WHAT MOTIVATES AN OLIGARCHIC ELITE TO DEMOCRATIZE? EVIDENCE FROM THE ROLL CALL VOTE ON THE GREAT REFORM ACT OF 1832*

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Online Appendix

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In this appendix, we provide some supplementary evidence in support of our interpretation of the econometric results reported in the main text, additional information about how we coded the variable related to newspaper circulation, historical evidence on the three hypothesizes, and a list of the definitions and sources of all the variables we use in the analysis.

The additional evidence includes the following. First, we show that our results are robust to using alternative definitions of the key variables. Second, we show that the results are similar when London is excluded from the sample. Third, we show that including additional control variables does not affect our results. We also show that the personal circumstances of the MPs (their age, occupation, education, and so on) cannot explain their vote behavior. Fourth, we report the correlation matrix for the variables related to violent unrest and public opinion. Fifth, we present evidence from the bibliographical literature on the reasons why the 18 absent English MPs were not present for the vote and a counterfactual analysis on their predicted vote had they been present based on observables. Finally, we report probit IV estimates of the effect of protest on the MPs' votes. Descriptive statistics for the new variables used in the appendix are reported in Tables A11 to A14.

A1. Alternative definitions of the key variables

Tables A1 and A2 show that the main results are robust to three alternative definitions of the variable capturing public protest: these are the number of protest events (rather than the number of participants), participants per capita and per adult male. Table A1 shows that the results for *all protest* are robust to these permutations, to an alternative measure of *net seat gain* which computes the gain in percentage rather than as the absolute value, and to normalizing

newspaper circulation by population. Table A2 reproduces Table 6 with the public protest variables defined as the number of events rather than as the number of participants.

Table A1: Robustness checks. The effect of protest on a MP's vote in favor of the reform bill: Probit estimates under alternative definitions of key variables

Dependent variable	Yes vote				
	(1)	(2)	(3)	(4)	(5)
All protest (#events)[a]	0.072				
	(0.023)***				
All protest (par. per capita)[b]		0.47			
		(0.16)***			
All protest (par. per adult male)[b]			0.14	0.13	0.23
			(0.045)***	(0.043)***	(0.054)***
Net seat gain	0.010	0.011	0.011		0.011
	(0.0031)***	(0.0028)***	(0.0028)***		(0.0027)***
Net seat gain (%)				0.0022	
				(0.0010)**	
Disenfranchised	-0.086	-0.074	-0.075	-0.089	-0.079
	(0.089)	(0.088)	(0.088)	(0.088)	(0.089)
Patron controlled	-0.095	-0.077	-0.076	-0.077	-0.080
	(0.10)	(0.11)	(0.11)	(0.11)	(0.11)
Landed interest	0.26	0.26	0.27	0.26	0.27
	(0.065)***	(0.065)***	(0.065)***	(0.065)***	(0.066)***
Whig/radical	0.84	0.84	0.84	0.84	0.85
	(0.031)***	(0.030)***	(0.030)***	(0.031)***	(0.030)***
Local newspapers	-0.00070	-0.00072	-0.00072	-0.00060	
	(0.00022)***	(0.00039)*	(0.00039)*	(0.00041)	
Local newspapers per capita					-0.0041
					(0.0014)***
Emp. Herfindahl index	-1.19	-1.21	-1.20	-1.22	-1.19
	(0.50)**	(0.51)**	(0.51)**	(0.51)**	(0.52)**
Population density	-0.011	-0.016	-0.019	-0.023	-0.023
	(0.041)	(0.038)	(0.038)	(0.040)	(0.037)
Army career	-0.15	-0.15	-0.15	-0.14	-0.16
	(0.087)*	(0.086)*	(0.087)*	(0.087)*	(0.087)*
Observations	466	466	466	466	466

Note: Probit estimator. Marginal effects evaluated at the mean of the explanatory variables. Standard errors in parentheses are clustered at the county level. Sample restricted to the English MPs, present in the House of Commons on 22 March 1831 and who voted. a. *all protest* is the number of protest events; b. *all protest* is the number of participants in all protest events between 1 January 1828 and 22 March 1831. *** p<0.01, ** p<0.05, * p<0.1.

Table A2. Alternative coding of protest data and net seat gain variable. Probit estimates.

Dependent Var.	Yes vote									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
All protest										0.015
										(0.0066)**
Violent unrest (#events)[a]	0.19									
	(0.14)									
Peaceful protest (#events) [a]		0.098								
		(0.026)***								
Rural violent (#events)[a]			-0.039						-0.16	
			(0.29)						(0.34)	
Urban violent (#events)[a]				0.33					-0.28	
				(0.094)***					(0.34)	
Meetings (#events)[a]					0.11					
					(0.030)***					
Gatherings (#events)[a]						0.54				
						(0.22)**				
Reform agitation (#events)[a]							0.83		0.91	
							(0.30)***		(0.52)*	
Petitions								0.027	0.024	
								(0.0069)***	(0.016)	
Net seat gain proposal										0.011
										(0.0035)***
Net seat gain	0.012	0.0098	0.011	0.010	0.0097	0.011	0.0094	0.012	0.010	
	(0.0026)***	(0.0033)***	(0.0027)***	(0.0032)***	(0.0034)***	(0.0028)***	(0.0036)***	(0.0029)***	(0.0036)***	
Disenfranchised	-0.081	-0.088	-0.082	-0.079	-0.089	-0.083	-0.096	-0.039	-0.061	-0.079
	(0.088)	(0.089)	(0.087)	(0.089)	(0.089)	(0.086)	(0.089)	(0.090)	(0.097)	(0.089)
Patron controlled	-0.099	-0.095	-0.11	-0.092	-0.095	-0.099	-0.097	-0.076	-0.080	-0.088
	(0.11)	(0.10)	(0.10)	(0.11)	(0.10)	(0.10)	(0.10)	(0.11)	(0.11)	(0.10)
Landed interest	0.26	0.26	0.25	0.26	0.26	0.26	0.27	0.26	0.27	0.26
	(0.066)***	(0.065)***	(0.066)***	(0.065)***	(0.065)***	(0.065)***	(0.065)***	(0.064)***	(0.064)***	(0.066)***

Note: Probit estimates. The same controls as in Table 7 are included. Each regression has 466 observations. Marginal effects evaluated at the mean of the explanatory variables. Constant not shown. Standard errors in parentheses are clustered at the county level. Sample restricted to the English MPs who were present in the House of Commons on 22 March 1831. a. defined as the number of protest events (rather than the number of participants) *Peaceful protest* is sum of *Meetings* and *Gatherings*. *Violent unrest* is the sum of *rural violent* and *urban violent*. Controls included are *Whig/radical*, *Local newspapers*, *Emp. Herfindahl index*, *Population density* and *Army career*. When tested down by a general-to-specific algorithm, *petition* is significant at the 1 percent level in col. (9). b. *Net seat gain proposal* is coded from the seat distribution included in the schedules A to G in the draft bill presented in March 1831. *** p<0.01, ** p<0.05, * p<0.1.

A2: Results without London

Being the capital, London, was at the center of public protest and agitation during the period. This motivates studying two samples: one where we consider all the English MPs (the full sample considered in the text) and one where we exclude the MPs elected in the City of London, in Westminster and in the county of Middlesex (which we henceforth refer to as London). Table A3 reproduces Table 6 for the sample without London. We observe that the results are less precisely estimated, but otherwise similar.

Table A3. The effect of different types of violent and peaceful protest on a MP's probability of voting in favor of the reform bill: Probit estimates excluding London.

Dependent Var.	Yes vote								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Violent unrest	0.045								
	(0.18)								
Peaceful protest		0.015							
		(0.0077)*							
Rural violent			-0.19						-0.21
			(0.15)						(0.16)
Urban violent				0.35					0.25
				(0.19)*					(0.23)
Meetings					0.016				
					(0.011)				
Gatherings						0.017			
						(0.0097)*			
Reform agitation							0.023		0.011
							(0.0098)**		(0.012)
Petitions								0.044	0.048
								(0.019)**	(0.020)**
Net seat gain	0.012	0.0074	0.010	0.0091	0.0094	0.0090	0.0097	0.012	0.0084
	(0.0028)***	(0.0040)*	(0.0034)***	(0.0036)**	(0.0037)**	(0.0033)***	(0.0033)***	(0.0029)***	(0.0042)**
Disenfranchised	-0.077	-0.095	-0.075	-0.082	-0.089	-0.086	-0.079	-0.019	-0.016
	(0.088)	(0.091)	(0.087)	(0.091)	(0.091)	(0.088)	(0.088)	(0.092)	(0.097)
Patron controlled	-0.092	-0.095	-0.089	-0.082	-0.087	-0.10	-0.086	-0.071	-0.054
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
Landed interest	0.26	0.27	0.25	0.25	0.26	0.27	0.26	0.26	0.26
	(0.067)***	(0.066)***	(0.067)***	(0.067)***	(0.067)***	(0.067)***	(0.068)***	(0.065)***	(0.066)***
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	458	458	458	458	458	458	458	458	458

Note: The eight MPs from the City of London, Westminster and the county of Middlesex are excluded. Probit estimates. Marginal effects evaluated at the mean of the explanatory variables. Constant not shown. Standard errors in parentheses are clustered at the county level. Sample restricted to the English MPs who were present in the House of Commons on 22 March 1831. *Peaceful protest* is sum of *Meetings* and *Gatherings*. *Violent unrest* is the sum of *rural violent* and *urban violent*. Controls included are *Whig/radical*, *Local newspapers*, *Emp. Herfindahl index*, *Population density* and *Army career*. When tested down by a general-to-specific algorithm, *petition* is significant at the 5 percent level and *reform agitation* is significant at the 5 percent level in col. (9). *** p<0.01, ** p<0.05, * p<0.1.

A3. Additional control variables and MP characteristics

We collected information on the personal characteristics of the English MPs that were elected in July 1830 to the House of Commons. The main source is Fisher, David (ed.), 2009, The History of Parliament: The House of Commons 1820-1832, Cambridge, Cambridge University Press, 2009 and the material from http://www.historyofparliamentonline.org/ (accessed 17 September 2017). The characteristics relate to the MPs' occupation, age, education, and years served in parliament, as well as whether they had taken a Grand Tour, were part of a dynasty that returned MPs generation after generation or had relatives in the current parliament. In the results reported in the main body of the paper, we only include one of these characteristics, *army career*. The reason is that none of the other characteristics can predict the voting behavior, neither individually, in groups or altogether. Table A4 reports representative results. We observe that the effect of the variables of interest (*all protest*) and the variables related to political expedience are not affected by the inclusion or not of the personal characteristics.

We examine the robustness of the results in Table 5, column 3 to the inclusion of additional potentially confounding factors. Some of these variables can be viewed as endogenous to the intensity of public protest which motivates their exclusion from the baseline analysis. The variables pertain to economic and demographic characteristics from the 1831 Population Census, including employment shares (*Agriculture (emp. share)*, *Trade (emp. share)*, and *Professionals (emp. share)*), two indicator variables coded from the contextual information in Philbin (1965), capturing whether the constituency was thriving or declining in 1830 (*Thriving economy* and *Declining economy*), an index of the county-level wealth distribution (*Top wealth*, *high wealth* and *medium wealth*) based on a 1815 property value survey and reported in the 1831 Population Census[1], and two features of the suffrage rules captured by a separate indicator for the university

[1]These data are reported in the 1831 Population Census in the table "Population. Comparative account of the population of Great Britain in the years 1801, 1811, 1821 and 1831 (348)." They were collected for the purpose of

seats (*university*) and an indicator variable indicating whether the suffrage in each borough constituency was narrow or broad (*Narrow franchise*). Table A5 reports the results when we add these variables to our preferred specification from Table 5, column 3. We find that none of these variables is significant. More importantly, including them neither modifies the size and significance of public protests on the MPs' vote nor affects our conclusions regarding political expedience.

levying taxes. While the parish level data may contain measurement error, the county averages are likely to give a fairly accurate estimate of the county differences in average property values. To reduce measurement error, we divide the counties into three groups rather than using the average property values directly.

Table A4: The relationship between personal characteristics and the probability that an MP voted in favor of the reform bill on 22 March 1831: Probit estimates.

Dependent variable	Yes vote			
	(1)	(2)	(3)	(4)
All protest	0.015**	0.015*	0.015**	0.015**
	(0.0072)	(0.0077)	(0.0076)	(0.0071)
Net seat gain	0.0071*	0.0069*	0.0077*	0.0071*
	(0.0040)	(0.0040)	(0.0041)	(0.0038)
Disenfranchised	-0.10	-0.10	-0.11	-0.099
	(0.093)	(0.093)	(0.095)	(0.091)
Patron controlled	-0.10	-0.096	-0.088	-0.10
	(0.10)	(0.10)	(0.11)	(0.10)
Landed interest	0.27***	0.29***	0.29***	0.27***
	(0.071)	(0.066)	(0.070)	(0.065)
Whig/radical	0.84***	0.84***	0.84***	0.84***
	(0.028)	(0.029)	(0.028)	(0.029)
Local newspapers	-0.00015	-0.00015	-0.00018	-0.00020
	(0.00032)	(0.00035)	(0.00032)	(0.00029)
Emp. Herfindahl index	-1.19**	-1.12**	-1.24**	-1.18**
	(0.52)	(0.54)	(0.55)	(0.53)
Population density	-0.029	-0.030	-0.031	-0.026
	(0.041)	(0.039)	(0.038)	(0.039)
Army career	-0.15		-0.18	-0.16*
	(0.094)		(0.11)	(0.087)
Financier	-0.036		-0.011	
	(0.18)		(0.19)	
Industrialist	0.0072		-0.020	
	(0.22)		(0.21)	
Jurist	0.058		0.0014	
	(0.089)		(0.12)	
Merchant	0.015		0.0021	
	(0.15)		(0.15)	
Age (of MP)		0.0013	0.00062	
		(0.0027)	(0.0027)	
Years in Parliament		-0.0040	-0.0039	
		(0.0043)	(0.0041)	
Education		0.13	0.14	
		(0.092)	(0.087)	
Grand tour		0.064	0.034	
		(0.10)	(0.10)	
Dynasty heir		-0.030	-0.087	
		(0.068)	(0.096)	
Relative in parliament		-0.10	-0.059	
		(0.083)	(0.083)	

Note: Probit estimator. N=466. Marginal effects evaluated at the mean. Constant not shown. Standard errors in parentheses are clustered at the county level. Col. (4) tests down using a general-to-specific algorithm, leaving only the significant personal characteristics. *** p<0.01, ** p<0.05, * p<0.1.

Table A5: The effect of public protest on a MP's vote in favor of the reform bill: Probit estimates with extra control variables

Dependent variable	Yes vote				
	(1)	(2)	(3)	(4)	(5)
All protest	0.015	0.016	0.014	0.014	0.014
	(0.0073)**	(0.0072)**	(0.0067)**	(0.0069)**	(0.0069)**
Net seat gain	0.0065	0.0071	0.0064	0.0099	0.0082
	(0.0038)*	(0.0038)*	(0.0043)	(0.0043)**	(0.0050)*
Disenfranchised	-0.097	-0.082	-0.044	-0.096	-0.017
	(0.089)	(0.095)	(0.11)	(0.085)	(0.10)
Patron controlled	-0.089	-0.096	-0.091	-0.10	-0.077
	(0.11)	(0.10)	(0.11)	(0.10)	(0.11)
Landed interest	0.26	0.26	0.33	0.27	0.31
	(0.066)***	(0.063)***	(0.077)***	(0.067)***	(0.086)***
Whig/radical	0.84	0.84	0.84	0.84	0.84
	(0.030)***	(0.029)***	(0.028)***	(0.028)***	(0.028)***
Local newspapers	-0.00016	-0.00022	-0.00024	-0.000095	-0.00014
	(0.00028)	(0.00030)	(0.00026)	(0.00036)	(0.00032)
Emp. Herfindahl index	-1.18	-1.16	-1.10	-1.11	-1.07
	(0.51)**	(0.52)**	(0.51)**	(0.50)**	(0.48)**
Population density	-0.031	-0.027	-0.033	-0.047	-0.057
	(0.039)	(0.040)	(0.043)	(0.041)	(0.047)
Army career	-0.17	-0.16	-0.17	-0.16	-0.17
	(0.085)**	(0.086)*	(0.081)**	(0.086)*	(0.079)**
University constituency	-0.11				-0.017
	(0.21)				(0.10)
Narrow franchise	-0.076				-0.069
	(0.075)				(0.075)
Thriving economy		-0.022			-0.13
		(0.093)			(0.23)
Declining economy		-0.071			-0.064
		(0.084)			(0.075)
Agriculture (emp. share)			0.067		0.016
			(0.52)		(0.52)
Trade (emp. share)			0.37		0.29
			(0.53)		(0.52)
Professionals (emp. share)			1.72		1.82
			(1.61)		(1.51)
Top wealth				-0.072	-0.060
				(0.10)	(0.11)
High wealth				-0.066	-0.041
				(0.11)	(0.13)
Medium wealth				-0.16	-0.14
				(0.11)	(0.11)
Observations	466	466	466	466	466

Note: Probit estimator. Marginal effects evaluated at the mean of the explanatory variables. Standard errors in parentheses are clustered at the county level. Constant not shown. Sample restricted to the English MPs who were present in the House of Commons on 22 March 1831 and voted. *** p<0.01, ** p<0.05, * p<0.1.

A4: Correlation matrix between protest variables and petitions

Table A6 shows the correlation matrix for the variables used to capture violent unrest and public agitation. We see that some of the variables are highly correlated, with correlation coefficients as high as 0.75, but most of them are modestly correlated.

Table A6: Correlation matrix for violent unrest, peaceful protest and petitions

	Rural violence	Urban Violence	Meetings	Gatherings	Reform agitation	Petitions
Rural violence	1					
Urban violence	-0.140**	1				
Meetings	-0.183***	0.757***	1			
Gatherings	-0.119**	0.236***	0.251***	1		
Reform agitation	-0.109*	0.437***	0.436***	0.709***	1	
Petitions	0.064	0.563***	0.413***	0.059	0.148	1

Note: *** p<0.01, ** p<0.05, * p<0.1.

A5. Attendance at the second reading on 22 March 1831

Using the bibliographic information reported by Fisher, David (ed.), 2009, The History of Parliament: The House of Commons 1820-1832, Cambridge, Cambridge University Press, and the material available online at http://www.historyofparliamentonline.org/ (accessed 17 September 2017), we list in Table A7 the four seats which were vacant on 22 March 1831 and report the reasons why the elections of the MPs to these seats were cancelled. Furthermore, as a follow-up to Table 8 where we compute the probability that each MP would have supported reform had they been present, the counterfactual analysis in Table A8 assigns a vote outcome to the absent MPs' by examining the changes in the level of riots and constituencies' characteristics. We find that low levels of protest would have led nearly 60% of the 18 absent MPs to support reform but only extreme levels of protest would have induced all of them to support reform. Finally, in Table A9, we report the remainder of the counterfactual exercise in Table 8 for the *all protest*, *peaceful protest*, *gatherings* and *meetings* variables.

Table A7. Seats without Representation in the House of Commons, 22 March 1831

Borough	County	MP	Affiliation	Occupation	Reason for cancellation
Colchester	Essex	Andrew Spottiswoode	Tory	Merchant	On 21 March 1831, the election committee cancelled his election, arguing that Spottiswoode was disqualified by his patent as King's printer.
Durham City	Durham County	Roger Gresley	Tory	Landowner	On 8 March 1831, the election of Gresley (but not of Michael Angelo Taylor, the other MP for Durham City) was cancelled because of bribery and intimidation. While Gresley reentered the House of Commons on 19 March 1831 for New Romney, the new MP for Durham City, William Richard Carter Chaytor, only entered Parliament on 23 March 1831.
Evesham	Worcestershire	Charles Cockerell Archibald Kennedy	Tory Tory	Landowner Merchant	On 13 December 1830, the election committee cancelled the elections of Charles Cokerell and Archibald Kennedy who were found guilty of bribery. No new election took place until the dissolution of April 1831.

Source: Fisher, David (ed.), 2009, The History of Parliament: The House of Commons 1820-1832, Cambridge, Cambridge University Press.

Table A8. Absent MPs' vote: A counterfactual analysis

		All protest	Peaceful protest	Urban violent	Meetings
Predicted Reform Supporters Among Absent MPs		59.98%	59.94%	89.22%	82.47%
Percentile of Variable in Overall Sample		78th	78th	75th	76th
Distribution of events (percentile)	1st	59.15%	59.40%	88.74%	81.55%
	10th	59.98%	59.55%	88.85%	81.74%
	25th	60.43%	59.96%	89.08%	82.42%
	50th	63.07%	63.35%	89.71%	85.81%
	75th	82.33%	83.16%	100%	98.92%
	90th	100%	100%	100%	100%
	99th	100%	100%	100%	100%

		Gatherings	Reform Agitation	Petitions	Net seat gain	Landed interest
Predicted Reform Supporters Among Absent MPs		67.30%	85.08%	100%	100%	94.22%
Percentile of Variable in Overall Sample		84th	86rd	94th	29th	81th
Distribution of events (percentile)	1st	67.30%	84.25%	76.50%	14.59%	94.22%
	10th	67.30%	84.27%	100%	35.74%	94.22%
	25th	67.33%	84.30%	100%	65.22%	94.22%
	50th	67.44%	87.17%	100%	100%	94.22%
	75th	69.54%	90.18%	100%	100%	94.22%
	90th	100%	94.02%	100%	100%	94.22%
	99th	100%	100%	100%	100%	94.22%

Note: This table provides a counterfactual analysis for the vote of absent MPs on 22 March 1831. For each variable of protest and constituency characteristics, we report three sets of results. First, we report the predicted percentage that the 18 absent MPs would have supported reform based on their observable characteristics. Second, we report where the average value of each variable in the sample of 18 MPs is located in the overall distribution of each variable. Third, we determine its value at the 1st, 10th, 25th, 50th, 75th, 90th and 99th percentile of the distribution, rerun the relevant regression and compute the predicted probability that the 18 absent MPs would have supported reform.

Table A9. Counterfactual analysis of the levels of protest and constituencies' characteristics on the MPs' votes

	All protest		Peaceful protest		Gatherings		Meetings	
Distribution of events	Predicted Reform Support	Predicted Reform Support of English MPs	Predicted Reform Support	Predicted Reform Support of English MPs	Predicted Reform Support	Predicted Reform Support of English MPs	Predicted Reform Support	Predicted Reform Support of English MPs
1st	46.75%	218	46.84%	218	47.61%	222	47.64%	222
	[0.015]	{204;232}	[0.015]	{205;232}	[0.013]	{210;234}	[0.016]	{208;236}
10th	46.84%	218	46.86%	218	47.61%	222	47.66%	222
	[0.015]	{205;232}	[0.015]	{205;232}	[0.013]	{210;234}	[0.016]	{208;236}
25th	46.88%	218	46.90%	219	47.62%	222	47.71%	222
	[0.015]	{205;232}	[0.015]	{205;232}	[0.013]	{210;234}	[0.016]	{208;237}
50th	47.15%	220	47.24%	220	47.63%	222	47.99%	224
	[0.014]	{207;233}	[0.014]	{207;233}	[0.013]	{210;234}	[0.015]	{210;237}
75th	48.89%	228	49.02%	228	47.82%	223	49.00%	228
	[0.013]	{216;239}	[0.013]	{217;240}	[0.014]	{211;235}	[0.014]	{216;241}
90th	52.41%	244	52.64%	245	51.91%	242	51.16%	238
	[0.023]	{223;265}	[0.024]	{223;268}	[0.025]	{219;265}	[0.016]	{224;253}
99th	63.80%	297	64.08%	299	63.17%	294	62.14%	290
	[0.084]	{221;374}	[0.088]	{218;379}	[0.098]	{205;384}	[0.071]	{225;354}

Note: This table reports results for a counterfactual analysis where we use the results column 3 of Table 6 and in columns 2, 5 and 6 of Table 7: *all protest*, *peaceful protest*, *meetings*, and *gatherings*. For each variable, we determine its value at the 1st, 10th, 25th, 50th, 75th, 90th and 99th percentile of the distribution, and using the relevant regression we report the predicted probability that the 466 MPs would have voted for reform (with 95 percent confidence intervals in curly brackets). Standard errors for the predicted values are reported in square brackets.

A6. Overall protests and the support for reform: An IV approach

In this section, we report instrumental variables results that help bolster the causal interpretation of the effect of public protest on the MP's vote. For this purpose, we need an instrumental variable that, on the one hand, explains the geographic pattern of protest and, on the other hand, influences the MPs' vote decisions only through its effect on public protest. We conjecture that public protest is influenced by population pressure in an area, which is, conditional on the party affiliation of the MPs and the other control variables, not a factor in the MPs' vote decisions. Specifically, as an instrument for protest in county *c*, we propose the variable *population pressure*$_{1811\text{-}1831,c}$. It is defined as the interaction between the average population growth rate between 1811 and 1831 and population density in county *c* in 1811. We then estimate an IV-probit model with a maximum likelihood estimator which jointly estimate the parameters of equation (1) from the main body of the text and the parameters of the equation capturing the relationship between the endogenous variable (*all protest*) and the instrument:

$$(all\ protest)_c = \gamma_0 + \gamma_1 population pressure_{1811-1831,c} + X_{k,d,c}\gamma_2 + u_c \qquad \text{(IV)}$$

where u_c is an error term which is normally distributed. The other variables are defined in equation 1 in the main body of the text.

Table A10 reports three sets of the IV-Probit estimate of equations (1) and (IV). For each set, we report the estimate of γ_1 from equation (IV) and the estimate of the coefficient on *all protest* from equation 1. Columns 1 and 2 show the results for *all protest* defined as the total number of participants, columns 3 and 4 show the results for *all protest* defined as the total number of participants per capita, and columns 5 and 6 show the results for *all protest* defined as the total number of protest events. We observe that *population pressure*$_{1811\text{-}1831,c}$ has a positive

and significant impact on the scale of protests in all cases.[2] The IV estimate of the coefficient on *all protest* (# participants) is positive but imprecisely estimated with a p-value of 0.14, while the coefficients on *all protest* (# participants per capita) and *all protest* (# events) are significant at the ten percent level, but about seven times larger than the corresponding estimate obtained from the regular Probit regression reported at the bottom of the table. The Wald test also reported at the bottom of Table A10 does not reject the null hypothesis of no endogeneity. The regular Probit regression may, therefore, be appropriate.

[2] Since we only have one instrument, we cannot investigate the *violent unrest* and *peaceful protest* separately.

Table A10: Effect of protest on the probability that a MP voted in favor of the reform bill on 22 March 1831: IV-probit estimates.

Dependent variable	Yes vote (1)	All Protest (2)	Yes vote (3)	All Protest (4)	Yes vote (5)	All Protest (6)
All protest (#participants)	0.042 [0.029]					
All protest (#participants/cap)			3.07 [1.72]*			
All protest (#events)					0.50 [0.30]*	
Population pressure 1811-31		0.12 [0.008]***		0.002 [0.0003]***		0.01 [0.002]***
Wald test for exogeneity		0.90		0.32		0.30
Probit estimate	0.015		0.47		0.072	
Observations	466	466	466	466	466	466

Note: IV-Probit maximum likelihood estimator. Marginal effects evaluated at the mean of the explanatory variables. Constant and control variables (which are the same as in Table 6, column 3) not shown. Standard errors in parentheses. Sample restricted to the English MPs who were present in the House of Commons on 22 March 1831 and voted. The instrument is population pressure 1811-1831 in the county defined as the average population growth rate between 1811 and 1831 times population density in 1811.*** p<0.01, ** p<0.05, * p<0.1.

A7. Descriptive statistics

Table A11: Descriptive statistics for the (new) variables used in Tables A1, A2 and A5.

	Obs.	Mean	Std. Dev.	Min.	Max.
		County-Level Variation			
Public protest					
All protest (# events)	489	0.78	1.13	0.0100	9.05
Violent unrest (# events)	489	0.19	0.24	0	1.99
Peaceful protest (# events)	489	0.60	0.92	0.0100	7.06
Rural violent (# events)	489	0.094	0.14	0	0.43
Urban violent (# events)	489	0.092	0.22	0	1.99
Meetings (# events)	489	0.52	0.81	0.0100	6.19
Gatherings (# events)	489	0.077	0.12	0	0.87
Reform agitation (# events)	489	0.12	0.13	0	0.95
All protest (# participants per capita)	489	0.082	0.19	0.0002	1.93
All protest (# participants per adult male)	489	0.33	0.68	0.0007	6.64
Demographic and economic controls					
Top wealth	489	0.19	0.40	0	1
High wealth	489	0.24	0.43	0	1
Medium wealth	489	0.25	0.43	0	1
		Constituency-Level Variation			
Institutional controls					
University constituency	489	0.0082	0.090	0	1
Narrow franchise	489	0.24	0.43	0	1
Expected consequences of reform					
Net seat gain (%)	489	-3.68	43.4	-66.7	150
Net seat gain proposal	489	-5.91	9.48	-31	6
Demographic and economic controls					
Local newspapers per capita	489	4.71	24.2	0	245
Thriving economy	489	0.18	0.38	0	1
Declining economy	489	0.21	0.41	0	1
Agriculture (emp. share)	489	0.19	0.18	0	1
Trade (emp. share)	489	0.37	0.13	0	0.87
Professionals (emp. share)	489	0.055	0.027	0	0.14

Note: The sample is restricted to the 489 English seats. The protest variables related to the number of events is recorded in 100s.

Table A12: Summary statistics for the (English) MPs' personal characteristics used in Table A4 and Table 10.

	N	Mean	sd	min	max
Army career	466	0.18	0.39	0	1
Financier	466	0.055	0.23	0	1
Industrialist	466	0.051	0.22	0	1
Jurist	466	0.13	0.33	0	1
Merchant	466	0.090	0.29	0	1
Age of MP	466	44.8	13.0	21	79
Years in Parliament	466	11.2	10.5	1	51
Education	466	0.73	0.44	0	1
Grand tour	466	0.077	0.27	0	1
Dynasty heir	466	0.42	0.49	0	1
Relative in parliament	466	0.61	0.49	0	1
Landowner	466	0.45	0.50	0	1

Note: Education is equal to 1 if the MP has at least secondary education. The sample is restricted to the 466 English MPs who voted on the bill.

Table A13: Descriptive statistics for the constituency sample used in Table 11.

	Obs.	Mean	Std. Dev.	Min.	Max.
		County-Level Variation			
Public protest participation					
All protest (10000s)	244	1.52	3.05	0	15.8
Violent unrest (10000s)	244	0.094	0.20	0	0.94
Peaceful protest (10000s)	244	1.42	2.93	0	14.9
Petitions	244	1.36	2.31	-2	27
Expected consequences of reform					
Net seat gain	244	-4.01	9.52	-28	12
Institutional controls					
Local newspapers	244	15.3	59.6	0	303
		Constituency-Level Variation			
Political controls					
Whig share in 1830	244	42.9	37.9	0	100
Whig share in 1826	244	39.2	39.4	0	100
Expected consequences of reform					
Disenfranchised	244	0.23	0.42	0	1
Landed interest	244	0.17	0.37	0	1
Patron controlled	244	0.77	0.42	0	1
Demographic and economic controls					
Emp. Herfindahl index (1831)	244	0.76	0.073	0.24	0.86
Population density (1831)	244	5.56	0.84	3.92	9.79

Note: The sample is restricted to the 244 English constituencies.

Table A14: Descriptive statistics for the new variables used in Table 12 and Table A10.

	Obs.	Mean	Std. Dev.	Min.	Max.
		Seat-Level Variation			
Support for parliamentary reform					
Yes vote, 1810	487	0.18	0.38	0	1
Yes vote, 1822	487	0.29	0.46	0	1
Members of Parliament					
Whig/radical 1810	486	0.34	0.47	0	1
Whig/radical 1822	487	0.41	0.49	0	1
		County-Level Variation			
Expected consequences of reform					
Net seat gain	489	-4.01	9.51	-28	12
Institutional controls					
Local newspapers	489	16.6	62.3	0	303
Instrumental variable					
Population pressure 1811-31	489	93.9	27.2	38.4	160.0
		Constituency-Level Variation			
Expected consequences of reform					
Disenfranchised	489	0.23	0.42	0	1
Landed interest	489	0.17	0.37	0	1
Political controls					
Uncontested elections, 1810	489	0.28	0.45	0	1
Uncontested elections, 1822	489	0.28	0.45	0	1
Demographic and economic controls					
Emp. Herfindahl index, 1811	489	0.50	0.13	0.053	0.67
Emp. Herfindahl index, 1821	489	0.51	0.13	0.065	0.66
Population density, 1811	489	5.73	1.34	2.25	15.0
Population density, 1821	489	5.70	0.94	2.85	9.84

Note: The sample is restricted to the 489 English seats.

A8. Estimating newspaper circulation

To obtain newspaper circulation numbers, we rely on information from two returns to the House of Commons in 1833 regarding the stamp duties paid by each newspaper published in London and in the English provinces (House of Commons, 1833a, 1833b). Each (newspaper) page published required a stamp so that these figures can be converted into an estimate of the newspapers' circulation. We follow Wadsworth (1955) and use the following conversion factors: for weekly newspapers, 50000 stamps per year correspond to 1000 copies sold by weekly newspapers each week; 3.2 million stamps per year correspond to 10000 copies sold by daily newspapers each day. We convert the thrice and twice dailies into dailies and use the conversion factor for the dailies to estimate the number of copies per day. The weekly circulation numbers are converted into yearly figures by assuming 52 weeks per year and the daily circulation numbers are converted into yearly numbers by assuming 52 six-day weeks. Outside London, all 130 local or regional newspapers were weeklies; in London there were 12 dailies (with The Times being by far the largest), seven newspapers published three times a week, one twice a week and 37 weeklies. To make London comparable to the provinces, we estimate circulation numbers as the total number of papers published in a year.

A9. Historical Evidence

The results of the statistical analysis support the *Political Expedience* and *Public Opinion Hypotheses* while the *Threat of Revolution Hypothesis* receives less of a strong support. As a complement to this, we consider, in this section, historical evidence on the importance of threat of revolution, reform related agitation, lobbying and mass-mobilization, and political expedience as perceived by the participants themselves and contemporaneous observers. For this purpose, we draw on the transcripts of the debates in the House of Commons and the House of Lords, Newspaper reports and private letters, along with secondary sources.

A9.1. The threat of revolution

The Whig school of Victorian historians (e.g., McCarthy 1852; Trevelyan, 1920) emphasize that in 1830-1832, Britain was on the brink of a revolution that was only avoided by the timely concessions made by the ruling oligarchy (Trevelyan 1937, pp. 635-36). Historians of the British working class, such as Cole (1927), Cole and Postgate (1961) and Thompson (1963), also emphasize revolutionary threats and the possibility of an alliance between urban workers and the middle class as the cause of the reform. It is certainly true that many of the elements of a revolution were present in the early 1830s: a major rural uprising (the Swing riots), an emerging urban working class, a disgruntled middle class unhappy with the unreformed political system, vocal Radical leaders, a network of political unions that could mobilize thousands of reform supporters to their meetings, and the newspapers reported with direct reference to the July revolution in France that tricolor flags were paraded at demonstrations in London. It is also true that there were rumors of an uprising if the bill failed; and the fact that the authorities hastily filled the Tower of London's moat with water to forestall an attack and ringed London with 7000 troops and stationed 2000 New Police in Westminster in the autumn of 1830 suggests that the threat was considered real (Tilly, 1995, pp. 287-88). In

a private letter to the MP Joseph Hume, Chartist leader Francis Place warned that "there must be a radical change, not a sham reform ….. if all concessions be refused, the people will become outraged and no one can tell what may follow." It is also clear from the transcripts of the seven days of debate that preceded the roll call vote on 22 March 1831 that many MPs saw the reform as a necessary means to avoid a revolution. John Russell who had presented the bill on March 1st, 1831, had the opportunity to make the last substantive remarks on 22 March 1831. He used the example of the revolution in France in July 1830 to suggest that it could have been prevented by concessions to the people and that reform in Britain was now required to avoid a revolution. Similar views were expressed in the debate in the House of Lords in November 1830 when Prime Minister Charles Grey first announced that he intended to seek reform. The Earl of Radnor said "that Parliamentary Reform was not merely expedient, but the only measure which could ensure the salvation of the country" (Hansard HL Deb 22 November 1830, vol. 1, c604); a view also expressed by Grey himself in his speech to the House of Lords. This suggests the possibility that some MP were, in fact, influenced by fear of a revolution or at least were willing to use the threat of a revolution as an argument in the debate.

A9.2. Public Opinion

The many meetings and demonstrations organized by reform supporters around the country in 1830-31 were brought to the attention of the MPs and other members of the reading public through reports in local and national newspapers. For example, on 8 March 1831, one could read in the Times and in the Manchester Guardian that a meeting in Manchester gathered 3,000 participants in support of the reform bill. It is clear from the debate in the House of Commons that such meetings made an impression on the MPs and "public support" was used as one argument for the reform. The Whig MP Thomas Denman, for example, appealed to "a great meeting in the county of Nottingham where almost every respectable gentleman attended and where the resolution had been unanimously in favor of the measure [reform]" in his defense

of the reform on 22 March 1831 (Hansard HC Deb 22 March 1831, vol. 3, c719). Likewise, the Tory MP Robert Palmer voted in favor of the reform in deference to his Berkshire constituents' strong support for the bill. He admitted in his contribution to the debates that his own had been the only dissentient voice at a meeting in his constituency and he reiterated that the bill went further than he could personally endorse (Fisher 2009). Of course, not all MPs were convinced by such agitation, but it is clear that the MPs were aware of it and sometimes participated in reform meetings themselves. Petitions also came to the attention of the MPs and of the Lords, and they were frequently mentioned both by supporters and opponents of reform. Many opponents, seeing themselves as "trustees" rather than as "delegates" (see below in sub-section A9.3), went to great length explaining why they would vote against the bill despite the wishes of their voters. Tilly (1995, p. 239) describes this process of agitation as the "parliamentarization of contention". Taken together, this suggests that the MPs might have been influenced by agitation, petitions and by mass mobilization in favor of reform in the areas where they were elected bolstering our interpretation of the statistical results.

A9.3. Political expedience

Many MPs viewed themselves as "trustees" rather than as "delegates" representing the interest of their constituents (Schonhardt-Bailey 2006, Ch. 1). The view of a MP as a "trustee" was held particularly strongly by many Tory MPs who saw it as their role to act as they deemed to be in the national or wider public interest and to follow their ideological pre-disposition rather than the demands of their constituents or broader special interests.[3] The support for a

[3] It should be made clear that the MP as a "trustee" was not an invention of Tories in the last years of the Unreformed Parliament to defend the political status quo. Edmund Burke, a leading Whig intellectual, had written in 1770 that "[i]t is the business of the speculative philosopher to mark the proper ends of Government. It is the business of the politician, who is the philosopher in action, to find out proper means towards those ends, and to employ them with effect" (Burke, 1770). Acting in accordance with his views, Burke neglected the interests of

limited, property based suffrage and redistribution of seats from the "rotten" boroughs to the industrial towns and cities amongst the Whig elite reflected a belief that this was a necessary condition for a stable society that they would naturally govern (Mitchell 2005). The Tory opposition was based on the idea of the "territorial constitution" which centers on landownership and which gives owners of real property the right to govern, not only to protect their fixed assets, but also to ensure as trustees that all interests of society are considered (Gash 1951). One example of this is the defense of the unreformed system that Philip Henry Stanhope, Viscount Mahon, who represented the "rotten" borough of Wootton Basset, articulated during the debate in the House of Commons on 22 March 1831. He stressed how the nomination constituencies of Gatton and Old Sarum served the useful purpose of counterpoising the effect of more popular representation elsewhere and thus ensured the "blending of several interests in forming a perfect whole" (Hansard HC Deb 22 March 1831, vol. 3, c719). However, in the same way that the Whig support for reform can be seen as an attempt to gain party political advantage, there was clearly a personal motive underlying such a principled stance against reform: the prospective loss of a seat. The fact that many other speakers in the debate went to great length to stress their role as trustees and that they opposed the reform bill out of principle and not because they would personally be affected suggests that, at the very least, there was a suspicion that personal expedience played a role in the way the MPs voted.

the voters who had returned him in the contested constituency of Bristol in 1774 and was defeated in the following election in 1780.

A10. Definitions and sources

Support for parliamentary reform

Yes vote (Second Reading of Great Reform Act) is a dummy variable equal to one if a MP, who took part in the second reading of the Great Reform Act on 22 March 1831, voted in favour of the reform bill and equal to zero otherwise. Source: Hansard (1831, vol. 2, pp. 719-826).

Present is a dummy variable equal to one if the MP was present in the House of Commons on March 22 1831 for the vote and zero if not. Source: Hansard (1831, vol. 2, pp. 719-826).

Yes vote, 1810 is a dummy variable equal to one if a MP, who took part in the vote on the reform bill put forward by Thomas Brand on 21 May 1810 (1807 Parliament), voted in favour of the bill and equal to zero otherwise. Source: Hansard, House of Commons (1810, vol. 15).

Yes vote, 1822 is a dummy variable equal to one if a MP, who took part in the vote of on the reform bill put forward by Lord John Russell on 25 April 1822 (1820 Parliament), voted in favour of the reform bill and equal to zero otherwise. Source: Hansard, House of Commons (1822, vol. 7).

Members of Parliament

Whig/Radical YEAR with YEAR $\in$ 1810, 1822, and 1830 is a dummy variable equal to one if a MP belonged to the Whig or Radical faction in Parliament and zero otherwise in the relevant year. It is not a straightforward task to determine the political affiliation of the MPs. The Tory and Whig groups were relatively loose organizations and some MPs changed their allegiance over their political careers. To construct a complete record of the political affiliations of all the English MPs elected in 1830, we started with the information given in Hansard (1831, vol. 2, pp. 719-826) and evaluated and compared the bibliographical information provided by Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009). Disagreement amongst the sources was, typically, due to the fact that a MP had changed affiliation over his career. In these cases, we resolved the disagreement by associating

the MP with his party affiliation as of 1830. For the MPs selected for the 1810 and 1822 parliament, we followed a similar procedure, except that the Hansard could not be used as a starting point because no party affiliation was reported in relation to the failed reform bills in 1810 and 1822. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Age of MP codes the age of each MP as of March 1831. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Army career is a dummy variable equal to one if a MP was a career soldier and zero otherwise. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Dynasty heir is a dummy variable equal to one if a MP was returned to a seat when coming of age and without any other occupation. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Financier is a dummy variable equal to one if a MP was a banker or working in the financial sector and zero otherwise. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Industrialist is a dummy variable equal to one if a MP was an industrialist and zero otherwise. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Jurist is a dummy variable equal to one if a MP was a lawyer or had a legal profession (e.g., being a judge) and zero otherwise. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Merchant is a dummy variable equal to one if a MP was a merchant and zero otherwise. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Relative in parliament is a dummy variable equal to one if a MP had a relative in Parliament. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Education is a dummy variable equal to one if the MP attended secondary schooling and/or university. Source: Fisher (2009).

Grand tour is a dummy variable equal to one if the MP took a Grand Tour in Continental Europe in his early 20s. Source: Fisher (2009).

Years in Parliament is the number of years that a MP sat in Parliament (with or without interruptions) prior to 1831. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Landowner is a dummy variable equal to one if the MP was a significant landowner. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Whig share in YEAR with YEAR $\in$ 1826, 1830 is the percentage share of seats in a constituency won by either Whig or Radical candidates in YEAR election. Source: Thorne (1986) and Fisher (2009).

Protest

All protest is the estimated number of participants in all types of protest in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Violent unrest is the estimated number of participants in violent unrest in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Peaceful protest is the number of participants in peaceful protest in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Rural violent is the estimated number of participants in rural violent unrest in England and Wales between 1 January 1828 and 22 March 1831, by county. Rural violent unrest is approximated by the Swing riots. Source Horn and Tilly (1988).

Urban violent is the estimated number of participants in urban violent unrest in England and Wales between 1 January 1828 and 22 March 1831, by county. Urban violent unrest is calculated as the difference between *violent unrest* and *rural violent*. Source Horn and Tilly (1988).

Meetings is the number of estimated participants in meetings and delegations in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Gatherings is the estimated number of participants in gatherings (unannounced meetings and demonstrations) in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Reform agitation is the estimated number of participants in reform related agitation (meetings and gatherings) in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

All protest (#event) is the number of all types of protest events in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Violent unrest (#event) is the number violent unrest events in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Peaceful protest (#event) is the number of peaceful protest events in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Rural violent (#event) is the number of rural violent unrest events in England and Wales between 1 January 1828 and 22 March 1831, by county. Rural violent unrest is approximated by the Swing riots. Source Horn and Tilly (1988).

Urban violent (#event) is the number of urban violent unrest events in England and Wales between 1 January 1828 and 22 March 1831, by county. Urban violent unrest is calculated as the difference between violent unrest and rural violent. Source Horn and Tilly (1988).

Meetings (#event) is the number of meetings and delegations in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Gatherings (#event) is the number of gatherings (unannounced meetings and demonstrations) in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Reform agitation (#event) is the number of reform related agitation (meetings and gatherings) events in England and Wales between 1 January 1828 and 22 March 1831, by county. Source Horn and Tilly (1988).

Petitions is the difference between the number of petitions for and against parliamentary reform received by the House of Commons between 1 January 1828 and 22 March 1831 originating from each constituency. The data were constructed by word searches for the name of each constituency in the list of petitions related to parliamentary reform. Source: Journal of the House of Commons (1828-1831, vol. 83-86).

Expected consequences of reform

Net seat gain reports the difference between the number of seats allocated to each county and to the borough constituencies located within its borders by the reform (based on the final seat allocation) and the number of seats in the Unreformed Parliament. Source: Philbin (1965).

Net seat gain proposal reports the difference between the number of seats allocated to each county and to the borough constituencies located within its borders by the reform (using the proposed seat allocation) and the number of seats in the Unreformed Parliament. This variable is used in Table A2. Source *The statutes of the United Kingdom of Great Britain and Ireland (1832, pp. 154–206).*

Disenfranchised is a dummy variable equal to one if the constituency that a MP represented was scheduled in the bill to lose all seats and zero otherwise. Source: *The statutes of the United Kingdom of Great Britain and Ireland (1832, pp. 154–206).*

Patron controlled is a dummy variable equal to one if the constituency was under full or partial control of a local patron or by the Treasure or if no contested election had taken place since 1802, and zero otherwise. Source: Philbin (1965), Cannon (1973) and Fisher (2009).

Landed interest is a dummy variable equal to one if a MP was elected to a county seat and zero if he was elected to either a borough or to one of the university seats. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Institutional controls

Local newspapers is an estimate of the number of newspapers circulated in each county in 1831. See Appendix A8 for how this is calculated. Source: House of Commons (1833a, 1833b).

University constituency is a dummy variable that is equal to one for the two university constituencies. The universities of Cambridge and Oxford had the right to return two MPs each. The electors were the graduates of the two universities. Source: Dod and Dod (1832), Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and Fisher (2009).

Narrow franchise is a dummy variable that is equal to one for borough constituencies with either a burgage or a corporation franchise and to zero otherwise. Under the Unreformed Parliament there were six different types of parliamentary franchises in operation for the borough constituencies: scot and lot, potwalloper, freeman, freeholder, burgage, and corporation franchises. The burgage and corporation boroughs had very narrow franchises, which often limited the number of voters to less than 50. In the burgage boroughs, only the owners of a property with an old form of tenure, called the burgage, could vote. These were

often limited to plots of land that had formed the borough when it was first laid out and could be owned by a single person. In the corporation boroughs, only members of the local town council, called the corporation, could vote. In other boroughs with scot and lot, potwalloper, or freeman franchises, the electorate tended to be more sizable but rarely included more than 1000 voters, except in the largest towns such as London, Westminster and Bristol. Source: Philbin (1965) and Brock (1973, Table 2).

Uncontested elections YEAR with YEAR 1810, 1822, is equal to one for a constituency if none of the eight previous elections excluding the current one was contested, and zero otherwise. Source: Cannon (1973, Appendix III).

Demographic, economic and spatial controls

Emp. Herfindahl index is the sum of the square of the share of individuals in each Census registration district working in agriculture, in trade as professionals and in other occupational categories. Each constituency is matched to the Census registration district that is the closest geographical unit and is coded for 1811, 1821 and 1831. Source: Census of Great Britain (1811, 1821, 1831).

Population density is the number of inhabitants per inhabited house in the constituency and is coded for 1811, 1821 and 1831. Source: Census of Great Britain (1811, 1821, 1831).

Top wealth is a dummy variable equal to one if the county belongs to the fourth and highest quartile of the county level wealth distribution. Source: Census of Great Britain (1831) "Population. Comparative account of the population of Great Britain in the years 1801, 1811, 1821 and 1831" pp. 348ff."

High wealth is a dummy variable equal to one if the county belongs to the third quartile of the county level wealth distribution. Census of Great Britain (1831) "Population. Comparative account of the population of Great Britain in the years 1801, 1811, 1821 and 1831" pp. 348ff."

Medium wealth is a dummy variable equal to one if the county belongs to the third quartile of the county level wealth distribution. Source: Census of Great Britain (1831) "Population. Comparative account of the population of Great Britain in the years 1801, 1811, 1821 and 1831" pp. 348ff."

Thriving economy is a dummy variable that is equal to one if Philbin (1965) singles out the constituency as being prosperous around 1830, and zero otherwise. Source: Philbin (1965).

Declining economy is a dummy variable that is equal to one if Philbin (1965) singles out the constituency as being in decline around 1830, and zero otherwise. Source: Philbin (1965).

Agriculture (emp. share) is the number of tenant farmers and large landowners employing agricultural laborers, tenant farmers not employing agricultural laborers, and agricultural laborers as a proportion of the workforce in each Census registration district. Each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1831.

Trade (emp. share) is the number of persons listed working in industry, trade or as artisans as a proportion of the workforce in each Census registration district. Each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1831.

Professionals (emp. share) is the number of professionals (lawyer, doctors, and so on) as a proportion of the workforce in each Census registration district. Each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1831

Distance to London (inverse) is the inverse of the travel time distance from each constituency to London measured in units of travel days (assuming that a person can travel 30 kilometers per day). Source: Aidt and Franck (2015).

Instrumental variable

Population pressure 1811-31 is the average population growth rate between 1811 and 1831 in each county times population density in 1811. Source: Census of Great Britain 1811, 1821 and 1831.

Figure A1: Gatherings and Meetings in English and Welsh counties by number of participants, 1 January 1828 - 22 March 1831.

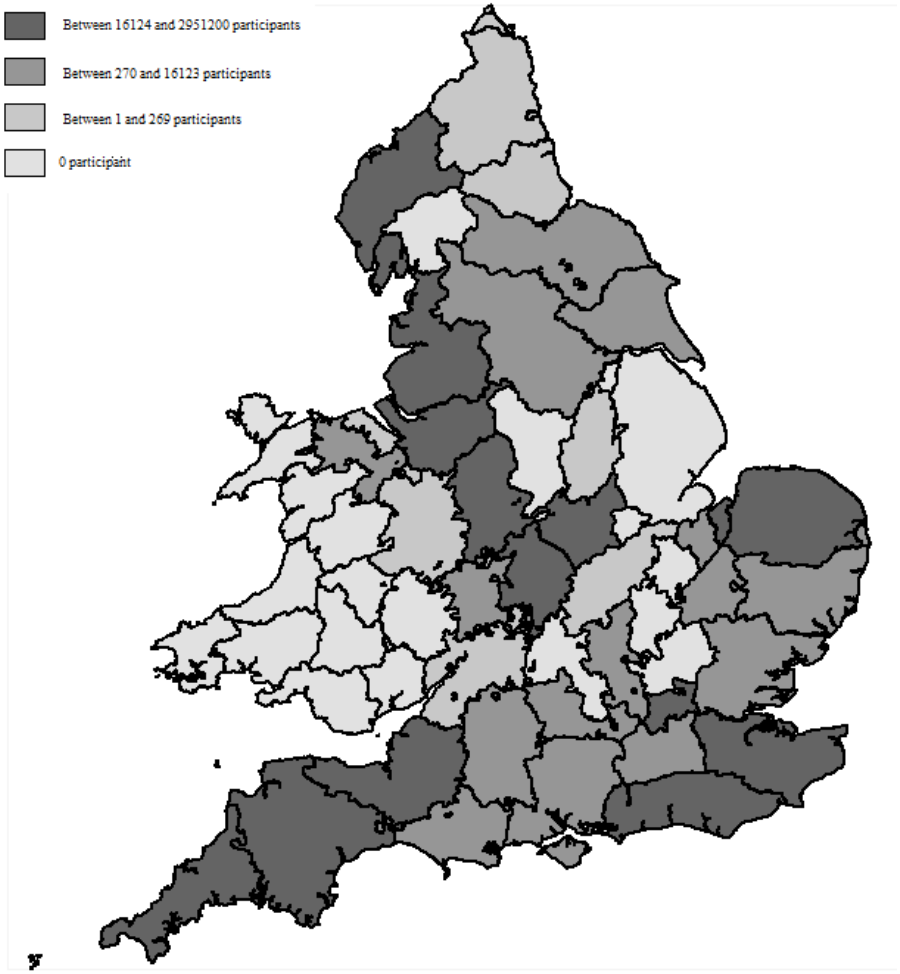

Figure A1a. Meetings

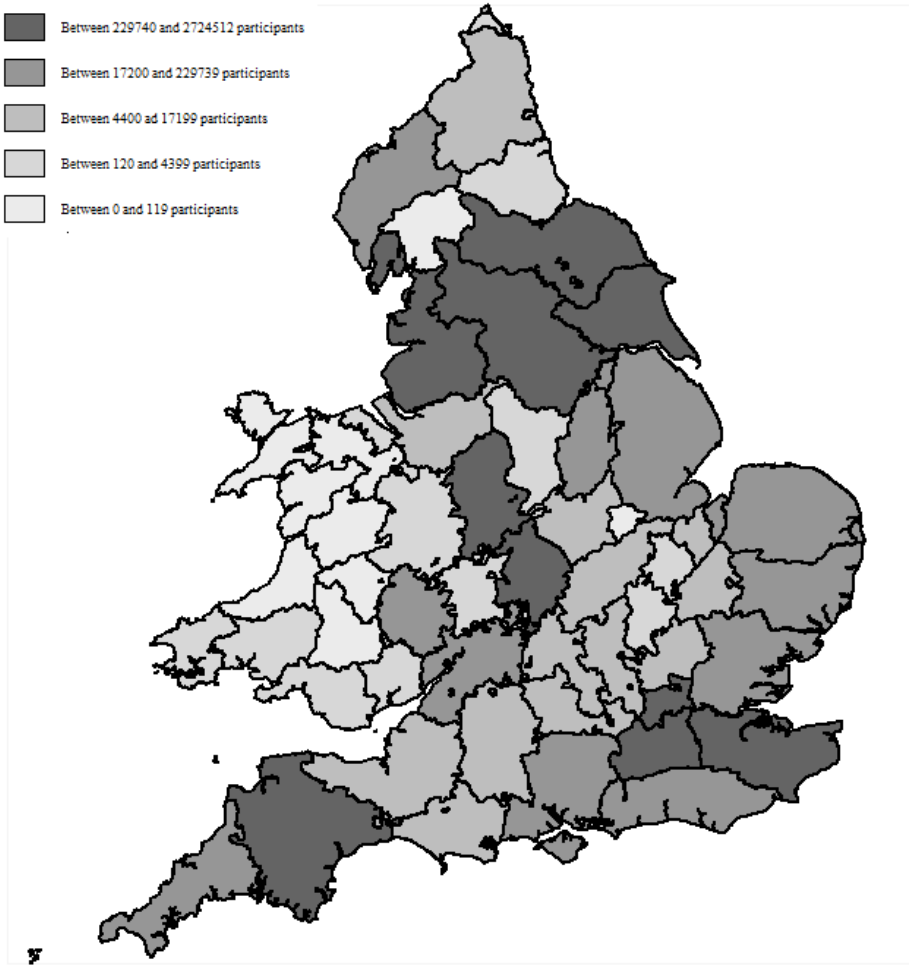

Figure A1b. Gatherings

Source: Horn and Tilly (1988).

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