Online Appendix to "The Political Economy of Suffrage Reform: The Great Reform Act of 1832"

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Appendix Contents

A **The Whig Reform Agenda in England and Wales** ..... page 2
B **Riots and Reform in the Newspaper Corpus** ..... page 5
C **Repression of Riots** ..... page 6
D **Borough Police Expenditures** ..... page 7
E **Perceptions of Threat** ..... page 15
F **Riots and Reform Petitions** ..... page 22
G **Riots and Election Outcomes (1830-1835)** ..... page 22

A The Whig Reform Agenda in England and Wales

National reforms

Table A1, Panel A, lists the Whigs' proposals to reform national institutions. Their first major reform, the Civil List Act 1831 (1 Wm IV, c. 25), required all expenses of the civilian government to be subject to parliamentary scrutiny, appropriation and audit. Soon thereafter, the Whigs introduced their proposal to reform parliamentary elections. After their budgetary and electoral reforms, the Whigs sought two major reforms: the creation a national police force, and a New Poor Law.

Table A1: The Whig reform agenda in England and Wales

	Reforms Constraining the Crown		Reforms Relevant to the Masses	
Act of Parliament (or Proposal)	Budget	Suffrage	Police	Poor Law
A. Reforms of national institutions				
Civil List Act, 1831	✓			
Great Reform Act, 1832		✓		
Parliamentary Boundaries Act, 1832		✓		
Melbourne's proposal on national police, 1832			✓	
New Poor Law Amendment Act, 1834				✓
B. Reforms of municipal institutions				
Lighting and Watching Act, 1833	✓	✓	✓	
Municipal Corporations Act, 1835	✓	✓	✓	
C. Reforms of county institutions				
County Rates Act, 1834	✓			
A bill to establish councils for the management of county rates in England and Wales, 1837-8	✓	✓	✓	
County Police Act, 1839	✓		✓	

Notes: The table lists the major proposals promoted by the Whigs to reform national, municipal and county institutions in England and Wales. The Whigs promoted similar reforms in Scotland (e.g., the Burgh Police (Scotland) Act of 1833) and at other levels of local government in England and Wales (e.g., Hobhouse's Vestries Act of 1831).

Municipal reforms

At the municipal level, the Whigs also faced unconstrained executive power, in the form of the unreformed municipal corporations. To constrain executive power at the town level, the Whigs packaged budgetary, suffrage and police reforms in single, omnibus bills for English and Welsh unincorporated towns (The Lighting and Watching Act of 1833), Scottish burghs (The Burgh Police Act of 1833), and English and Welsh incorporated towns (The Municipal Corporations Act of 1835) (see Panel B of Table 1). The last act reformed 178 English and Welsh boroughs, requiring that (1) the borough's taxpayers elect the town council; (2) the town council approve an annual and auditable budget; and (3) the town council establish, pay, and regulate a constabulary force. Lord John Russell judged that the budgetary provisions were "the most important part, no doubt" of the bill. Yet, they attracted little discussion and no amendments. Similarly, the "very important" police provisions were not controversial (H C Debates xxviii, p. 554). Given the security afforded by the budgetary and electoral reforms, "Country" MPs who previously "would not tolerate even the idea of a police force" supervised by Crown ministers (Hay 1975, p. 18) now sanctioned the creation of centrally supervised police forces in every major town.

We should stress that the Whigs' urban policing measures were not simply corollaries of Sir Robert Peel's Metropolitan Police Act (1829). That act financed a metropolitan police force while leaving the Civil List, and all unreformed corporations, intact. In order to address traditional worries that police would increase Crown influence, the act established a separate *Receiver* to handle all monies funding the police; and subjected the Receiver's accounts to annual parliamentary scrutiny (Lyman 1964, pp. 150-151).[1] Fiscally speaking, then, the metropolitan police were paid in the same way that the armed forces were. In contrast to Peel's approach, the Grey Ministry first abolished all unreformed budgets at both the national and municipal levels, replacing them with annual and auditable budgets—thereby constraining both national and local executives. They then financed the New Police using a combination of local rates approved by town councilors and central transfers approved by MPs, thereby addressing the threat posed by the tumultuous lower orders.[2]

[1] A previous attempt at such a police force in 1785 had provoked "ferocious hostility" from the City of London under concerns about funding, accountability and liberty (Emsley, 1991).

[2] Since the poor laws were administered through a separate structure, no legislation regarding them was sought at the municipal level.

County reforms

At the county level (see Panel C), the Whigs first reformed budgetary procedures (via the County Rates Act 1834) and then sought to renovate county governance along the lines of their earlier municipal reforms. Although their 1837-38 proposal failed, the County Police Act (1839) enabled counties to form police forces, something that about half promptly did.

B Riots and Reform in the Newspaper Corpus

To more formally evaluate the relationship implied in Figure **??** in the main text of the paper, we consider a simple time series specification in which we relate newspaper corpus mentions of riots, to the total number of bills that considered either suffrage reform or parliamentary reform more generally.

Our simple specification takes the form

$$reform_t = \alpha + \beta riots_t + \epsilon_t \tag{1}$$

where t indexes the year; $reform_t$ is one of two measures, either the count of reform-related bills considered in parliament, or the percentage of documents in the newspaper corpus that mention reform; and $riots_t$ is one of two measures, either the newspaper corpus mentions of riot activity (excluding documents that also mention France), or the post-1800 violent incidents from Horn and Tilly (2009).

The correlations are presented in Table B1 below.

Table B1: The relationship between riots and reform bills

	Proposed Bills			Newspaper Reform Mentions		
	(1)	(2)	(3)	(4)	(5)	(6)
$riots_t$	-0.31**			0.046		
	(0.13)			(0.069)		
$\Delta(riots_t - riots_{t-1})$		-0.073			0.029	
		(0.060)			(0.064)	
$riots_t$ (Horn & Tilly)			-0.00029			0.0032*
			(0.0015)			(0.0019)
Obsv. (Years)	83	82	33	83	82	33
Year range	1750-1832	1750-1832	1800-1832	1750-1832	1750-1832	1800-1832

Robust standard errors in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

C Repression of Riots

We compare the Wellington and Grey Administrations' responses to the Swing riots. Wellington's government did not take any action against the rioters until November 11, over two months after the first riot. The government's inaction was consistent with traditional views on dealing with social disorder: "as [Home Secretary Sir Robert] Peel had written to the Horsham magistrates, the protection of individual properties was their responsibility, not his; and, for the purpose, he urged them to enrol 'specials', form voluntary associations and...revive the old corps of Yeomanry Cavalry" (Hobsbawm and Rudé 1968, p. 254).

Grey's government took a much more aggressive approach. Having been out of power for the majority of the early nineteenth century, the Whigs were eager to demonstrate competence in the early months of their minority government (Bend 2018). Accordingly, Grey gave Home Secretary Viscount Melbourne ample powers to suppress social unrest, by any and all means. Melbourne also advised magistrates to swear in special constables and form local defense associations. In addition, "military detachments were dispatched to reinforce provincial forces and assist in the arrest of leaders; royal pardons were offered to supplement local rewards to identify and convict incendiaries; Bow Street officers were dispatched to aid in their detection; and inaction or conciliation to the will of the crowd was severely reprimanded ..." (Bend 2018: 208). Finally, as noted in the main body of the paper, the 1828 Yeomanry disbandments were reversed in 1831 to help cope with the Swing Riots.

In addition to these vigorous police actions, the Grey Ministry also intervened in the legal procedures against the rioters. First, the Ministry established Special Commissions of Assize to facilitate prosecutions (Hobsbawm and Rude 1968, p. 256). Second, they resorted to a 1812 statute that introduced the death penalty for the destruction of machinery to further suppress any serious disturbances. According to Archibald Prentice's account:

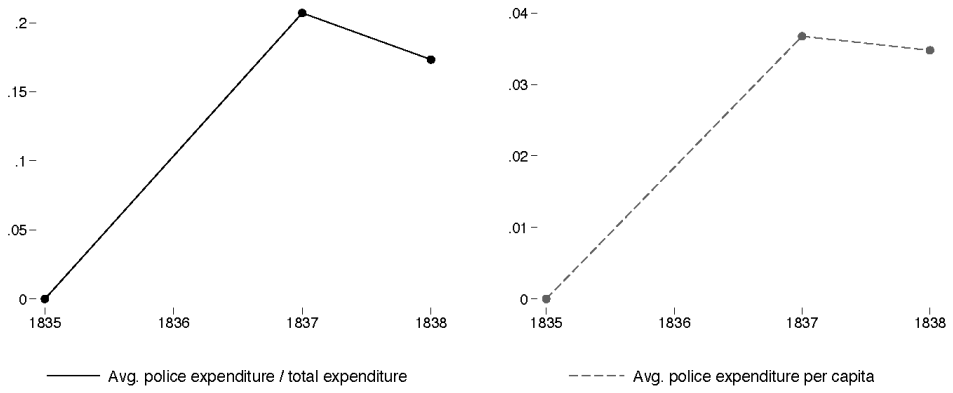
> "On the 9th of January [of 1831], judgement of death was recorded against twenty-three prisoners, for the destruction of a paper machine in Buckinghamshire; In Dorset, on the 11th, against three, for extorting money, and two for robbery; at Norwich fifty-five prisoners were convicted of machine breaking and rioting; at Ipswich three of extorting money; at Petworth twenty-six for machine breaking and rioting; at Gloucester upwards of thirty; at Oxford twenty-nine; and at Winchester out of upwards forty convicted six were left for execution. Four of these were afterwards respited; but two of them were executed on the 15th. At Salisbury, forty-four prisoners were convicted, of whom two were executed on the 25th. In the whole upwards of eight hundred of the rioters were tried ... and all of those who were convicted, with the exception of the four cases mentioned, were sentenced to various terms of transportation and imprisonment." (Prentice 1851: 372-373).

D Borough Police Expenditures

In this appendix, we describe the data on police expenditures we use in Table 1. Our coding is derived from *The ABSTRACT OF THE STATEMENT OF MONIES received and expended on account of certain BOROUGHS in England and Wales* for 1837 and 1838. We transcribed data on total expenditures by municipal borough in each of the two years, along with data on any expenditures related to the police. Police expenditures include expenditures on the "constabulary," "police," "watchmen," and variations therein. Beyond these core expenditures, we also collected data on additional more extraneous expenditures ("clothes for officers"), or those bundled with other expenditures ("police and fire-engines and lighting bridge"). We focus on the core police expenditures when calculating statistics, but the results are robust to including the extraneous and bundled expenditures.

Figure D1 presents these police expenditures as a percentage of each total municipal borough expenditure (left plot) and municipal borough expenditure per capita (right plot).

Figure D1: Municipal police expenditures, 1835-1838



Notes: The plots present the average police expenditure in municipal boroughs with police forces from 1835 (before police were established) to 1838. The left plot normalizes expenditures by total municipal expenditure, while the right plot normalizes by 1831 population

We examine 138 English towns that had no police forces prior to 1836 and for which we have observations on their initial police budgets in 1837 and 1838. We thus exclude London, which established a force in 1829, as well as 10 provincial towns that established police forces via special acts prior to municipal reform. Nonetheless, as Table D1 shows, the results are qualitatively similar when we include the observations of the 9 provincial towns for which we have population data, though they are less precise.

Table D1: Relationship between the swing rioters and urban police expenditures including towns that established police forces pre-1837 (full sample)

	Police expenditures per capita		
	(1)	(2)	(3)
ln(Population)	0.0010	0.00088	0.0031
	(0.021)	(0.020)	(0.020)
Post-1837	0.028***	0.028***	0.029***
	(0.0043)	(0.0041)	(0.0038)
Riot Treatment (10km) × Post-1837	0.0077		
	(0.0052)		
Riot Treatment$_{50th}$ $(10km)\times$ Post-1837		0.0086	
		(0.0053)	
Riot Treatment$_{75th}$ $(10km)\times$ Post-1837			0.012**
			(0.0057)
Constant	0.0098	0.011	-0.0081
	(0.18)	(0.17)	(0.17)
Observations (Borough x Year)	384	384	384
R-Sqrd	0.72	0.72	0.72

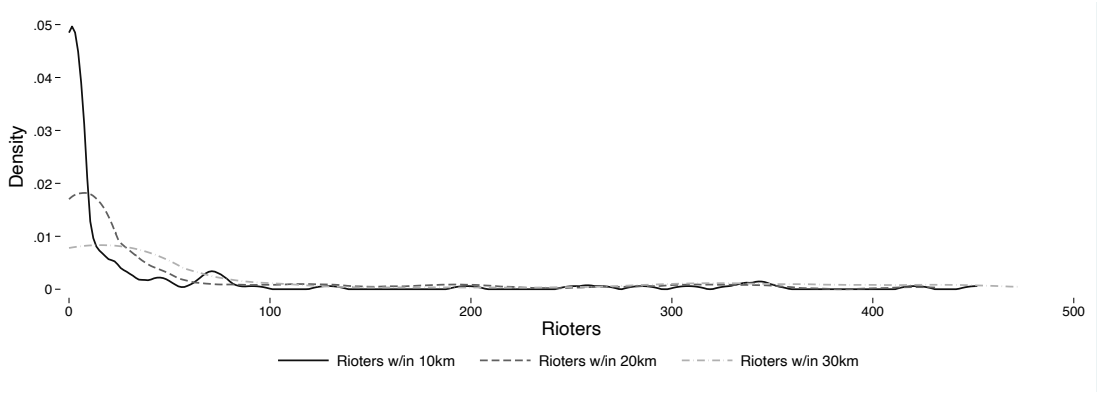
Standard errors robust to clustering at the constituency level presented in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Notes: The above table presents the results from estimating equation $expenditures_{it} = \alpha_i + \beta_1 ln(population_{it}) + \beta_2 post1837_t + \beta_3(ln(1 + rioters_i) \times post1837_t) + \epsilon_{it}$ where i indexes the municipal borough and t indexes the year. The sample of boroughs are those in England with municipal police forces, including those established pre-1837. The sample of years are 1831, 1837 and 1838. Population is available decennially (with the lone exception of Stockton) and linearly interpolated for non-decennial years. The dependent variable is measured as total police-related expenditures per capita, α_i are municipal borough fixed effects, $post1837$ is in indicator equal to 1 after 1837 and the passage of the reform (note that we don't take into account different trends, only average levels, after the passage of the reform due to our limited data), and $rioters$ measures the number of Swing Riot offenders (i.e., rioters) detained within a given concentric distance from the municipal borough. Given the skew in the distribution (Figure D2), we take the natural log. We add 1 given that many municipalities did not have rioters within a given distance.

We geo-located each municipal borough listed in *The ABSTRACT...* and merged data on rioters from Holland (2005) to calculate the number of rioters in different concentric distances from the municipal boroughs. We present the distribution of those distance measures in Figure D2.

Figure D2: Distribution of swing rioters by distance to municipal boroughs, 1830-31



Sources: Author's coding based on Holland (2005). *Notes:* The plots present the distribution of rioters within different concentric distances of the municipal boroughs. We censor the data at 500, but outliers exist above that cut-off.

In Table 1 in the paper we use a 10km distance to construct our indicator variable remain consistent with how we utilize distance in other analyses. Table D2 presents results for other indicators (i.e., the extensive margin) based on different concentric distance measures (20km and 30km). The results at these distances are (with a single exception) of similar magnitude to those presented in Table 1 in the paper, and statistically different from zero. If anything, they suggest slightly stronger relationships.

We also estimated the differences in the "dosage" of the continuous variable (i.e., the intensive margin), the number of of Swing offenders within 30km of each borough in 1830-31. For all riot exposures, the average change in budgets over time across all units if they had been assigned that exposure is the same as the average change in budgets over time for all units that experienced that dose (Callaway et al. 2021, p. 11). A sufficient condition for this identifying assumption would be homogeneous treatment effects across all boroughs. Another sufficient condition would be that assignment to riot exposure was orthogonal to other determinants of police expenditure.

Table D2: Relationship between the swing rioters and urban police expenditures for 20km and 30km concentric distances around municipal boroughs

	Police expenditures per capita					
	(1)	(2)	(3)	(4)	(5)	(6)
ln(Population)	0.0099	0.0064	0.0075	0.013	0.017	0.011
	(0.020)	(0.021)	(0.023)	(0.025)	(0.022)	(0.022)
Post-1837	0.015***	0.021***	0.027***	0.010***	0.017***	0.024***
	(0.0050)	(0.0055)	(0.0050)	(0.0033)	(0.0063)	(0.0044)
Riot Treatment (20km) × Post-1837	0.020***					
	(0.0053)					
Riot Treatment$_{25th}$ (20km)× Post-1837		0.014**				
		(0.0058)				
Riot Treatment$_{50th}$ (20km)× Post-1837			0.0073			
			(0.0053)			
Riot Treatment (30km) × Post-1837				0.023***		
				(0.0037)		
Riot Treatment$_{25th}$ (30km)× Post-1837					0.017***	
					(0.0062)	
Riot Treatment$_{50th}$ (30km)× Post-1837						0.013**
						(0.0053)
Constant	-0.058	-0.032	-0.046	-0.099	-0.13	-0.080
	(0.17)	(0.18)	(0.20)	(0.21)	(0.19)	(0.19)
Observations (Borough x Year)	357	357	357	357	357	357
R-Sqrd	0.73	0.72	0.71	0.72	0.72	0.72

Standard errors robust to clustering at the constituency level presented in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Notes: The above table presents the results from estimating $expenditure_{it} = \alpha_i + \beta_1 ln(population_{it}) + \beta_2 post1837_t + \beta_3 RiotTreatment \times post1837_t) + \epsilon_{it}$ where i indexes the municipal borough and t indexes the year. The sample is boroughs England that had not yet established police forces in 1835. The year sample is 1831, 1837 and 1838. Population is available decennially and linearly interpolated for non-decennial years. The dependent variable is total police-related expenditures per capita ($expenditure$), α_i are municipal borough fixed effects, $post1837$ is in indicator equal to 1 after 1837 and the passage of the reform (note that we don't take into account different trends, only average levels, after the passage of the reform due to our limited data), and $RiotTreatment$ measures a borough's riot exposure based on whether there was a Swing Riot offender detained within a concentric distance from the municipal borough. We evaluate a simple binary indicator (Model 1) along with binary cut-offs at the 50th and 75th percentile of rioters.

The variable $ln(1 + rioters_i)$ is the logged number of Swing offenders within a given distance of each borough in 1830-31. Table D3, Model 1, displays our main results (with cluster-robust standard errors). A natural way to assess how much riot exposure affected post-reform police expenditures is to measure the extent to which the effect of these two factors together exceeds the effect of each considered individually. In terms of these factors' individual effects, the results indicate that boroughs that did not experience any riots within 10km in 1830-31 increased their total per-capita police-related expenditures by 0.027 pounds

in the years after the municipal reform was passed. To assess the additive effect of riots, we estimate the predicted post-reform expenditures setting the different *rioters* measures at their mean values. Next, we compute the marginal effect of riot exposure as the difference between the predicted outcomes and the estimated post-reform expenditures of boroughs without any riots in 1830-31.

Table D3: Relationship between the swing rioters and urban police expenditures on the intensive margin

	Police expenditures per capita		
	(1)	(2)	(3)
ln(Population)	0.0083	0.0093	0.012
	(0.023)	(0.022)	(0.021)
Post-1837	0.027***	0.023***	0.017***
	(0.0040)	(0.0049)	(0.0049)
ln(1 + rioters (10km)) × Post-1837	0.0027*		
	(0.0014)		
ln(1 + rioters (20km)) × Post-1837		0.0027**	
		(0.0010)	
ln(1 + rioters (30km)) × Post-1837			0.0032***
			(0.00093)
Constant	-0.052	-0.058	-0.087
	(0.19)	(0.19)	(0.18)
Observations (Borough x Year)	357	357	357
R-Sqrd	0.71	0.72	0.72

Standard errors robust to clustering at the constituency level presented in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Notes: The above table presents the results from estimating equation $expenditures_{it} = \alpha_i + \beta_1 ln(population_{it}) + \beta_2 post1837_t + \beta_3 (ln(1 + rioters_i) \times post1837_t) + \epsilon_{it}$ where i indexes the municipal borough and t indexes the year. The sample of boroughs are those in England that had not yet established police forces in 1835 when the Municipal Corporations Act was passed. The sample of years are 1831, 1837 and 1838. Population is available decennially and linearly interpolated for non-decennial years. The dependent variable is measured as total police-related expenditures per capita, α_i are municipal borough fixed effects, $post1837$ is in indicator equal to 1 after 1837 and the passage of the reform (note that we don't take into account different trends, only average levels, after the passage of the reform due to our limited data), and *rioters* measures the number of Swing Riot offenders (i.e., rioters) detained within a given concentric distance from the municipal borough. Given the skew in the distribution (Figure D2), we take the natural log. We add 1 given that many municipalities did not have rioters within a given distance.

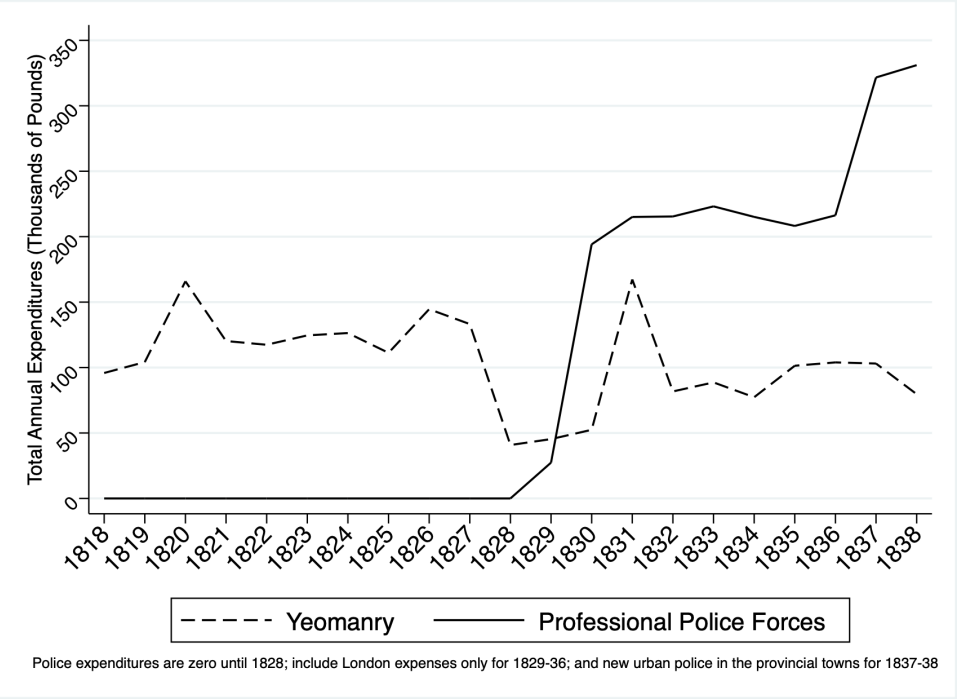
Consider the case of boroughs where at least one Swing Riot offender was detained within a 30km radius. The mean value of the variable $ln(1+$ rioters) is 4.19. The associated linear prediction of the total per-capita police-related expenditures for such a representative borough amounts to .0304 pounds (with a .003 standard deviation) in the years after the municipal reform was passed. These results reveal that the post-1837 increase in per-capita police-related expenditures was roughly 77% higher in towns that experienced an average amount of riots within a 30km radius in 1830-31 relative to boroughs without any riot exposure. In Models 2 and 3, we repeat the analysis using the number of Swing riots within 20km and 10km, respectively. The results are very similar, regardless of which measure of riot intensity we use. In terms of riots' additive effects the mean values of the variables $ln(1+$ rioters 20km) and $ln(1+$rioters 10km) are 2.86 and 1.31, respectively. The associated linear predictions of the total per-capita police-related expenditures for both types of representative boroughs amount to 0.0307 pounds (with a standard deviation of 0.003) in the years after the municipal reform was passed.

There are 23 municipal boroughs that did not spend any money on the police in 1837 or 1838.[3] Boroughs had discretion over how they categorized their expenditures, and thus one might be concerned that these boroughs chose to group police salaries into general "salaries" or otherwise obscure police expenditures by incorporating them into general categories in the balance sheet. We thus estimate our models without these boroughs (Table D4). The results are substantively similar. The 10km result dips below significance at the 10% level, but we attribute this to reduction in sample size, given the lack of magnitude change.

To further characterize and contextualize police expenditures in the provincial towns, Figure D3 documents the main expenditures on "domestic policing," defined as riot control and pursuit of criminals undertaken by civil agencies (not the British army). We do not count expenditures on incarceration, legal prosecution, or punishment (e.g.,transportation to Australia) as "policing" costs. By far the two largest domestic agencies with policing expenditures were the Yeomanry Cavalry and the New Police. Figure D3 shows their expenditures over the period 1818-38. As can be seen, expenditures on the New Police in London were roughly twice that spent on the Yeomanry; while expenditures on the New Police in the provincial towns pushed total expenditures to about three times the Yeomanry total.

[3]No balance sheet expenditure in the source explicitly indicates a police-related term.

Figure D3: Annual Expenditure on Policing, 1818-1838



Sources:

Yeomanry Cavalry:

Abstract of Sums voted and expended for Yeomanry Cavalry of Great Britain, 1816-43:
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1843-021044?accountid=14524

London Metropolitan Police:

Accounts of Receipt and Expenditure of Metropolitan Police, 1829-1838
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1830-012135?accountid=14524
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1830-012654?accountid=14524
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1831-013643?accountid=14524
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1833-014507?accountid=14524
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1834-015057?accountid=14524
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1835-015818?accountid=14524
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1836-016486?accountid=14524
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1837-017012?accountid=14524
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1837-017690?accountid=14524
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1839-018351?accountid=14524

Municipal Police

Abstract Return of Accounts of Boroughs in England and Wales, 1837
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1839-018511?accountid=14524
Abstract Return of Accounts of Boroughs in England and Wales, 1838
https://parlipapers.proquest.com/parlipapers/docview/t70.d75.1839-018512?accountid=14524

A fuller account of domestic policing expenditure would also include (1) the expenditures of private associations on apprehending criminals; (2) the police expenditures of eleven provincial towns that established salaried police forces via private acts prior to the Municipal

Corporations Act of 1835; and (3) expenditure on special constables' allowances under the Special Constables Act of 1831. While we cannot systematically account for these expenditures, they were each quite small relative to the two we do account for. Thus, the upward trend in total policing expenditures shown in Figure D3 would not change much, were we able to include these smaller items explicitly. (Expenditures on the new rural police, a sizable amount, are not included in Figure D3, as they begin in 1839.)

E Perceptions of Threat

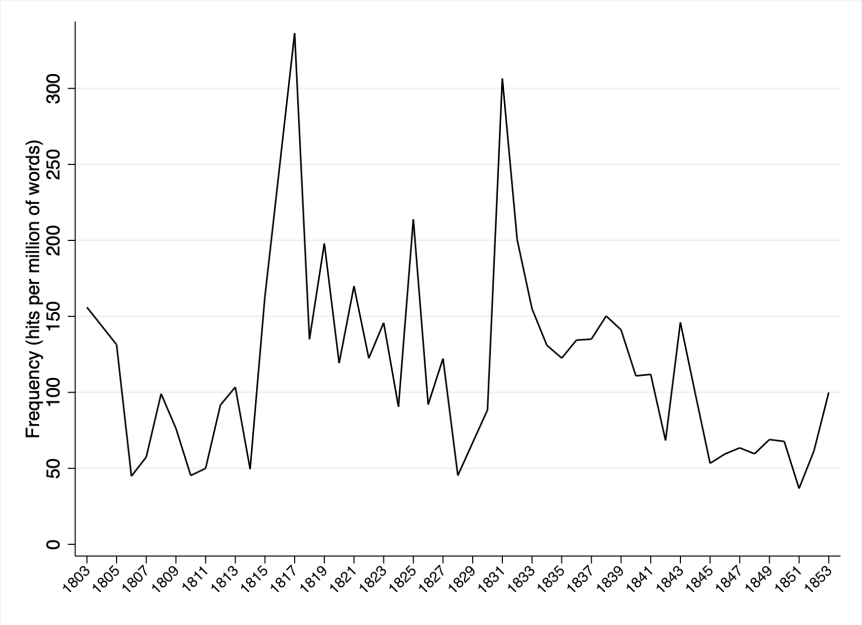
This appendix considers two ways of evaluating how the Swing Riots produced perceptions of threat amongst MPs.

E.1 Threat perceptions in parliamentary debates (1803-1853)

Firs, we consider the perception of threat in reform debates. We operationalize threat perceptions as the extent to which MPs employed words and phrases related to riot and disorder in debate speeches.[4]

Figure E1 shows yearly data on mentions of words/phrases related to riot/disorder in debate speeches between 1803 and 1853. The frequencies per million words, based on all the debates that took place in the House of Commons, were obtained from The Hansard at Huddersfield project (https://hansard.hud.ac.uk/site/index.php). The data indicate that MPs' use of these terms spiked in 1817 and during the reform era

Figure E1: Mentions of words/phrases related to riot/disorder in debate speeches, 1803-1853

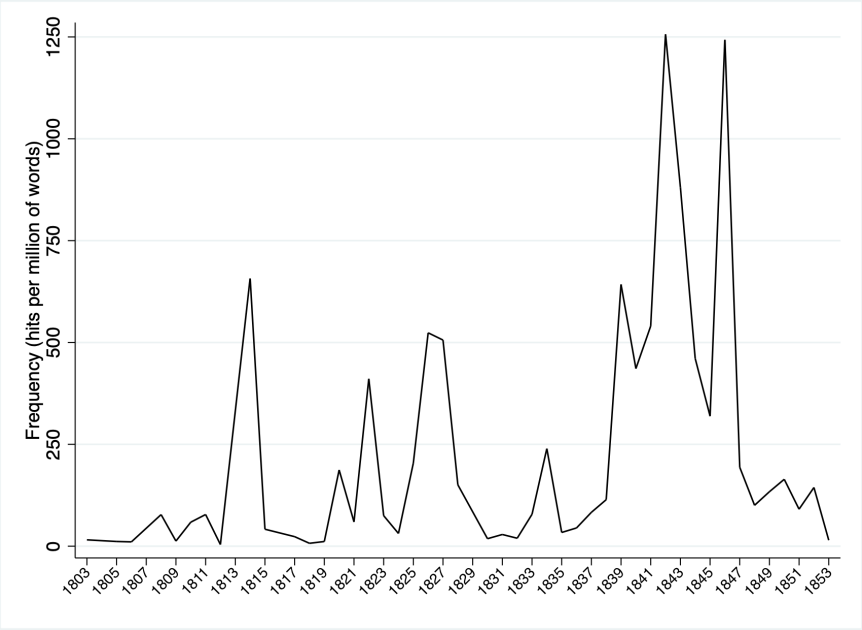


Source: https://hansard.hud.ac.uk/site/index.php

[4]The specific terms we consider are: riot, agitate, jacobin, violence, mob, bloody, popular excitement, white ribbon, white flag, insurrection. These terms were chosen based on a close reading of a sample of debates. We choose *not* to include variation on the term "revolution" because in *all* of the instances in which that term (or related terms) was used, the debate was about the revolutionary nature of reform itself rather than the threat of revolution.

Using language in parliament to assess the preferences/thoughts of elites raises the question of whether MPs' speeches are informative. To check if MPs responded to current events (just not the riots), we also examined the extent to which they mentioned "corn laws" in debate speeches during the same period (1803-1853). This exercise, reported in Figure E2 reveals that MPs disproportionately discussed the issue in 1842-43, at the height of the public debate on this topic. Therefore, this finding gives us confidence regarding our proposed research strategy.

Figure E2: Mentions of words/phrases related to corn laws in debate speeches, 1803-1853



Source: https://hansard.hud.ac.uk/site/index.php

E.2 Threat perceptions in reform debates (1830-32)

We now consider the perception of threat in reform debates. The reform debate data is from Eggers and Spirling (2014). We utilize data from the period 1830-32 in which the debate title indicates "Reform." As before, we code perceptions of threat as mentions of words and phrases related to riot and disorder in debate speeches. Of note, we find no mention of "Swing Riot" by name.

We present the result of OLS estimates relating each county and borough experience of riots to mentions of revolutionary threat in the reform debates amongst county MPs in Figure E3. The left plot measures riots as a simple count, while the right plot uses ln(riots

+ 1). Whether we include covariates or not, or measure the percentage of speeches with a mention as compared to a simple binary count, we find no evidence that those constituencies that experienced more riots had MPs who discussed the threat of revolution more in their parliamentary debates about reform. If anything, in the majority of our specificiations, they were less likely to mention terms related to threat.[5]

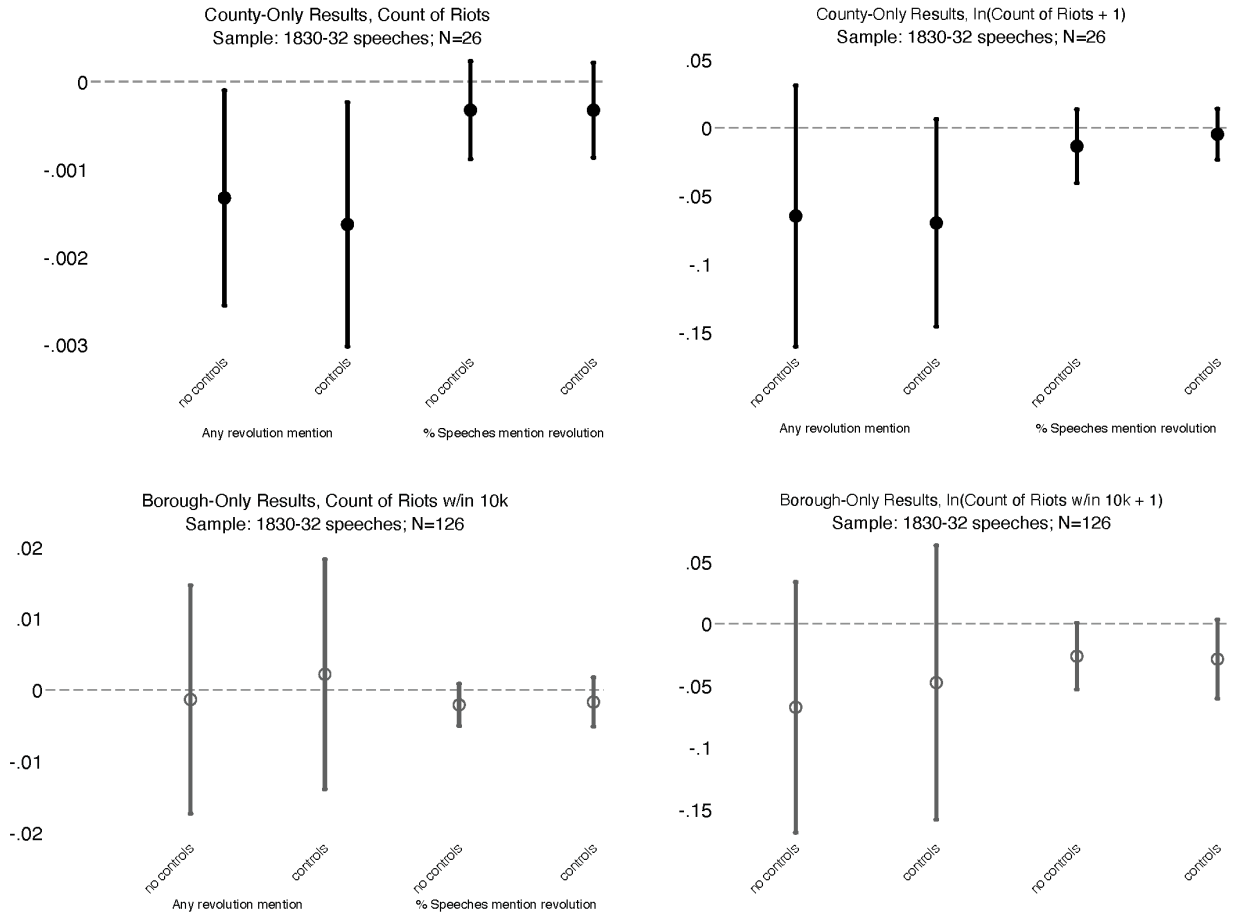
We identify county MPs who spoke on Reform. Unfortunately, the debates data contains many unattributed speeches. Thus, it is possible that some of the unattributed speeches were made by county MPs. Still, on average, MPs who we cannot identify mention the revolutionary topic in 4% of their speeches; while those we *can* identify mention the topic in 8% of their speeches. Thus, if unattributed speeches would reverse our results (below) it must be the case that nearly all of the mentions of are from county MPs. Put differently, attribution must not be missing at random, but instead highly correlated with the type of constituency for which an MP serves.

Another concern might arise if county MPs are less likely to speak because they are contending with social disorder in their constituencies (as opposed to actively participating in debates). Given that there are unattributed speeches, it is difficult to know whether an MP who does not speak *truly* did not speak, *or* whether the MP did but is not identified in the debate data. To partially examine this, we consider the distribution of riots by the number of MPs (identified) as speaking and find that having two MPs speaking is associated with more rioting, while having no identified MPs speaking is associated with less rioting.[6] Again, it is possible that the pattern of missingness in the unattributed speeches is very particular, but from the evidence that we can examine, there is no strong suggestion that MPs contending with riots systematically spoke less or that, were they more likely to be unattributed, their speeches would dramatically change the results.

[5]Note that these results are all robust to excluding the county of Kent, which is an outlier in its outsize experience of riots.

[6]Most constituencies are two-member, hence the focus on two MPs.

Figure E3: The relationship between Swing Riots and mentions of threat in parliamentary discussions of reform



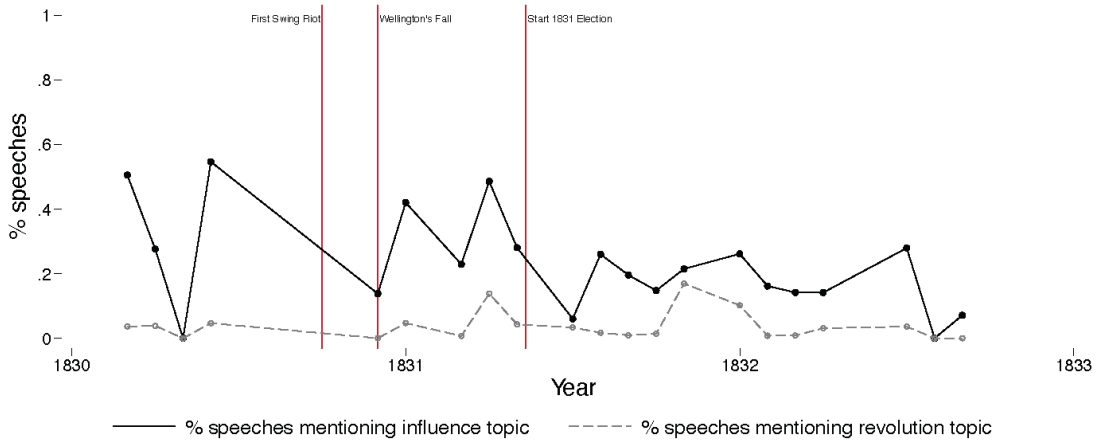
Notes: The plots above left measure riots as the simple count. The above right plots measure the natural log of riot count + 1. Models are OLS. Plots present point estimates and 95% confidence intervals. We consider both a binary indicator for whether the MP mentioned any revolutionary threat term, as well as the share of speeches that mention any term. The top plot sample is restricted to counties; the bottom plot sample to boroughs. The controls used include the economic trend in the constituency, a measure of the "rottenness" of the constituency, the population density, and the agricultural type. All controls are derived from data shared by Aidt and Frank. Note the different y-axis scales.

A final concern is about the possibility that MPs' use of threat terms reflected statements to the effect that there *wasn't* a revolutionary threat. Were we to remove these false positives, a relationship between riots and mentions of threat might reveal itself. Given the difficulty of accurately identifying whether mentions of threat express concern or a denial of concern, below we consider a different source of MPs' threat perceptions—biographies written by historians at the History of Parliament Project.

E.3 Threat perceptions relative to concern about patronal peers

We can also compare how discussions of threat compared to discussion of Crown influence via patronal peers in debates about reform. To do this, we code revolutionary threat as above. We code mentions of patronal influence with mentions of rotten boroughs, nomination boroughs, under the influence of, and other related terms. Though MPs may have discussed these terms both in making an argument for *or* against peer influence, they clearly indicate the importance of the concern in debates about reform. Figure E4 shows that influence was always at least as important, and typically more important, part of reform debates that threat.

Figure E4: Discussions of Crown influence relative to revolutionary threat in reform debates



Notes: The plot considers mentions of Crown influence and patronal peers as compared to revolutionary threat in debates on reform and related electoral measures during the reform crisis period.

E.4 Threat perceptions noted in member biographies

Another way to explore county MPs' threat perceptions is to read their biographies at https://www.historyofparliamentonline.org/. Biographers had access to additional primary sources in which MPs may have discussed their perception of threat. Using this source, we calculated the percentage of each county's MPs whose biographies indicated that they perceived a revolutionary threat and supported reform (*pctmps*). We also calculated the number of Swing riots afflicting each county on both a per capita (*cspc*) and per square

kilometer (*cspm*) basis. We then conducted two bivariate regressions of *pctmps* on *cspc* and *cspm*, respectively.

The result of the first regression was a coefficient on *cspc* of .005 with a standard error of .054. Thus, riots per capita had a positive but statistically insignificant (and substantively tiny) effect. The result of the second regression was a coefficient on *cspm* of 1.2 with a standard error of 1.1. Thus, riots per square kilometer had a positive but statistically insignificant (and substantively small) effect.

Finally, we note that in the biographies we find exceptionally few explicit statements that MPs wanted to reform parliament because of a fear of revolution. Only approximately 6% of biographies described MPs as holding such a view.

F Riots and Reform Petitions

In this appendix we consider the relationship between the number of riots in an MP's constituency and the number of pro-reform petitions submitted by said MP.

Table E1 shows our estimates of the relationship between the number of Swing rioters that happened within different concentric distances from each borough constituency and pro-reform petitions. The rioters in each county remains the total. With the exception of Model 3, which uses our own measure of pro-reform petitions, without any covariates, the results are statistically indistinguishable from zero.

Table F1: Relationship between Swing Riots and pro-reform petitions

	Pro-Reform Petitions				
	A&F Measure		Own Measure		
	(1)	(2)	(3)	(4)	(5)
ln(1 + rioters (20km))	-0.032	0.025	-0.56**	0.23	0.015
	(0.12)	(0.15)	(0.26)	(0.40)	(0.014)
ln(1 + rioters (30km))	-0.056	0.010	-0.74***	0.21	0.013
	(0.13)	(0.16)	(0.26)	(0.43)	(0.015)
Observations	244	244	244	244	3904
Adj. R-Sqrd	-0.0029	0.36	0.050	0.34	0.14
Specification	Cross-Sec.	Cross-Sec.	Cross-Sec.	Cross-Sec.	Panel
Week FE					✓
AF Controls		✓		✓	✓

Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Notes: Columns 1-4 of the above table presents the results from estimating $petitions_i = \beta_1(ln(1+rioters_i)) + \epsilon_i$ via ordered OLS where i indexes the constituency. The number of rioters ($rioters$) is the number of Swing Rioters in the county measured before the Reform vote, and the number of rioters within 10km of borough constituencies from Aidt and Franck (2015). We add 1 before taking the natural log since some constituencies did not experience the Swing Riots. Model 5 estimates a panel to evaluate potential non-parametric trend differences (note that our riot measure does not vary over time and there are no unit fixed effects). Model 2, 4 and 5 also includes a set of covariates from Aidt and Frank (2015, 2019): *Whig share 1826, Whig share 1826 Squared, Reform support in 1830, County constituency, Narrow franchise, Patronage index, Emp. fract. index, Agriculture (emp. share), Trade (emp. share), Professionals (emp. share), Population, Population density, Thriving economy, Declining economy, Distance to Urban Center, Connection to London, Market Integration, Cereal Area, and Dairy Area.*

G Riots and and Election Outcomes (1830-1835)

In this appendix we examine how electors behaved in the parliamentary elections of 1831, 1832, and 1835. This exercise is useful because the Concession and Repression Models predict different patterns of relationship between the Swing riots in 1830-31 and support for the Whigs in 1831, 1832 and 1835.

Consider the Concession Model first. Aidt and Franck (2015, p. 537) have argued that riots *should* predict Whig support in the election of 1831 but *should not* predict Whig support in elections conducted after passage of the Great Reform Act. Indeed, they conduct a falsification test on the 1835 election, noting that "if local Swing riots observed directly by voters and patrons truly caused the shift in the electoral fortunes of the Whigs [in 1831], there should be no such connection [in 1835]." The logic of their observation is simply that passage of the Great Reform Act should have lowered threat perceptions, so that the causal mechanism on which they focus should no longer have been operative in later elections—including the first two held under the reformed system in 1832 and 1835.

The Repression Model suggests an alternative mechanism by which rioting might have increased Whig support in the 1831 election. Elites in riot-stricken areas might have voted for the Whigs to reward them for their vigorous suppression of the Swing riots during their term in office. Retrospective rewards for riot suppression seem less likely for the later elections of 1832 and 1835, though particularly traumatized voters might have had long memories. Riot-stricken elites also had a *prospective* reason to shift toward the Whigs. The costs they had incurred during the rioting would have convinced some of them of the inadequacy of the unreformed police system, increasing their demand for some form of police reform. Since the Whigs were the only party likely to pursue police reform, such police reform converts would have been more likely to support them. This prospective account is weakest for the election of 1831, since the Whigs had not yet publicly announced their intention to reform the police. By the election of 1832, however, the Whigs had announced their plans. By the election of 1835, they had appointed a royal commission to investigate municipal (including police) reform, and the commission made its report three months after the election.

In summary, the Concession Model predicts that Swing rioting should correlate with Whig support in the 1831 election but not in the 1832 and 1835 elections. In contrast, the Repression Model predicts that Swing rioting should correlate with Whig support in all three elections (if both the retrospective and prospective channels were operative, as we shall assume).

Table G1: Relationship between Riots and Election Outcomes (1830-1835)

		(1) Controls	(2) Controls + Lagged Outcome	(3) Controls + 1826 Outcome
1831 Whig Seat Share	Riots 10Km	0.616*	0.452*	0.611**
		(0.348)	(0.265)	(0.287)
	1830 Whig Seat Share		0.592***	
			(0.102)	
	1826 Whig Seat Share			0.465***
				(0.107)
	R-squared	0.153	0.386	0.321
1832 Whig Vote Share	Riots 10Km	0.273**	0.180	0.272**
		(0.128)	(0.133)	(0.128)
	1831 Whig Seat Share		0.151**	
			(0.073)	
	1826 Whig Seat Share			0.063
				(0.061)
	R-squared	0.067	0.133	0.078
1835 Whig Vote Share	Riots 10Km	0.231*	0.037	0.230*
		(0.133)	(0.093)	(0.134)
	1832 Whig Seat Share		0.710***	
			(0.065)	
	1826 Whig Seat Share			0.063
				(0.060)
	R-squared	0.078	0.592	0.089
	Observations	97	97	97

Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Following Aidt and Franck (2015), the controls include County constituency, Population, Population density, employment shares, and Emp. Frac. Index.

Table F1 reports how Swing rioting affected Whig vote support in the elections of 1831, 1832 and 1835 using the same sample size, and three versions of the estimating equations proposed by Aidt and Franck (2015). All versions include their control variables.[7] We also control for the first lag of Whig vote support and the Whig vote in 1826, respectively. Note that for the 1832 and 1835 elections, the first lag of Whig vote support is a "proxy" control variable because it is causally downstream from the regressor of primary interest (Angrist and Pischke 2009: 66-67). Therefore, our preferred specifications are Versions 1 and 2, which

[7]These indicators are County constituency, Population, Population density, employment shares, and Emp. Frac. Index. For the 1832 and 1835 elections, the Whig vote share is expressed in percentage terms.

avoid controlling for downstream election results. Our results for 1831 are consistent with both models. For the 1832 and 1835 elections, the outcome depends on the specification. If one controls only for indicators of Whig support that pre-date the Swing riots, then the results are inconsistent with the Concession Model and consistent with the Repression Model. If one controls for Whig support in the preceding election, then there is no longer any evidence of a riot effect. In our view, this is not surprising, since Whig support after 1831 would already impound the effect of riots.