage			
	2SLS	2SLS	2SLS	IV-Probit
Riots within 10 km (instrumented)	0.59	−0.38	−0.61	−0.028
Spatial GMM std. errors ^b	(0.43)	(0.75)	(1.11)	
2SLS robust std. errors	[0.39]	[0.71]	[1.05]	
Anderson–Rubin <i>p</i> -values ^g	0.14	0.60	0.56	
Clustered std. errors ^c				{0.028}
Baseline controls included ^e	NO	YES	YES	YES
Spatial controls included ^f	NO	YES	YES	YES
Kent included	YES	YES	NO	YES
Observations	244	244	235	489

^aPanel A reports 2SLS and IV-probit estimates of the effect of local Swing riots on the outcome of the 1831 election. Panel B, columns (1) to (3) summarize the first stage estimates for the 2SLS procedure and column (4) summarizes the Maximum Likelihood estimates from the IV-probit procedure. Panel C reports the least squares estimates corresponding to the instrumental variable estimates in Panel A. Panel D reports the placebo second stage estimates related to the outcome of the 1830 election. The instrument is *Distance to Sevenoaks* (the village in Kent where the riots began). The point estimates in column (4) are marginal effects evaluated at the mean of the explanatory variables. The full sets of results are reported in Tables S13 to S16 in the Supplemental Material.

^bSpatial (Conley (1999)) GMM standard errors (50 km radius).

^cClustered at the constituency level.

^dSpatial (Conley (1999)) standard errors (50 km radius).

^eThe controls are those from column (5) in Table II. In column (4), *University constituency* is excluded because it predicts the outcome perfectly as the two university constituencies elected Tories to all four seats.

^fThe spatial controls are *Distance to urban center*, *Connection to London*, *Market integration*, *Cereal area*, and *Dairy area*.

^gThe Anderson–Rubin test of significance of *Riots within 10 km* is robust to weak instruments.

***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.