

## **Supplementary Material Appendix**

### **Democratization under the threat of revolution: Evidence from the Great Reform Act of 1832**

This supplementary material appendix contains extra material related to our study of the Great Reform Act. Appendix S1 lists definitions and sources of all the variables used in the analysis. Appendix S2 explains how the variable *Connection to London* is constructed. Appendix S3 contains a discussion of the placebo tests. Appendix S4 contains a discussion of alternative explanations for the Whig victory in 1831. All the supplementary tables (S1 to S28) and the maps (S1 and S2) are collected at the end of the appendix. Tables S26 to S28 report summary statistics for the variables used in supplementary tests.

#### **Appendix S1. Definitions and sources**

Our sample consists of the 244 English constituencies that comprised the 489 parliamentary seats in the House of Commons before the Great Reform Act. This appendix provides the definition and the source of each variable used in our analysis, and discusses coding choices.

Variables used in the tests reported in Tables 1 to 5 and 7 in the text and Tables S1 to S18 and S25 in the supplementary material appendix

Table A1 in the appendix to the main text reports the descriptive statistics for these variables.

Variables with variation at the constituency level

- *Whig share 1831* is the percentage share of seats in a constituency won by either Whig or Radical candidates in the 1831 election. For the purpose of estimating equation (1) with the fractional estimator, we recode the variable to be a share (between zero and one). The polling period lasted from 28 April to 1 June 1831. Source: Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and various editions of Dod (various years).
- *Riots within Rkm*, where  $R \in \{1,10,20,30,50\}$ , is the cumulated number of Swing riots that took place within a radius of  $R$ km around each constituency between 3 August 1830, when the Swing riots began in the village of Sevenoaks in Kent, and 1 June 1831, when the polling period of the 1831 general election ended. The source of these data is Holland (2005).

Building on the data collected by Hobsbawm and Rudé (1973, Appendix III) from London-based periodicals as well as Home Office documents and other official archival reports, much of the additional data reported in Holland (2005) was collected by members of the Family and Community Historical Research Society through searches of local archives and newspapers. The sources record the name of the parish/township/hamlet and county in which each riot took place. We geo-reference each riot by merging this information to the Parish database constructed by the Cambridge Group for the History of Population and Social Structure (Grant RES-000-23-1579) and by manually establishing the geo-reference for about 600 riots which could not be merged automatically, mostly because of spelling differences in names. We then use GIS software to compute the number of riots which happened in parishes that wholly or partially overlap with a circle of radius  $R_{km}$  around the constituency. The centrum of each circle is determined by the geo-reference coordinates of the constituency for the borough and university constituencies or of the county seat for the counties. Source: Hobsbawm and Rudé (1973, Appendix III) and Holland (2005).

- *Riots between 50 and 75km* is the difference between *Riots within 75km* and *Riots within 50km*. Source: Hobsbawm and Rudé (1973, Appendix III) and Holland (2005).
- *Riot treatment* is a dummy variable equal to one if *Riots within 10km* is strictly greater than one riot and equal to zero otherwise. The distribution of riots is skewed to the right. The mean value of *Riots within 10km* is 9.5, the median is 6.4. We aim to divide the constituencies such that the bottom 25 percentile was not “treated” to the Swing riots, while the rest was “treated”. Since there were 70 constituencies exposed to at least one riot, in practice, 28 percent of the constituencies belong to the “control” group. The choice of cut-off aims a balancing two concerns. First, we need to have a sufficient number of constituencies in the control group. Since only 35 constituencies were not exposed insofar as no riot occurred within a radius of 10km, we cannot use a cut-off of zero and must define “no exposure” as “low exposure”. The choice of the lower quartile as the cut-off is transparent and gives a reasonably sized control group. Second, we want the constituencies in the control and treated groups to be qualitatively differently affected by riots. The average number of riots in the control group is 0.5 while the average in the treated group is around 27 riots. The average constituency within these two groups was, therefore, exposed to very different levels of local riots. However, for the constituencies just above and below the cut-off, the difference

is minimal. This works against finding a treatment effect. Source: Hobsbawm and Rudé (1973, Appendix III) and Holland (2005).

- *County constituency* is a dummy variable that is equal to one for the 40 county constituencies. The electors in the county constituencies were defined by a freeholder franchise based on a 40-shilling qualification and consisted largely of tenant farmers. London did not have representation as a county but the City of London had the right to return four MPs. The City of London is coded as a borough constituency, but when we aggregate the data to the county level in some of the supplementary tests, we treat the City of London as a separate unit on par with the counties.
- *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.
- *Narrow franchise* is a dummy variable that is equal to one for borough constituencies with either a burghage 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, burghage, and corporation franchises. The burghage and corporation boroughs had very narrow franchises, which often limited the number of voters to less than 50. In the burghage boroughs, only the owners of a property with an old form of tenure, called the burghage, 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).
- *Patronage index* is an index equal to the sum of the dummy variables *Rotten borough* and *Close constituency*. *Rotten borough* is equal to one if the constituency was disenfranchised by the Great Reform Act and zero otherwise. *Close constituency* takes the value one if Philbin (1965) explicitly states that the constituency was wholly or partly controlled by a local patron or by the Treasury through employment or other forms of patronage, or if

Cannon (1973) records that there was no contested election between 1802 and 1831. Source: Philbin (1965) and Cannon (1973, Appendix 3).

- *Whig share 1826* is the percentage share of seats in a constituency won by either Whig or Radical candidates in the 1826 general election. The polling period was from 7 June to 12 July 1826. Source: Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and various editions of Dod (various years).
- *Whig share 1830* is the percentage share of seats in a constituency won by either Whig or Radical candidates in the 1830 election. For the purpose of estimating equation (1) with the fractional estimator, we recoded the variable to be a share (between zero and one). The polling period lasted from 29 July to 1 September 1830. Source: Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and various editions of Dod (various years).
- *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).<sup>1</sup>
- *Reform support 1830* is the difference between the number of MPs elected in a constituency in 1826 who on 23 February 1830 voted in favor of Lord Russell's failed bill to give direct representation to Birmingham, Leeds, and Manchester and the number of MPs from that constituency who voted against it, normalized with the total number of MPs elected in the constituency. The variable is constructed from roll call records related to the Second Reading of this bill in the House of Commons, where it was defeated. Source: Parliamentary Debates (1830).
- *Population* is the total number of inhabitants in a constituency (in 1000s). Source: Census of Great Britain, 1831.
- *Population density* is the number of inhabitants per inhabited house in the constituency. Source: Census of Great Britain, 1831.

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<sup>1</sup> When we use the dummy variables *Thriving economy* and *Declining economy* in the statistical analysis, the constituencies in the omitted group are those which Philbin (1965) does not single out and whose economic situation reflected the general trend in the English economy.

- *Emp. fract. index* is one minus the Herfindahl index of employment. The Herfindahl index is the sum of the square of the share of individuals in each Census registration district working in agriculture, trade, as professionals and in other occupational categories. Each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1831.
- *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 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.
- *Cereal area* is a dummy variable equal to one for the constituencies located in the cereal growing regions of England, i.e., in the Southeast and East Anglia, and zero otherwise. Source: Clapham (1939).
- *Dairy area* is a dummy variable equal to one for the constituencies located in the dairy producing regions of England, i.e., in the Southwest and Midlands, and zero otherwise.<sup>2</sup> Source: Clapham (1939).
- *Market integration* is equal to the crow-fly distance from each constituency to each of the 243 other constituencies weighted by the population of those constituencies. Source: Census of Great Britain, 1831 and own calculations.
- *Distance to urban center* is travel time distance from each constituency to the nearest urban center measured in units of travel days (assuming that a person can travel 30

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<sup>2</sup> When we use the *Cereal area* and *Dairy area* dummy variables in the statistical analysis, the constituencies in the omitted group are those located in the North of England where extensive agriculture dominated.

kilometers per day). We define an urban center as a town with more than 50,000 inhabitants in 1831. These centers are Birmingham, Bristol, Hull, Leeds, Liverpool, Manchester, Newcastle upon Tyne, Norwich, Nottingham, Plymouth, Portsmouth, Southward and Westminster. Source: Census of Great Britain, 1831.

- *Connection to London* is a measure of the geographical and informational distance to London. Appendix S2 explains how it is constructed.
- *Distance to Sevenoaks* is the travel time distance from each constituency to Sevenoaks, the village in Kent where the first Swing riots occurred on 3 August 1830. We digitalize the map series by John Cary of England in 1832 to enable accurate calculations of these distances along the road network. We assume that a person is able to travel 30 km per day by foot. We measure *Distance to Sevenoaks* in units of days of travel. Source: Carry (1793).

#### Variables with variation at the level of a parliamentary seat

- *Whig elected 1831* is a dummy variable equal to one if the seat was won by a Whig or a Radical in the 1831 election. We include the five Whig MPs whom we know *ex post* to have voted against the reform bill in July 1831 amongst the Tory opposition. This coding choice has no substantial implications for the results. Source: Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), various editions of Dod (various years) and Parliamentary Debates (1831).
- *Whig elected 1830* is a dummy variable equal to one if the seat was won by a Whig or a Radical in the 1830 election. Source: Parliamentary Debates (1830).

#### **Variables used for test of alternative explanations (Table 7 and Table S25)**

Descriptive statistics for these variables are provided in Tables A1 and S28. The data from the Census of Great Britain, 1851, Religious Worship, England and Wales are matched to the constituencies of the unreformed Parliament by attributing the return for the census district with the name of the constituency to that constituency. We can match 182 constituencies in that way.

#### Variables with constituency level variation

- *Catholic church* is a dummy variable equal to one if the 1851 Census of Religious Worship records that at least one Catholic Church was located within the census district of

the same name as the parliamentary borough or county seat in the case of the counties. Source: Census of Great Britain, 1851. Religious Worship. England and Wales (House of Commons Parliamentary Papers).

- *Religious fract. Index* is equal to one minus the Herfindahl index of places of worship in the constituency. The Herfindahl index is the sum of the square of shares of places of worship for each religious denomination listed in the 1851 Census of Religious Worship (Church of England, other Protestant denominations, Roman Catholics, and Jews). A high *Religious fractionalization* index corresponds to a high degree of fractionalization. Source: Census of Great Britain, 1851. Religious Worship. England and Wales (House of Commons Parliamentary Papers).
- *Attendance ratio* is the share of attendants (both adults and children) at public worship in the morning of Sunday March 30, 1851 as a fraction of the total number of seats in all places of worship in a constituency. Source: Census of Great Britain, 1851. Religious worship. England and Wales (House of Commons Parliamentary Papers).
- *Petitions against (for) Catholic relief* is the number of petitions against (for) granting Catholics political rights received by the House of Commons between 1828 and 1829 (no petition on this issue was received by the House of Commons in 1830 and 1831, after the Catholic Relief Act of 1829). The data were constructed by word searches for the name of each constituency. Source: Journal of the House of Commons, vol. 83-84, 1828-1829.
- *Petitions against slavery* is the number of petitions against slavery, i.e., in support of the abolition of slavery, received by the House of Commons between 1828 and 1831. The data were constructed by word searches for the name of each constituency in the list of petitions related to abolition. Source: Journal of the House of Commons, vol. 83-86, 1828-1831.<sup>3</sup>
- *Petitions against (for) reform* is the number of petitions against (for) parliamentary reform received by the House of Commons between 1828 and 1831. 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, vol. 83-86, 1828-1831.

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<sup>3</sup> There were too few petitions against the abolition of slavery from the English constituencies to enable us to estimate their effect in the empirical analysis.

### Variables with variation only at the county level

(The county total is attributed to each constituency within that county).

- *Share of harsh sentences* is the share of hanging and deportation to Australia out of all the sentences against Swing rioters in each county. Source: Hobsbawm and Rudé (1973, Appendix II).
- *Special Commission* is a dummy variable equal to one for the constituencies located in one of the five counties (Berkshire, Buckinghamshire, Dorset, Hampshire and Wiltshire) where a special commission headed by a judge was specifically appointed by the government to swiftly try the rioters, and zero otherwise. Source: Hobsbawm and Rudé (1973, Appendix II).
- *Growth in poor law expenses* is the percentage growth rate of poor law expenditures per head in each county over the period 1750 to 1813 (Gonner, 1912, Appendix B).

### Variables used for the pre-reform placebo tests (Table 6 and Tables S19 to S22)

Table S26 reports the descriptive statistics for these variables.

### Variables with constituency level variation.

- *Whig share YEAR*, with  $YEAR \in \{1796, 1802, 1806, 1807, 1812, 1818, 1820, 1826\}$ , the percentage share of seats in a constituency won by either Whig or Radical candidates in the YEAR election. Source: Namier and Brooke (1964), Stooks Smith (1973), Thorne (1986), and various editions of Dod (various years).
- *Patronage index* is defined for each election year, 1802, 1806, 1807, 1812, 1818, 1820, 1826, as the sum of the dummy variables *Rotten borough* and *Uncontested elections in the past*. *Rotten borough* is equal to one if the constituency was disenfranchised by the Great Reform Act and zero otherwise. *Uncontested elections in the past* is equal to one if none of the eight previous elections excluding the current one was contested, and zero otherwise. Source: Cannon (1973, Appendix III).
- *Population* is the total number of inhabitants in a constituency (in 1000s) in 1801, 1811 or 1821. Source: Census of Great Britain, 1801, 1811 and 1821.



- *Population density* is the number of inhabitants per inhabited house in the constituency in 1801, 1811 or 1821. Source: Census of Great Britain, 1801, 1811 and 1821.
- *Emp. fract. index* is equal to one minus the Herfindahl index of employment in 1801, 1811 or 1821. The Herfindahl index is the sum of the square of the share of individuals in each Census registration district working in agriculture, trade and in other occupational categories. Each constituency is matched to the Census registration district that is the closest geographical unit in 1801, 1811 or 1821. Source: Census of Great Britain, 1801, 1811 or 1821.
- *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 in 1801, 1811 or 1821. Each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1801, 1811 and 1821.
- *Trade (emp. share)* is the number of individuals working in industry, trade or as artisans as a proportion of the workforce in each Census registration district in 1801, 1811 or 1821. Each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1801, 1811 and 1821.

#### Variables with variation only at the county level

(The county total is attributed to each constituency within that county).

- *Food riots 1800-01* is the number of food riots recorded in 1800 and 1801. Food riots were mainly direct collective actions of town artisans, proto-industrial, and industrial workers against rising prices of basic food items. They included crowd actions over food prices, actions to prevent food from being transported, seizure of foodstuffs, raids on storehouses as well as attacks on and extortions of money, food and drink from farmers, traders, or magistrates. This variable is constructed from John Bohstedt's unpublished compilation of riots. Source: John Bohstedt's unpublished compilation of food riots 1800-01 (for a general discussion of this compilation, see Bohstedt, 2010).
- *Riots 1793-1805* is the sum of food riots recorded in 1800 and 1801 in Bohstedt's compilation (*Food riots 1800-01*) and labor riots between 1793 and 1805. Labor riots were protests by agricultural laborers and mainly related to demands for higher wages and lower

tithe or to protest against new agricultural machinery. Source: Charlesworth (1983, map 39) and John Bohstedt's unpublished compilation of food riots 1800-01.

- *Food riots 1810-13* is the number of food riots recorded between 1810 and 1813. Source: Charlesworth (1983, map 29).
- *Riots 1815-18* is the sum of food riots (1816-18) and labor riots in 1815 and 1816. Source: Charlesworth (1983, maps 30 and 40).
- *Labor riots 1822* is the number of labor riots in 1822. Source: Charlesworth (1983, map 41).
- *Foot riots 1800-1818* is the number of food riots recorded between 1800 and 1818. Source: Bohstedt's unpublished compilation of food riots 1800-01 and Charlesworth (1983, maps 29 and 30).
- *Labor riots 1793-1822* is the number of labor riots between 1793 and 1822. Source: Charlesworth (1983, maps 39, 40 and 41).
- *All riots 1793-1822* is the total number of food riots and labor riots between 1793 and 1822 which is computed as the sum of *Foot riots 1800-1818* and *Labor riots 1793-1822*.

Variables used for the post-reform placebo tests (Table 6 and Tables S23 and S24)

Table S27 reports the descriptive statistics for these variables.

Variables with constituency level variation.

- *Whig vote share YEAR*, with  $YEAR \in \{1832, 1835, 1837, 1841, 1847, 1852, 1857, 1859, 1865\}$ , is the share of the total votes in a constituency in the *YEAR* general election in favor of Whig candidates. Source: Caramani (2000).
- *Share of MPs' votes for the 1866 reform bill* is the cumulated number of votes in support of the 10 specific pro-reform amendments to Prime Minister Earl Russell's failed reform bill at the committee stage from the MPs elected in a given constituency as a proportion of the total votes that could have been cast by the MPs elected in that constituency. Source: Moser and Reeves (2014) who collected the data from the House of Commons Parliamentary Papers and Hansard (1866).
- *Share of MPs' votes for the 1867 reform bill* is the cumulated number of votes in support of 49 specific pro-reform amendments to Prime Minister Benjamin Disraeli's successful reform bill at the committee stage from the MPs elected in a given constituency as a

proportion of the total votes that could have been cast by the MPs elected in that constituency. Source: Moser and Reeves (2014) who collected the data from the House of Commons Parliamentary Papers and Hansard (1867).

- *Liberal seat share* is the share of seats won by the candidates from the Liberal Party in the 1865 election (the Whig Party changed its name to the Liberal Party between 1859 and 1865). Source: Moser and Reeves (2014) who collected the data from the House of Commons Parliamentary Papers and Hansard (1866).
- *Conservative seat share* is the share of seat won by the candidates from the Conservative party in the 1865 election (the name “Conservative” had been suggested by John Wilson Croker in the 1830s; by 1860 it had become the official name of the “Tory” party). Source: Moser and Reeves (2014) who collected the data from the House of Commons Parliamentary Papers and Hansard (1866).<sup>4</sup>
- *Population* is the total number of inhabitants in a constituency (1831) or in the Census registration district (1841, 1851 and 1861) in 1000s. In 1841, 1851 and 1861, each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1831, 1841, 1851 and 1861.
- *Population density* is the number of inhabitants per inhabited house in a constituency (1831) or in the Census registration district (1841, 1851 and 1861). In 1841, 1851 and 1861, each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1831, 1841, 1851 and 1861.
- *Emp. fract. index* is equal to one minus the Herfindahl index of employment in the Census registration district in 1831, 1841, 1851 or 1861. The Herfindahl index is the sum of the square of the share of individuals working in agriculture, trade and in the other occupational categories. Each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1831, 1841, 1851 or 1861.
- *Agriculture (emp. share)* is the number of persons listed as being employed in agriculture as a fraction of the workforce in each Census registration district in 1831, 1841, 1851 or 1861. Each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1831, 1841, 1851 or 1861.

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<sup>4</sup> When we use the dummy variables *Liberal seat share* and *Conservative seat share* in the statistical analysis, the omitted category is the group of independent MPs.

- *Trade (emp. share)* is the number of individuals working in industry, trade or as artisans as a fraction of the workforce in each Census registration district in 1831, 1841, 1851 or 1861. Each constituency is matched to the Census registration district that is the closest geographical unit. Source: Census of Great Britain, 1831, 1841, 1851 or 1861.

## **Appendix S2. Connection to London**

This appendix explains how we built the variable *Connection to London*. This variable aims at measuring how well a constituency was connected to London in terms of geographic, economic and information links. We measure geographic and economic links between a constituency and London by the inverse distance in kilometers. We measure information links by assessing a constituency's integration into the London news market. The historical evidence makes it clear that information flowed from London, which was England's information hub, to the rest of the country, and this suggests that we can quantify the exposure of decision-makers (the voters and the patrons) in a particular constituency to news from outside their own county by a combination of two factors (e.g., Aspinal, 1973, Asquith, 1978, Barker, 2000).

Firstly, it can be hypothesized that a constituency with a newspaper would be a natural local information hub, even if the market for the newspaper included a far larger area, as was commonly the case. Local editors would pick and report national news from London, but it is safe to assume that the news from London would reach a wider audience than the sole readers of the local newspaper since both newspaper editors and readers would spread the news informally in coffee houses and inns. Secondly, it is natural to assume that national news would be more likely to reach constituencies located in counties with a substantial number of newspapers and a large newspaper circulation than in comparable constituencies with few newspapers and limited circulation.<sup>5</sup>

We use data on the circulation of newspapers to combine these two factors with information on geographic distance to London. To obtain circulation numbers, we rely on

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<sup>5</sup> The reading public outside London was exposed to national news through the 130 or so weekly local and regional newspapers that picked up the news from London (and mixed them with local and regional news) or directly by London papers circulated to the provinces (Barker, 2000, chapters 2 and 3). Newspapers could be mailed free of charge and it was common practice for MPs to mail papers back to their friends and family so that all constituencies had some connection to the hub.

information from two Returns to the House of Commons in 1833 regarding the total number of stamp duties paid by each newspaper published in London and in the English provinces.<sup>6</sup> Each (newspaper) page published required a stamp so that these figures can be converted into an estimate of the newspapers' circulation.<sup>7</sup> 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 and allocate these circulation figures directly to a constituency if the name of the newspaper allows us to do so, or to the county in which it was published if not. Based on this information, we compute the constituency specific variable *Connection to London*, as the sum of

- 1) The yearly circulation in the county where the constituency was located, excluding newspapers published in the borough (if applicable), divided by the county population in 1831.
- 2) The yearly circulation of newspapers published in the borough divided by the borough population in 1831. For the county constituencies, this is always zero by construction.
- 3) The yearly circulation of newspapers published in London divided by the total population of England (equal to 4.5) is multiplied by a distance discount factor, i.e., the inverse distance between each constituency and London. Since the constituencies around London and Middlesex are likely to be fully integrated in the London economy and news market, we allow for a radius of 20 miles around the City of London before applying the distance discounting.

The idea behind (1) and (2) is that all constituencies in a county are exposed to the average circulation of news in that county, but that a borough constituency inside the county which hosts a newspaper gets extra exposure. This is captured by normalizing the circulation of the newspaper(s) published in the borough with the borough population rather than with the

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<sup>6</sup> The source of this information is two returns to Parliament in 1833 about the number of stamps issued for all London and all English provincial newspapers (House of Commons, 1833a, 1833b). While there may be inaccuracies with respect to the stamp returns of some newspapers, the figures should overall give a fair picture of the total circulation of newspapers in that year.

<sup>7</sup> 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.

county population. The idea behind (3) is that the London newspapers were, in a sense, national newspapers. Thus each citizen should get the average exposure – calculated as the average newspaper circulation per year per capita – but this exposure is discounted as one moves further away from London. To account for the economic linkages, we do not apply the distance discounting to constituencies located within 20km of the City of London.

The above calculation of the *Connection to London* variable applies to all constituencies with six exceptions. For London, Westminster, and Middlesex, we assume that the exposure is greater than the national average and divide the total London circulation by the total population of London and Middlesex rather than by the national population. For Southwark, which is located 2km from the City of London, we divide the total London circulation by the population in London, Middlesex and Sussex (the county to which Southwark belongs). Moreover, for the two university constituencies in Oxford and Cambridge, where the voters were graduates living elsewhere, many in London, we simply assume that they are exposed to the national circulation average for London without any distance discounting (4.5). This makes them among the most exposed constituencies outside London. The resulting variable, which varies by constituency, ranges from 0.68 in Durham County to 20.4 in London, Westminster, and Middlesex.

### **Appendix S3. Placebo tests**

This appendix elaborates on the placebo tests discussed in Section 5.4 and selectively summarized in Table 6. Tables S19 to S24 report the full results. These placebo tests require demographic and employment data similar to those used in the main analysis from the decennial censuses between 1801 and 1861. These data are described in supplementary material appendix S1, along with other specific data on riots, election outcomes and voting behavior. We organize the discussion of the placebo tests chronologically. First, we discuss the tests which focus on events that happened before 1831 (pre-reform placebo tests). Second, we discuss the tests which deal with events that happened after 1831 (post-reform placebo tests).

#### *Pre-reform placebo tests*

We carry out three series of placebo tests related to events between 1802 and 1826. i.e., before the Swing riots and the Great Reform Act. First, we re-estimate equation (1) with the

share of Whigs elected in each constituency in the seven general elections that took place between 1802 and 1826 as the dependent variable (Table S19). We find that *Riots within 10km* is insignificant in all the cases, except for the 1802 election. We reported in Tables 2, 4 and 5 that the Swing riots are uncorrelated with the outcome of the 1830 election. The lack of a statistically significant relationship between the Swing riots and the electoral success of the Whigs between 1806 and 1830 does not suggest that the correlation between *Riots within 10km* and the share of Whigs elected in the 1802 election is due to some persistent unobserved factor. Overall, these tests, at least partly, alleviate concerns that the spatial distribution of the riots could be correlated with unobserved determinants of the Whig support.

Second, we assess whether riots that happened before the Swing riots can predict the outcome of the 1831 election. If they could, then the relationship between *Riots within 10km* and the share of Whigs elected in 1831 could be attributed to unobserved factors correlated with a general propensity for riots to occur in particular “hotspots” and with the support for the Whigs. For this purpose, we use the detailed historical work of Charlesworth (1983) and Bohstedt (2010) to compute the number of food and rural labor riots in each county between 1793 and 1822. We replicate the regressions of Table 1 with these past riots, instead of *Riots within 10km*, and find that riots in the past cannot predict the outcome of the 1831 election (Table S20). Our analysis of the relationship between the food and rural labor riots from 1793 to 1822 and the Swing riots confirms the absence of a systematic inter-temporal pattern. We find a *negative* unconditional correlation of *Riots within 10km* with these past food riots and a weak positive correlation with labor riots but these correlations are not robust to controlling for observable factors (Table S21). It thus does not appear that the Swing riots occurred systematically in the areas where riots had taken place in the past.

Third, we investigate whether labor or food riots which occurred in the run-up to each election between 1802 and 1826 can explain the share of Whigs returned in these elections. This placebo test is motivated by our interpretation of the positive relationship between *Riots within 10km* and the Whig electoral success in 1831 as evidence consistent with the “threat of revolution” theory. According to this interpretation, the voters and patrons viewed the spike in riots in the immediate neighborhood of their constituency as a warning that a concerted revolt could threaten the social order and considered that the support for the ongoing reform process could defuse the threat. This interpretation would, however, be inconsistent if the Whigs had

fared well in the constituencies which had experienced a wave of riots in earlier elections – when parliamentary reform was not a major issue. We find that there is no relationship between past riots and electoral outcomes, thus suggesting that the link between the Swing riots and the outcome of the 1831 election is “unique” (Table S22).

#### *Post reform placebo tests*

We undertake two series of placebo tests that are related to events that occurred after the Great Reform Act. First, we examine whether the spatial distribution of the Swing riots can predict the electoral success of the Whigs in the elections between 1835 and 1865, i.e., between the Great Reform Act and the Second Reform Act. Using data from Caramani (2000) on the share of votes obtained by Whig candidates in the elections held during this period, we estimate appropriately adjusted versions of equation (1) on the subsample of constituencies which returned MPs before and after 1832, i.e., the constituencies which were not disenfranchised by the Great Reform Act. We find that *Riots within 10km* cannot predict the share of votes obtained by the Whig party in any of these elections (Table S23).

Second, we use data collected by Moser and Reeves (2014) on the voting behavior of the MPs elected in this subset of constituencies in relation to the (failed) reform bill introduced by Earl Russell in 1866 and the (successful) reform bill introduced by Benjamin Disraeli in 1867 (which subsequently become known as the Second Reform Act). These data pertain to votes cast by the MPs on specific points at the committee stage<sup>8</sup> and are aggregated to the share of votes cast in favor of the bills by the MPs from each constituency. We find that *Riots within 10km* cannot explain the voting patterns of the MPs elected in 1865 on the 1866 and 1867 reforms bills (Table S24).

Overall, these placebo tests show that *Riots within 10km* does not have any predictive power for events that happened after the Reform Act. In particular, these tests suggest that the voters and patrons did not vote for the Whigs in 1831 because they anticipated that parliamentary reform would give the Whig party an advantage in their constituency in the ensuing elections. They are, therefore, consistent with our argument that the voters and patrons supported the Whigs and Radicals in 1831 because they feared a potentially destructive revolution.

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<sup>8</sup> The Second Reform Act passed the second reading by voice vote so that there is no division list specifically on the overall bill.



#### **Appendix S4. Alternative explanations for the outcome of the 1831 election**

In this appendix, we elaborate on the discussion from Section 5.5 as to whether factors other than the Swing riots can provide convincing explanations of the Whig victory in the 1831 election. For this purpose, we add variables which account for these alternatives to the baseline regression from Table 1, column (5). For ease of reference, Table S25 reproduces the results from Table 7 along with one additional regression.

##### *Administrative reforms and the weakening of the executive*

Morrisson (2011) argues that, by the late 1820s, successive reforms of the public administration had limited the ability of the Tories to control seats through government patronage, thereby paving the way for the Whig victory in 1831. While Lord Liverpool undertook reforms after 1815 and the administration gradually became more efficient and less corrupt (see, e.g., Jupp, 1998, Chap. 1; Mokyr, 2009, pp. 425-426), elections nevertheless remained highly corrupt in England in the years before the Great Reform Act.<sup>9</sup> In particular, the historical evidence suggests that between the mid-1750s and 1832, the Treasury, i.e., the ruling government, roughly controlled the same number of seats – between 25 and 30 – in the House of Commons.<sup>10</sup>

Our empirical analysis casts further doubt on the hypothesis that the development of an effective administration weakened the Tories sufficiently to account for the Whig victory in 1831. First, Tables 1 and S4 show that *Patronage index*, which accounts for proprietary constituencies and Treasury boroughs, is negatively related to the share of Whigs elected in 1830 and 1831. Table S22 reveals a similar pattern for each election between 1802 and 1826, although

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<sup>9</sup> Parliamentary elections remained corrupt even after 1832. In fact, an attack regularly leveled by the Radicals and the Tories against the Whigs after the Great Reform Act consisted in denouncing their “hypocrisy”: the Whigs had condemned Tory and royal patronage when they were in opposition but had no qualms using the Treasury to support Whig candidates once they were in power (Newbould, 1990). It was only after the successive adoptions of the 1872 Secret Ballot Act (which made voting anonymous), the 1883 Corrupt and Illegal Practices Prevention Act and the 1885 Parliamentary Elections Corrupt Practices Act that elections became less fraudulent (see O’Leary, 1962).

<sup>10</sup> The Treasury only controlled those seats because patrons were willing to sell them to the ruling government, and this explains why some seats might have evaded the Treasury’s influence from time to time. Namier and Brooke (1964, Vol. 1, pp.54-57) write that in 1754, the Treasury fully or partially controlled 13 boroughs, and as such 25 seats. Thorne (1986, Vol. 1, pp. 46-56) estimates that the same number approximately remained under Treasury control between 1790 and 1820 while Philbin (1965) reckons that 28 seats were under Treasury control in 1830 and 1831.

*Patronage index* is not always significant. This does not suggest that administrative reforms had undermined the Tory's ability to control seats. Second, Table S25, column 1 excludes the 14 constituencies (representing in total 28 seats) that were controlled by the Treasury just before the Great Reform Act (Philbin, 1965). This reduces the size of the point estimate on *Riots within 10km* a little, but it remains significant at the 5 percent level. Hence, it does not appear that the victory of the Whigs in 1831 can be attributed to reforms of the English administration.

### *Religious networks*

The mobilization of religious networks is another possible explanation of the Whig victory in 1831. The Whigs, who supported policies of religious toleration, could have benefited from the existence of religious networks, particularly those of Catholics and Protestant dissenters from the Church of England. However, it is not a priori clear why these religious networks would matter more in 1831 than in 1830. Moreover, religious tolerance was an issue that, unlike the question of parliamentary reform, cut across parliamentary factions rather than between them. While the "ultra" Tories opposed the repeal of the legislation that discriminated against Catholics and Protestant dissenters from the Church of England, it was nonetheless the Duke of Wellington's Tory government that passed the Catholic Relief Act in 1829 with the support of the "liberal" Tories. Conversely, Radical reformer William Cobbett wanted to enfranchise all Englishmen but it is not clear whether his plans included the Jews and the Quakers, whom he regularly accused of defrauding English peasants (Cobbett, 1830).

To capture differences in religious networks across the constituencies, we rely on two sources. First, we use information from the Journal of House of Commons to compute the number of petitions in favor and against Catholic relief sent from each constituency between 1828 and 1831. We digitalized the relevant pages and conducted word searches for the names of the constituencies and the county seats (and names of the counties themselves). Second, we use the 1851 Census of Religious Worship, which is the earliest survey on religious observance in England, to compute three variables.<sup>11</sup> The dummy variable *Catholic church* takes the value one if at least one Catholic church was located within the census unit with the same name as the borough, or as the county seat for the counties; the religious service *Attendance ratio* is

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<sup>11</sup> The reliability of the 1851 Census of Religious Worship has been questioned (see, e.g., the discussions in Field, 1997, and Snell and Ell, 2000). Overall, it seems that there are few omissions for England but that the quality of the Scottish data (which we do not use) is poor.

computed as the fraction of adults and children at public worship in the morning of Sunday March, 30<sup>th</sup> 1851, out of the total number of seats in all places of worship in the census unit with the same name as the constituency; the index of *Religious fractionalization* accounts for the presence of places of worship for Anglicans, Catholics, Jews and Protestant Dissenters from the Church of England in the census unit with the same name as the constituency, such that a high index value implies a higher degree of fractionalization.<sup>12</sup>

Table S25, column (2) shows a specification with these variables added to the baseline model. We find that the presence of a *Catholic church* in a constituency has a positive and significant impact on the victory of Whig MPs but that the index of *Religious fractionalization* and the *Attendance ratio* are insignificant. Columns (3) to (6) retain the two variables related to the number of petitions for and against Catholic relief. We find that the number of petitions against Catholic relief is positive and significant at the 10 percent level in one specification (column (4)) while that of petitions in favor is never significant. However, in all these regressions, the point estimate on *Riots within 10km* remains positive, significant, and of the same size as in the baseline specification in Table 1, column (5). This suggests that insofar as religious networks contributed to the outcome of the 1831 election, they did so as a complement, not as a substitute for the effect induced by the Swing riots.

#### *Anti-slavery networks*

The mobilization of anti-slavery networks could also have contributed to the success of the Whigs and Radicals in 1831. However, like the political divide on religious tolerance, the divisions on slavery did not follow party lines. The leading anti-slavery activist inside and outside Parliament was William Wilberforce, who had strong evangelical beliefs and held “the borderline position between orthodox Toryism and Liberalism” (Halévy, 1923, Vol. 2, p.117).<sup>13</sup> Wilberforce had actually supported William Pitt the Younger’s attempt at parliamentary reform in 1785 but considered that the Great Reform Act was too far-reaching (see, e.g., Stoughton,

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<sup>12</sup> Out of these three measures from the 1851 Census of Religious Worship, the indicator variable *Catholic church* is the one which is less likely to have changed between 1831 and 1851 and can be said to reflect local tolerance towards the Catholic minority over time. Iannaccone, (2008) discusses research which suggests that religiosity in England declined less quickly during the 19<sup>th</sup> than during the 20<sup>th</sup> century. Accordingly, there are reasons to believe that the two other measures are reasonable proxies for the situation in 1831.

<sup>13</sup> The Whig aristocrats favored a policy of religious tolerance but not because of their own religious beliefs since they barely had any (Mitchell, 2005).

1880, pp. 30-33). Conversely, William Cobbett, who campaigned for the enfranchisement of all English peasants, favored the continuation of slavery in the West Indies.<sup>14</sup>

We test for the potential impact of anti-slavery networks on the Whig victory in 1831 by adding the number of petitions against slavery sent to Parliament from each constituency between 1828 and 1831 to our baseline model. Table S25, columns (3) to (6) show that petitions against slavery is insignificant. This suggests that the mobilization of anti-slavery networks did not play any major role in the outcome of the 1831 election.

#### *The mobilization of pro-reform political associations*

The mobilization of the organizations of urban artisans and professionals that militated, though not always exclusively, in favor of parliamentary reform could have helped the Whigs win the 1831 election.<sup>15</sup> These organizations were mostly active in urban areas that had no representation under the Unreformed Parliament but they also had sympathizers in the rural constituencies who sent petitions in favor of reform to the Parliament. However, the House of Commons also received many petitions against parliamentary reform which were usually sent – maybe unsurprisingly – by the owners of the rotten boroughs that stood to be disenfranchised. We use the number of petitions in favor and against parliamentary reform sent from each constituency to the House of Commons between 1828 and 1831 to account for pro- and anti-reform agitation.

Table S25, columns (4) to (6) show that the number of petitions against reform is significantly and negatively correlated with *Whig share 1831* while that of petitions in favor of reform had no significant effect. We observe that *Riots within 10km* remains positive and significant and that the point estimates are quantitatively similar to those found in the baseline regressions in Table 1.

#### *Poor law expenditures*

The Whig success in 1831 could stem from the relationship between the intensity of the Swing riots and local variations in poor law expenditures. The Old Poor Law was administrated

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<sup>14</sup> Cobbett only abandoned his support for slavery to have his revenge on the Marquis of Chandos, an “ultra” Tory who owned plantations in the West Indies and rotten boroughs in England. See Political Register, 4 August 1832, Vol. 57, p.261, cited by Halévy (1923, Vol. 3, p.75).

<sup>15</sup> The main organizations of artisans and professionals were not led by Whigs, which is not surprising given the lack of interest that Whig leaders had for mass mobilization (Mitchell, 2005). Francis Place, who led the Chartist organization, was a close associate of the Radicals while the Tory sympathies of Thomas Attwood, who led the Birmingham Political Union, were well-known (see, e.g., Halévy, 1923, Vol. 3).

with a great deal of local discretion by about 1500 parishes and it provided support (wage subsidies, in kind or otherwise) to the rural poor, i.e., the social group to which the Swing rioters belonged. The payments were financed out of local property taxes (Marshall, 1985). However, the cost of this welfare system was generally perceived to have already risen to an unacceptable level by the turn of the 18<sup>th</sup> century. Blaug (1963) and Boyer (1993) among others convincingly show that poor relief was a response to systematic underemployment and argue that variations in the details of relief arrangements, i.e., supply factors, were much less important for the increase in total Poor Law expenditures than variations in general economic circumstances.<sup>16</sup>

It is, however, important to keep in mind, as pointed out by Boyer (1993), that the Old Poor Law system benefited some segments of the rural community at the expense of others. In particular, the subsidy implied by the poor law tax made it cheaper for large landowners to keep agricultural workers in the parish during the off-season ready for the next season. The conflict of interest between the large landowners and the small ratepayers (typically the tenant farmers) could have generated some of the observed variation in Poor Law expenditures.

Nonetheless, the increase in poor law expenditures in the decades before 1830 is, overall, a good proxy for how deprived conditions were in different parts of the country, and therefore, for potential rioting. This logic is reinforced by the fact that one motivation behind the Old Poor Law was that of providing social stability and preventing riots (Marshall, 1985, p. 10, and see the related discussion in Greif and Igiyun, 2013). Accordingly, counties which had experienced a large increase in the Poor Law cost between 1750 and 1813 might have been more likely to be those where the underlying social conditions might have encouraged riots.

Moreover, it is possible that the growth in poor law expenses is correlated with riots and the outcome of the 1831 election because the electors and patrons might have thought it necessary to reform the parliament to change the Old Poor Law. There was, however, no particular factor which could have prevented poor law reform under the rules of the unreformed parliament and by a Tory government. The general problem of poor relief had been examined in a number of parliamentary enquiries before 1832. Still, the uneven incidence of the poor law tax such that the growth in expenses could have occurred in areas where the landowners, who benefited from the system at the expense of the tenant farmers, might also have been particularly

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<sup>16</sup> As Marshall (1985, p. 32) puts it “following the 1820s, the demand for rural labor was much less intense and a greater degree of agricultural unemployment undoubtedly swelled the relief bills.”

averse to reforming the system, and therefore likely to oppose the Whigs. In fact, poor relief was only reformed, and became much less generous, following the establishment of the Poor Law Commission by Earl Grey in 1833 which resulted in the Poor Law Amendment Act passed in 1834.

We use data collected by Gonner (1912, Appendix B) to build a measure of the growth rate of poor law expenditures per capita in each county between 1750 and 1813. We include this variable in Table S25, column (5). We find that *Growth in poor law expenses* is insignificant – and observe no substantial change in the size and significance of *Riots within 10km*. This suggests that Poor Laws expenditures did not have any impact on the Whig success in the 1831 election.

#### *The Whig repression of the Swing riots*

Another possible explanation for the Whig victory in 1831 pertains to the suppression of the Swing riots carried out by the Whig Prime Minister Charles Grey and Home Secretary Viscount Melbourne. In this perspective, it would not be the proximity to the riots which convinced the voters to support the Whigs, but rather the harshness of the repression which persuaded them that the Whigs could be trusted to protect private property rights and preserve the traditional order of English society, even if they implemented parliamentary reform.

To investigate this possibility, we use the information from Hobsbawm and Rudé (1973, Appendix II) to build two variables. First, we define a dummy variable for the constituencies located in one of the five counties (Berkshire, Buckinghamshire, Dorset, Hampshire and Wiltshire) where a special commission headed by a judge was appointed by the government to swiftly and severely try the rioters. Second, we compute the share of harsh punishments, i.e., hanging and deportation to Australia, out of all the sentences against Swing rioters in each county.

Table S25, column (6) shows that harsher sentences have a positive and significant impact on the Whigs' electoral success and that the appointment of a special commission has a negative effect. Importantly, the inclusion of these two variables does not weaken the effect of *Riots within 10km* on the Whigs' electoral success. The point estimate is quantitatively similar to that of the baseline regression in Table 1, column (5) and statistically significant.

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# Supplementary Material

## Tables

**Table S1. Test for mean differences between treated and control constituencies**

	Treated		Control		Difference	
	Mean	Standard dev.	Mean	Standard dev.	Mean difference	Standard error
Whig share 1826	41.7	39.6	33.6	38.7	-8.1	5.53
(Whig share 1826) <sup>2</sup>	3,303	3,968	2,607	3,721	-696	538
Reform support in 1830	-0.025	0.56	-0.046	0.53	-0.02	0.08
County constituency	0.17	0.38	0.16	0.37	-0.02	0.05
Narrow franchise	0.25	0.43	0.23	0.42	-0.02	0.06
Patronage index	0.94	0.68	1.14	0.64	0.20	0.09**
Population density	5.50	0.78	5.72	0.97	0.21	0.13
Population	58.8	146	73.7	235	14.8	30.2
Thriving economy	0.16	0.36	0.20	0.40	0.04	0.06
Declining economy	0.22	0.42	0.19	0.39	-0.04	0.06
Emp. Fract. index	0.76	0.078	0.76	0.062	0.003	0.01
Agriculture (emp. share)	0.20	0.19	0.18	0.16	-0.02	0.02
Trade (emp. share)	0.36	0.13	0.39	0.13	0.03	0.02
Professionals (emp. share)	0.053	0.026	0.056	0.027	0.002	0.004
Riots within 10km	13.0	13.3	0.50	0.50	-12.5	1.01***
Whig share 1831	62.8	43.8	42.9	43.6	-20.0	6.2***
Obs. (constituencies)	172		70		242	

Note: Table S1 reports descriptive statistics for the treated and control groups as well as tests for mean differences in observables. The treatment variable *Riot treatment* is equal to one if the number of riots within 10km of the constituency is strictly greater than one (where one riot defines the 28<sup>th</sup> percentile of the distribution of *Riots within 10km*) and zero otherwise. The two university constituencies belong to the treated group and are not included in the comparison tests. The tests which include these two constituencies provide similar results to those reported here. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S2. Local Swing riots and the outcome of the 1831 election**  
**Probit estimates of the likelihood that a Whig was elected to a seat**

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	<b>Whig elected 1831</b>					
	Probit					
Riots within 10km	0.0058 [0.0029]**	0.0056 [0.0028]**	0.0062 [0.0029]**	0.0068 [0.0029]**	0.0056 [0.0027]**	0.0065 [0.0029]**
Whig share 1826		0.012 [0.0031]***	0.0080 [0.0038]**	0.0094 [0.0040]**	0.0081 [0.0036]**	0.0092 [0.0014]***
(Whig share 1826) <sup>2</sup>		-0.000065 [0.000049]	0.000021 [0.000061]	5.0e-07 [0.000065]	-1.1e-06 [0.000059]	
Reform support 1830		0.19 [0.065]***	0.19 [0.072]***	0.19 [0.073]**	0.16 [0.069]**	0.20 [0.072]***
County constituency			0.41 [0.048]***	0.45 [0.053]***	-0.020 [0.13]	0.40 [0.050]***
Narrow franchise			0.014 [0.077]	0.019 [0.075]	0.0022 [0.063]	
Patronage index			-0.24 [0.051]***	-0.18 [0.064]***	-0.12 [0.061]**	-0.21 [0.055]***
Emp. fract. index				0.081 [0.45]	0.12 [0.39]	
Agriculture (emp. share)				-0.48 [0.42]	-0.35 [0.36]	
Trade (emp. share)				0.070 [0.45]	0.12 [0.38]	
Professionals (emp. share)				-2.10 [1.80]	-1.42 [1.38]	
Population					0.0034 [0.00074]***	
Population density					0.0050 [0.035]	
Thriving economy					-0.19 [0.100]*	
Declining economy					-0.15 [0.082]*	-0.15 (0.086)*
Pseudo R <sup>2</sup>	0.02	0.20	0.35	0.36	0.40	0.36
Obs. (constituencies)	489	489	489	489	489	489

Note: Table S2 reports the full probit results associating local Swing riots to the likelihood that a Whig was elected to one of the 489 English seats in 1831. The results for *Riots within 10km* are reported in panel B of Table 1. The reported marginal effects are evaluated at the mean of the explanatory variables. Standard errors are clustered at the constituency level. Constant terms are not shown. The two university constituencies elected Tories to all four seats so that we cannot condition on *University constituency*. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S3. Local Swing riots and the outcome of the 1831 election**  
**Fractional Estimator**

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	<b>Whig share 1831 (fraction)</b>					
	Fractional Estimator					
Riots within 10km	0.015 [0.0076]**	0.013 [0.0068]*	0.016 [0.0075]**	0.017 [0.0074]**	0.016 [0.0078]**	0.016 [0.0072]**
Whig share 1826		0.021 [0.0061]***	0.0054 [0.0065]	0.0066 [0.0067]	0.0095 [0.0069]	0.012 [0.0026]***
(Whig share 1826) <sup>2</sup>		-0.000093 [0.000065]	0.000069 [0.000072]	0.000062 [0.000072]	0.000032 [0.000075]	
Reform support 1830		0.38 [0.18]**	0.46 [0.19]**	0.44 [0.20]**	0.45 [0.21]**	0.48 [0.19]**
County constituency			1.38 [0.23]***	1.61 [0.29]***	0.0092 [0.35]	1.29 [0.23]***
Narrow franchise			-0.0056 [0.20]	0.011 [0.20]	-0.0093 [0.19]	
Patronage index			-0.60 [0.13]***	-0.44 [0.17]***	-0.34 [0.18]*	-0.51 [0.13]***
Emp. fract. index				-0.0018 [1.16]	0.23 [1.17]	
Agriculture (emp. share)				-1.18 [1.04]	-0.97 [1.04]	
Trade (emp. share)				0.33 [1.12]	0.57 [1.12]	
Professionals (emp. share)				-4.41 [4.51]	-4.06 [4.20]	
Population					0.0095 [0.0027]***	
Population density					0.019 [0.10]	
Thriving economy					-0.48 [0.25]*	
Declining economy					-0.40 [0.21]*	-0.36 [0.21]*
Obs. (constituencies)	244	244	244	244	244	244

Note: Table S3 reports estimates associating local Swing riots to the outcome of the 1831 election using the fractional estimator of Papke and Wooldridge (1996) that transforms the dependent variable *Whig share 1831* with a logit link. The exponential value of the coefficients can be interpreted as odds ratios. Robust standard errors are reported in square brackets. Constant terms are not shown. Each column corresponds to the least squares regressions reported in Table 1, panel A, except that it is not possible to condition on *University constituency* because both constituencies elected Tories. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S4. Local Swing riots and the outcome of the 1830 election  
Placebo results corresponding to Table 1**

	(1)	(2)	(3)	(4)	(5)	(6)
<b>Panel A</b>	<b>Whig share 1830 (%)</b>					
	Least squares					
Riots within 10km	0.33 (0.23) [0.20]	0.14 (0.12) [0.12]	0.14 (0.11) [0.11]	0.11 (0.11) [0.11]	0.11 (0.11) [0.11]	0.15 (0.11) [0.12]
Whig share 1826		0.76 [0.13]***	0.58 [0.15]***	0.56 [0.15]***	0.57 [0.16]***	0.60 [0.055]***
(Whig share 1826) <sup>2</sup>		-0.0015 [0.0014]	0.00017 [0.0015]	0.00041 [0.0015]	0.00043 [0.0016]	
Reform support 1830		9.87 [3.45]***	9.20 [3.38]***	9.22 [3.40]***	9.01 [3.53]**	9.13 [3.32]***
County constituency			9.71 [3.81]**	7.43 [4.21]*	7.28 [5.50]	8.99 [3.67]**
University constituency			10.9 [22.8]	12.5 [23.6]	13.1 [23.3]	10.2 [22.5]
Narrow franchise			2.67 [3.85]	2.51 [3.87]	2.84 [4.09]	
Patronage index			-7.81 [2.67]***	-9.90 [3.21]***	-9.97 [3.35]***	-7.38 [2.59]***
Emp. Fract. index				-11.4 [30.7]	-11.0 [30.9]	
Agriculture (emp. share)				-2.34 [23.9]	-1.87 [24.1]	
Trade (emp. share)				-15.6 [28.8]	-15.0 [30.5]	
Professionals (emp. share)				-77.3 [99.7]	-91.5 [101]	
Population					0.0013 [0.0074]	
Population density					0.98 [2.08]	
Thriving economy					2.03 [4.78]	
Declining economy					1.85 [4.06]	
Adjusted R <sup>2</sup>	0.008	0.54	0.57	0.56	0.56	0.57
Obs. (constituencies)	244	244	244	244	244	244
<b>Panel B</b>	<b>Whig elected 1830</b>					
	Probit					
Riots within 10km	0.0032 [0.0020]	0.0027 [0.0020]	0.0025 [0.0020]	0.0018 [0.0019]	0.0020 [0.0020]	0.0027 [0.0020]
Obs. (seats)	489	489	489	489	489	489

Note: Panel A reports least squares estimates associating local Swing riots to the outcome of the 1830 election (constant terms not shown). We report spatial (Conley, 1999) standard errors (50km radius) in parentheses and White robust standard errors in brackets. The regression in column (6) is tested down using a general-to-specific approach. Panel B reports probit results (marginal effects evaluated at the mean) associating local Swing riots to the likelihood that a Whig is elected to a seat in 1830. Each estimation includes the same control variables as the corresponding estimation in panel A. To make the estimations comparable to those in Table 1, we do not condition on *University constituency*. The standard errors are clustered at the constituency level. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S5. Local Swing riots and the outcome of the 1831 election**  
**Covariate matching estimates**

	Whig share 1831 (%)				
	(1)	(2)	(3)	(4)	(5)
Matching algorithm	Nearest neighbour				
ATT	15.0***	15.6***	21.5***	16.3**	16.6**
ATT (bias corrected)	9.77*	11.1**	13.9**	13.8**	15.7**
	[5.33]	[5.35]	[5.92]	[6.01]	[7.08]
Common support	NO	YES	YES	YES	YES
Range of common support	n.a.	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]
Over-weighting	NO	NO	YES	NO	NO
Over-sampling (# of matches)	4	4	4	2	1
Treated constituencies	172	163	163	163	163
Control constituencies	70	65	65	65	65
Obs. (constituencies) <sup>a</sup>	242	228	228	228	228

Note: Table S5 reports non-parametric estimates of the (sample) treatment of the treated effect implemented with the STATA procedure developed by Abadie et al. (2004) on the outcome of the 1831 election for the full sample. The treatment variable is defined as a dummy variable equal to one if the number of riots within 10km of the constituency is strictly greater than one (where one riot defines the 28th percentile of the distribution of *Riots within 10km*) and zero otherwise. The sample ATT estimate is reported with and without the correction for the finite sample bias caused by non-exact matches. We use the minima-maxima condition to impose common support in columns (2) to (5), i.e., we restrict the sample to observations within the overlap of the support of the propensity score (estimated with a probit estimator) of the treated and control group. The vector of matching variables contains the full set of control variables reported in column (5) of Table 1, except that the two university constituencies are excluded since they both belong to the treated group. In column (3) we overweight two characteristics related to underlying reform support in the constituency and require perfect matches on *Whig share 1826* and *Reform support 1830*. We report analytic heteroskedasticity-consistent standard errors in square brackets. The matching algorithm uses the inverse variance method to find matches for each treated constituency and allows for replacement. Columns (1) to (3) allow for four matches, while columns (4) and (5) narrow the number to two and one, respectively. a. The two university constituencies belong to the treated group and cannot be matched to a control constituency; they are, therefore, excluded from the sample. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S6. Local Swing riots and the outcome of the 1830 election**  
**Placebo covariate matching estimates**

	Whig share 1830 (%)				
	(1)	(2)	(3)	(4)	(5)
Matching algorithm	Nearest neighbour				
ATT	6.4	5.4	4.7	4.6	6.3
ATT (bias corrected)	2.5	1.8	1.2	4.3	6.4
	[4.20]	[4.28]	[4.03]	[4.17]	[5.0]
Common support	NO	YES	YES	YES	YES
Range of common support	n.a.	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]
Over-weighting	NO	NO	YES	NO	NO
Over-sampling (# of matches)	4	4	4	2	1
Treated constituencies	172	163	163	163	163
Control constituencies	70	65	65	65	65
Obs. (constituencies) <sup>a</sup>	242	228	228	228	228

Note: Table S6 reports non-parametric placebo estimates of the (sample) treatment of the treated effect implemented with the STATA procedure developed by Abadie et al. (2004) on the outcome of the 1830 election for the full sample. The treatment variable is defined as a dummy variable equal to one if the number of riots within 10km of the constituency is strictly greater than one (where one riot defines the 28th percentile of the distribution of *Riots within 10km*) and zero otherwise. The sample ATT estimate is reported with and without the correction for the finite sample bias caused by non-exact matches. We use the minima-maxima condition to impose common support in columns (2) to (5), i.e., we restrict the sample to observations within the overlap of the support of the propensity score (estimated with a probit estimator) of the treated and control group. The vector of matching variables contains the full set of control variables reported in column (5) of Table 1, except that the two university constituencies are excluded since they both belong to the treated group. In column (3) we overweight two characteristics related to underlying reform support in the constituency and require perfect matches on *Whig share 1826* and *Reform support 1830*. We report analytic heteroskedasticity-consistent standard errors in square brackets. The matching algorithm uses the inverse variance method to find matches for each treated constituency and allows for replacement. Columns (1) to (3) allow for four matches, while columns (4) and (5) narrow the number to two and one, respectively. a. The two university constituencies belong to the treated group and cannot be matched to a control constituency; they are, therefore, excluded from the sample. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S7. Local Swing riots and the outcome of the 1831 election**  
**Covariate matching estimates with control constituencies in the bottom 28 percentile and treated constituencies in the top 50 percentile**

	Whig share 1831 (%)				
	(1)	(2)	(3)	(4)	(5)
Matching algorithm	Nearest neighbour				
ATT	21.5***	20.1***	23.1***	20.8***	21.7**
ATT (bias corrected)	15.5**	17.4***	19.0***	20.8***	21.3**
	[5.78]	[6.24]	[7.08]	[7.12]	[8.52]
Common support	NO	YES	YES	YES	YES
Range of common support	n.a.	[0.40;0.90]	[0.40;0.90]	[0.40;0.90]	[0.40;0.90]
Over-weighting	NO	NO	YES	NO	NO
Over-sampling (# of matches)	4	4	4	2	1
Treated constituencies	120	114	114	114	114
Control constituencies	70	51	51	51	51
Obs. (constituencies) <sup>a</sup>	190	165	165	165	165

Note: Table S7 reports non-parametric estimates of the (sample) treatment of the treated effect implemented with the STATA procedure developed by Abadie et al. (2004) on the outcome of the 1831 election on a sample which excludes constituencies in the second quartile of the distribution of riots, i.e., those which were exposed to between two and five riots. The treatment variable is, therefore, defined as a dummy variable equal to one if the number of riots within 10km of the constituency is equal to or greater than five (where five is the median of the distribution of *Riots within 10km*) and zero if the constituency was exposed to one riot at most (where one riot defines the 28<sup>th</sup> percentile of the distribution of *Riots within 10km*). The sample ATT estimate is reported with and without the correction for the finite sample bias caused by non-exact matches. We use the minima-maxima condition to impose common support in columns (2) to (5), i.e., we restrict the sample to observations within the overlap of the support of the propensity score (estimated with a probit estimator) of the treated and control group estimated on the restricted sample without the constituencies in the second quartile. The vector of matching variables contains the full set of control variables reported in column (5) of Table 1, except that the two university constituencies are excluded since they both belong to the treated group. In column (3) we overweight two characteristics related to underlying reform support in the constituency and require perfect matches on *Whig share 1826* and *Reform support 1830*. We report analytic heteroskedasticity-consistent standard errors in square brackets. The matching algorithm uses the inverse variance method to find matches for each treated constituency and allows for replacement. Columns (1) to (3) allow for four matches, while columns (4) and (5) narrow the number to two and one, respectively. a. The two university constituencies belong to the treated group and cannot be matched to a control constituency; they are, therefore, excluded from the sample. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.



**Table S8. Local Swing riots and the outcome of the 1831 election**  
**Propensity score matching estimates**

	Whig share 1831 (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
Matching algorithm	Nearest Neighbour	Radius (r=0.05)	Radius (r=0.1)	Kernel <sup>a</sup> (bw=0.02)	Kernel <sup>a</sup> (bw=0.04)	Stratification <sup>b</sup>
ATT	16.6**	15.9**	15.9**	15.2**	13.9**	14.5**
ATT (bias corrected)	15.0*	16.0**	15.6**	14.2**	13.3**	14.2**
	(7.57)	(7.12)	(7.15)	(6.92)	(6.79)	(6.84)
	[8.82]	[6.97]	[6.93]	n.a.	n.a.	[6.62]
Estimated bias	1.6	-0.12	0.33	1.03	0.58	0.35
Treated constituencies	163	163	163	163	163	163
Control constituencies	43	63	65	65	65	65
Obs. (constituencies)	206	226	228	228	228	228
Common support	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]
Balancing test satisfied <sup>c</sup>	YES	YES	YES	YES	YES	YES

Note: Table S8 reports the propensity score matching estimates of the sample average effect of treatment on the treated (ATT) for the outcome of the 1831 election. The treatment variable *Riot treatment* is a dummy variable equal to one if the number of riots within 10km of the constituency is strictly greater than one and zero otherwise. The propensity score is estimated with a probit estimator. The vector of matching variables includes the variables listed in column (5) of Table 1, except for the two university constituencies since they both belong to the treated group. The estimations are implemented with the STATA procedure developed by Becker and Ichino (2002). The ATT estimate is reported with and without the correction for the finite sample bias caused by non-exact matches. We report analytic standard errors in square brackets and bootstrapped standard errors in parentheses (1000 iterations). Significance levels are based on the bootstrapped standard errors. We apply the minima-maxima rule and restrict the sample to the overlap between the support of the propensity score of the treated and control constituencies (two-sided common support). a. The Epanechnikov kernel. b. The stratification method compares within five blocks where the covariates are balanced the average outcome for the treated and control constituencies. Each block is weighted with the fraction of treated constituencies within the block. c. The balancing test assesses whether the matching variables differ between the treated and control constituencies, within blocks where the propensity scores of the two groups of constituencies do not differ. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S9. Local Swing riots and the outcome of the 1830 election**  
**Placebo propensity score matching estimates**

	Whig share 1830 (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
Matching algorithm	Nearest Neighbour	Radius (r=0.05)	Radius (r=0.1)	Kernel <sup>a</sup> (bw=0.02)	Kernel <sup>a</sup> (bw=0.04)	Stratification <sup>b</sup>
ATT	6.6	4.4	4.8	5.3	2.7	1.6
ATT (bias corrected)	6.2	4.4	5.0	5.2	2.7	1.6
	(5.73)	(5.67)	(4.83)	(4.73)	(5.22)	(5.25)
	[7.31]	[5.81]	[5.76]	n.a.	n.a.	[5.16]
Estimated bias	0.38	0.04	-0.23	0.12	-0.09	-0.02
Treated constituencies	163	163	163	163	163	163
Control constituencies	43	63	65	65	65	65
Obs. (constituencies)	206	226	228	228	228	228
Common support	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]	[0.38;0.92]
Balancing test satisfied <sup>c</sup>	YES	YES	YES	YES	YES	YES

Note: Table S9 reports the placebo propensity score matching estimates of the sample average effect of treatment on the treated (ATT) for the outcome of the 1830 election. The treatment variable *Riot treatment* is a dummy variable equal to one if the number of riots within 10km of the constituency is strictly greater than one and zero otherwise. The propensity score is estimated with a probit estimator. The vector of matching variables includes the variables listed in column (5) of Table 1, except for the two university constituencies since they both belong to the treated group. The estimations are implemented with the STATA procedure developed by Becker and Ichino (2002). The ATT estimate is reported with and without the correction for the finite sample bias caused by non-exact matches. We report analytic standard errors in square brackets and bootstrapped standard errors in parentheses (1000 iterations). We apply the minima-maxima rule and restrict the sample to the overlap between the support of the propensity score of the treated and control constituencies (two-sided common support). a. The Epanechnikov kernel. b. The stratification method compares within five blocks where the covariates are balanced the average outcome for the treated and control constituencies. Each block is weighted with the fraction of treated constituencies within the block. c. The balancing test assesses whether the matching variables differ between the treated and control constituencies, within blocks where the propensity scores of the two groups of constituencies do not differ. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S10. Local Swing riots and the outcome of the 1831 election**  
**Propensity score matching estimates with Control constituencies in the bottom 28 percentile and treated constituencies in the top 50 percentile**

	Whig share 1831 (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
Matching algorithm	Nearest Neighbour	Radius (r=0.05)	Radius (r=0.1)	Kernel <sup>a</sup> (bw=0.02)	Kernel <sup>a</sup> (bw=0.04)	Stratification <sup>b</sup>
ATT	22.2***	18.6**	19.3**	21.0**	19.7**	20.5**
ATT (bias corrected)	22.1***	18.1**	19.0**	20.3**	19.0**	20.2**
	(8.09)	(7.20)	(7.30)	(6.90)	(7.40)	(7.68)
	[8.65]	[7.44]	[7.37]	n.a.	n.a.	[7.44]
Estimated bias	0.12	0.54	0.31	0.72	0.66	0.23
Treated constituencies	114	114	114	114	114	114
Control constituencies	44	51	51	51	51	51
Obs. (constituencies) <sup>c</sup>	158	165	165	165	165	165
Common support	[0.40;0.90]	[0.40;0.90]	[0.40;0.90]	[0.40;0.90]	[0.40;0.90]	[0.40;0.90]
Balancing test satisfied <sup>d</sup>	YES	YES	YES	YES	YES	YES

Note: Table S10 reports the propensity score matching estimates of sample average effect of treatment on the treated (ATT) for the outcome of the 1831 election on a sample which excludes constituencies in the second quartile of the distribution of riots, i.e., those which exposed to between two and five riots. The treatment variable is, therefore, defined as a dummy variable equal to one if the number of riots within 10km of the constituency is equal to or greater than 5 and zero if the constituency was exposed to one riot at most (where one riot defines the 28<sup>th</sup> percentile of the distribution of *Riots within 10km*). The estimations are implemented with the STATA procedure developed by Becker and Ichino (2002). The ATT estimate is reported with and without the correction for the finite sample bias caused by non-exact matches. We report analytic standard errors in square brackets and bootstrapped standard errors in parentheses (1000 iterations). Significance levels are based on the bootstrapped standard errors. We apply the minima-maxima rule and restrict the sample to the overlap between the support of the propensity score of the treated and non-treated constituencies (two-sided common support). a. The Epanechnikov kernel. b. The stratification method compares within five blocks where the covariates are balanced the average outcome for the treated and control constituencies. Each block is weighted with the fraction of treated constituencies within the block. c. The two university constituencies belong to the treated group and cannot be matched to a control constituency; they are therefore excluded from the sample. d. The balancing test assesses whether the matching variables differ between the treated and control constituencies, within blocks where the propensity scores of the two groups of constituencies do not differ. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S11. Local Swing riots and the outcome of the 1831 and 1830 elections**  
**Covariate matching estimates - Randomization inference**

	(1)	(2)
Matching algorithm	Randomization inference	
<b>Panel A</b>	<b>Whig share 1831 (%)</b>	
ATT	19.9*** [3.15]	19.7*** [3.02]
<b>Panel B (Placebo test)</b>	<b>Whig share 1830 (%)</b>	
ATT	10.1 [1.88]	7.71 [1.39]
Common support	NO	YES
Range of common support	n.a.	[0.38;0.92]
Treated constituencies	172	163
Control constituencies	70	65
Obs. (constituencies) <sup>a</sup>	242	228

Note: Table S11 reports estimates of the (sample) treatment of the treated effect implemented with the randomization inference procedures under STATA and R developed by Bowers and Hansen (2006) and Bowers et al. (2009) on the outcome of the 1831 election in Panel A and of the 1830 election in Panel B (placebo test). The randomization inference procedure tests the null hypothesis that the effect of the Swing riots on the share of Whigs elected is zero in all constituencies. Under this hypothesis, it does not matter how the constituencies are allocated to the control and treated group. By considering all possible combinations of treatment assignment and calculating the ATT estimate (the test statistic) for each, the randomization distribution is obtained. The p-value of the test of significance of the ATT estimate is then determined by locating the test statistic which is obtained with the actual treatment assignment in our data within the distribution of all the potential test statistics. This p-value is interpreted as the proportion of potential treatments which provide a test statistic equal to or greater than the test statistic of the actual treatment in our data. A key advantage of this procedure is that it does not make any assumption regarding the stochastic process which generated the data. The treatment variable *Riot treatment* is a dummy variable equal to one if the number of riots within 10km of the constituency is strictly greater than one and zero otherwise. We use the minima-maxima condition to impose common support in columns (2), i.e., we restrict the sample to observations within the overlap of the support of the propensity score (estimated with a probit estimator) of the treated and control group. The vector of matching variables contains the control variables reported in Table 1, column (5), except for *University constituency*. We report z-statistics in brackets. a. The two university constituencies belong to the treated group and cannot be matched to a control constituency; they are, therefore, excluded from the sample. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S12. Local Swing riots and the outcome of the 1831 election**  
**Riots on the extensive margin and common support**

	(1)	(2)	(3)	(4)
<b>Panel A</b>	<b>Whig share 1831 (%)</b>			
	Least squares			
Riot treatment	14.7 (5.14)*** [5.03]***	14.8 (5.25)*** [5.13]***	13.9 n.a. [2.98]***	
Riots within 10km				0.36 (0.21)* [0.22]*
<b>Panel B (Placebo)</b>	<b>Whig share 1830 (%)</b>			
	Least squares			
Riot treatment	2.48 (3.67) [3.73]	2.31 (3.74) [3.78]	2.32 n.a. [2.76]	
Riots within 10km				0.064 (0.13) [0.14]
Baseline controls included	YES	YES	YES	YES
Common parameters	YES	YES	NO	n.a.
Common support	NO	YES	YES	YES
Treated constituencies	n.a.	163	163	165
Control constituencies	n.a.	65	65	0
Obs. (constituencies)	244	228	228	165

Note: Panel A reports parametric (least squares) estimates of the effect of *Riot treatment* on the outcome of the 1831 election with and without common support and the effect of *Riots within 10km* for the sub-group of treated constituencies in the common support. The treatment variable *Riot treatment* is a dummy variable equal to one if the number of riots within 10km of the constituency is strictly greater than one and zero otherwise. We use the minima-maxima condition to impose common support in columns (2) to (4), i.e., we restrict the sample to observations within the overlap of the support of the propensity score (estimated with a probit estimator) of the two groups. The vector of control (matching) variables contains the baseline control variables reported in column (5) of Table 1, except that the two university constituencies are excluded in columns (2) and (3) since they both belong to the treated group. In columns (1) and (2), we restrict all parameters to be the same for the control and treated group. In column (3), we allow the parameters on the covariates to differ between the control and treated group. We estimate the coefficient on *Riot treatment* as the average difference between the predicted values of the two separate regressions. In column (4), we restrict the sample to the treated constituencies within the common support plus the two university constituencies. We report spatial (Conley, 1999) standard errors in brackets (50km radius) and White robust standard errors in square brackets. Panel B reports the corresponding placebo estimates of the effect of *Riot treatment* on the outcome of the 1830 election. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S13. Local Swing riots and the outcome of the 1830 election**  
**Complete IV estimates for the first stage summarized in Panel D of Table 5**

	Riots within 10km			
	(1)	(2)	(3)	(4)
		2SLS		IV-probit
Distance to Sevenoaks	-1.43 [0.17]***	-1.03 [0.26]***	-0.75 [0.24]***	-1.06 [0.26]***
Whig share 1826		0.076 [0.061]	-0.0016 [0.052]	0.016 [0.047]
(Whig share 1826) <sup>2</sup>		-0.00071 [0.00065]	0.00021 [0.00055]	-0.0001 [0.00006]
Reform support 1830		0.20 [1.70]	-1.55 [1.46]	0.30 [1.40]
County constituency		-2.16 [2.76]	-1.28 [2.44]	-1.39 [2.54]
University constituency		0.20 [4.08]	3.47 [4.72]	
Narrow franchise		1.87 [2.02]	2.30 [2.06]	1.64 [1.92]
Patronage index		-1.21 [1.30]	-1.11 [1.10]	-1.50 [1.25]
Emp. Fract. index		-2.72 [10.1]	-2.03 [11.0]	-3.61 [9.56]
Agriculture (emp. share)		6.19 [7.66]	12.3 [7.32]*	5.79 [7.43]
Trade (emp. share)		3.49 [7.08]	8.52 [7.23]	3.02 [6.91]
Professionals (emp. share)		-17.9 [32.5]	-1.63 [30.4]	-22.16 [29.39]
Population		0.0028 [0.0041]	0.00057 [0.0027]	0.001 [0.0031]
Population density		0.82 [1.09]	0.38 [1.10]	0.78 [1.03]
Thriving economy		0.54 [1.73]	1.92 [1.58]	0.75 [1.59]
Declining economy		0.22 [2.01]	0.96 [1.88]	0.31 [1.94]
Distance to urban centre		0.26 [1.70]	-1.27 [1.53]	0.11 [1.64]
Connection to London		-0.65 [0.25]**	-0.43 [0.22]**	-0.65 [0.22]***
Market integration		0.0036 [0.0022]	0.0054 [0.0020]***	0.004 [0.002]**
Cereal area		4.52 [2.13]**	5.27 [2.07]**	4.58 [2.08]**
Dairy area		-3.20 [1.33]**	-2.53 [1.27]**	-3.14 [1.29]**
Kent included	YES	YES	NO	YES
Partial R <sup>2</sup> on excl. instruments	0.23	0.05	0.03	n.a.
F-stat on excl. instruments.	74.3***	15.2***	9.9***	n.a.
Unit of analysis: constituency	YES	YES	YES	NO
Unit of analysis: seat	NO	NO	NO	YES
Observations <sup>a</sup>	244	244	235	489

*Note:* Table S13 reports the complete first stage of the 2SLS and IV-probit estimates underlying the Placebo IV estimates reported in Panel D of Table 5 for the effect of *Distance to Sevenoaks* (the village in Kent where the riots began) on local Swing riots. White robust standard errors are shown in brackets in column (1) to (3); the standard errors reported in column (4) are clustered at the constituency level. The IV-probit model is estimated with the Maximum Likelihood estimator, and the parameters reported in column (4) are estimated jointly with the parameters of the probit equation reported in Table S14, column (4). The regression in column (3) excludes all the constituencies from Kent, the county where the riots began. a. *University constituency* is excluded from column (4). \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S14. Local Swing riots and the outcome of the 1830 election**  
**Complete Placebo IV estimates for the second stage summarized in Panel D of Table 5**

	Whig share 1830			Whig elected 1830
	(1)	(2)	(3)	(4)
Riots within 10km (IV)	0.59 (0.43) [0.39]	2SLS -0.38 (0.75) [0.71]	-0.61 (1.11) [1.05]	IV-probit -0.028 n.a. [0.028]
Whig share 1826		5.35 [5.58]	5.56 [5.69]	0.054 [0.012]***
(Whig share 1826) <sup>2</sup>		16.6 [24.1]	20.2 [25.3]	-0.00027 [0.00016]
Reform support 1830		3.66 [3.92]	4.93 [4.39]	0.33 [0.16]**
County constituency		-11.5 [3.58]***	-11.5 [3.81]***	0.28 [0.26]
University constituency		0.61 [0.16]***	0.57 [0.16]***	
Narrow franchise		3.7e-06 [0.0017]	0.00042 [0.0017]	0.28 [0.19]
Patronage index		10.6 [3.60]***	10.0 [4.22]**	-0.51 [0.14]***
Emp. Fract. index		-19.5 [32.0]	-16.6 [34.8]	-0.55 [1.31]
Agriculture (emp. share)		-2.82 [22.9]	4.48 [27.0]	-0.23 [1.05]
Trade (emp. share)		-21.7 [31.9]	-16.0 [35.0]	-0.86 [1.32]
Professionals (emp. share)		-115 [105]	-120 [106]	-6.14 [4.68]
Population		0.0043 [0.0093]	0.0035 [0.0090]	0.000088 [0.00034]
Population density		1.24 [2.20]	1.30 [2.41]	0.050 [0.11]
Thriving economy		1.48 [5.20]	2.62 [5.65]	0.20 [0.22]
Declining economy		2.67 [4.04]	2.73 [4.41]	0.10 [0.19]
Distance to urban centre		-0.90 [3.77]	-2.72 [4.28]	-0.0067 [0.17]
Connection to London		-0.65 [0.55]	-0.59 [0.56]	-0.019 [0.026]
Market integration		0.027 [0.012]**	0.030 [0.013]**	0.0011 [0.00054]**
Cereal area		1.29 [9.78]	2.81 [12.1]	0.26 [0.42]
Dairy area		-0.71 [5.25]	-0.74 [5.31]	0.018 [0.22]
Kent included	YES	YES	NO	YES
Unit of analysis: constituency	YES	YES	YES	NO
Unit of analysis: seat	NO	NO	NO	YES
Observations <sup>a</sup>	244	244	235	489

Note: Table S14 reports the complete second stage of the 2SLS and IV-probit estimates underlying the summary reported in Panel D of Table 5 for the effect of local Swing riots on the outcome of the 1830 election. The instrument is *Distance to Sevenoaks* (the village in Kent where the riots began). Spatial (Conley, 1999) GMM standard errors are shown in parentheses and 2SLS robust standard errors in brackets in column (1) to (3). The standard errors reported in column (4) in brackets are clustered at the constituency level. The regression in column (3) excludes all the constituencies from Kent, the county where the riots began. a. To make the estimations comparable to those related to the 1831 election, *University constituency* is excluded from column (4). \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S15. Local Swing riots and the outcome of the 1831 election**  
**Complete IV estimates for the first stage summarized in Panel B of Table 5**

	Riots within 10km			
	(1)	(2)	(3)	(4)
		2SLS		IV-probit
Distance to Sevenoaks	-1.43 [0.17]***	-1.03 [0.26]***	-0.75 [0.24]***	-1.06 [0.26]***
Whig share 1826		0.076 [0.061]	-0.0016 [0.052]	0.016 [0.047]
(Whig share 1826) <sup>2</sup>		-0.00071 [0.00065]	0.00021 [0.00055]	-0.0001 [0.00006]
Reform support 1830		0.20 [1.70]	-1.55 [1.46]	0.30 [1.40]
County constituency		-2.16 [2.76]	-1.28 [2.44]	-1.39 [2.54]
University constituency		0.20 [4.08]	3.47 [4.72]	
Narrow franchise		1.87 [2.02]	2.30 [2.06]	1.64 [1.92]
Patronage index		-1.21 [1.30]	-1.11 [1.10]	-1.50 [1.25]
Emp. Fract. index		-2.72 [10.1]	-2.03 [11.0]	-3.61 [9.56]
Agriculture (emp. share)		6.19 [7.66]	12.3 [7.32]*	5.79 [7.43]
Trade (emp. share)		3.49 [7.08]	8.52 [7.23]	3.02 [6.91]
Professionals (emp. share)		-17.9 [32.5]	-1.63 [30.4]	-22.16 [29.39]
Population		0.0028 [0.0041]	0.00057 [0.0027]	0.001 [0.0031]
Population density		0.82 [1.09]	0.38 [1.10]	0.78 [1.03]
Thriving economy		0.54 [1.73]	1.92 [1.58]	0.75 [1.59]
Declining economy		0.22 [2.01]	0.96 [1.88]	0.31 [1.94]
Distance to urban centre		0.26 [1.70]	-1.27 [1.53]	0.11 [1.64]
Connection to London		-0.65 [0.25]**	-0.43 [0.22]**	-0.65 [0.22]***
Market integration		0.0036 [0.0022]	0.0054 [0.0020]***	0.004 [0.002]**
Cereal area		4.52 [2.13]**	5.27 [2.07]**	4.58 [2.08]**
Dairy area		-3.20 [1.33]**	-2.53 [1.27]**	-3.14 [1.29]**
Kent included	YES	YES	NO	YES
Partial R <sup>2</sup> on excl. instruments	0.23	0.05	0.03	n.a.
F-stat on excl. instruments.	74.3***	15.2***	9.9***	n.a.
Unit of analysis: constituency	YES	YES	YES	NO
Unit of analysis: seat	NO	NO	NO	YES
Observations <sup>a</sup>	244	244	235	489

*Note:* Table S15 reports the complete first stage of the 2SLS and IV-probit estimates underlying the summary reported in Panel B of Table 5 for the effect of *Distance to Sevenoaks* (the village in Kent where the riots began) on local Swing riots. White robust standard errors are shown in brackets in column (1) to (3); the standard errors reported in column (4) are clustered at the constituency level. The IV-probit model is estimated with the Maximum Likelihood estimator, and the parameters reported in column (4) are estimated jointly with the parameters of the probit equation reported in Table S16, column (4). The regression in column (3) excludes all the constituencies from Kent, the county where the riots began. a. *University constituency* is excluded from column (4). \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.



**Table S16. Local Swing riots and the outcome of the 1831 election**  
**Complete IV estimates for the second stage summarized in Panel A of Table 5**

	Whig share 1831			Whig elected 1831
	(1)	(2)	(3)	(4)
Riots within 10km (IV)	1.32 (0.60)** [0.46]***	2SLS 2.53 (1.08)** [0.87]***	3.48 (1.60)** [1.32]***	IV-probit 0.078 n.a. [0.015]***
Whig share 1826		0.14 [0.22]	0.31 [0.23]	0.021 [0.0088]**
(Whig share 1826) <sup>2</sup>		0.0021 [0.0023]	-0.00021 [0.0025]	-0.000074 [0.00013]
Reform support 1830		13.5 [7.08]*	19.6 [7.99]**	0.41 [0.18]**
County constituency		40.2 [9.10]***	39.7 [10.1]***	0.30 [0.36]
University constituency		-52.0 [15.3]***	-61.9 [21.6]***	
Narrow franchise		-6.76 [6.59]	-9.61 [7.64]	-0.062 [0.18]
Patronage index		-9.06 [5.32]*	-7.92 [5.97]	-0.15 [0.18]
Emp. Fract. index		4.62 [30.3]	4.56 [36.1]	0.14 [0.89]
Agriculture (emp. share)		-40.4 [31.6]	-63.1 [38.9]	-1.13 [0.94]
Trade (emp. share)		1.23 [32.7]	-17.3 [36.9]	0.050 [0.95]
Professionals (emp. share)		-46.9 [124]	-70.9 [135]	-0.034 [3.63]
Population		-0.00046 [0.010]	0.0050 [0.0099]	0.0069 [0.0027]**
Population density		1.61 [3.47]	2.33 [4.17]	0.046 [0.098]
Thriving economy		-12.8 [7.13]*	-18.1 [7.99]**	-0.45 [0.23]*
Declining economy		-10.6 [6.72]	-14.4 [7.82]*	-0.32 [0.20]
Distance to urban centre		-3.97 [4.83]	-0.70 [6.37]	-0.089 [0.16]
Connection to London		-1.08 [0.83]	-1.23 [0.89]	-0.033 [0.029]
Market integration		-0.0089 [0.016]	-0.018 [0.019]	-0.00037 [0.00050]
Cereal area		-24.4 [11.8]**	-31.4 [15.4]**	-0.79 [0.26]***
Dairy area		-0.71 [6.13]	0.26 [6.38]	0.0041 [0.19]
Kent included	YES	YES	NO	YES
Unit of analysis: constituency	YES	YES	YES	NO
Unit of analysis: seat	NO	NO	NO	YES
Observations <sup>a</sup>	244	244	235	489

Note: Table S16 reports the complete second stage of the 2SLS and IV-probit estimates underlying the summary reported in Panel A of Table 5 for the effect of local Swing riots on the outcome of the 1831 election. The instrument is *Distance to Sevenoaks* (the village in Kent where the riots began). Spatial (Conley, 1999) GMM standard errors are shown in parentheses and 2SLS robust standard errors in brackets in column (1) to (3). The standard errors reported in column (4) in brackets are clustered at the constituency level. The regression in column (3) excludes all the constituencies from Kent, the county where the riots began. a. The two university constituencies elected Tories to all four seats in 1831 so that *University constituency* predicts the outcome perfectly and is excluded from column (4). \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S17. Correlation between the structural characteristics of the English constituencies in 1831 and their distance to Sevenoaks**

	Distance to Sevenoaks		
	(1)	(2)	(3)
		Least squares	
Distance to urban centre	0.11 [0.45]	0.13 [0.45]	0.41 [0.42]
Connection to London	-0.40 [0.10]***	-0.44 [0.10]***	-0.58 [0.11]***
Market integration	-0.00088 [0.00033]***	-0.0010 [0.00038]***	-0.00097 [0.00033]***
Cereal area	-6.49 [0.54]***	-6.66 [0.59]***	-6.56 [0.56]***
Dairy area	-1.56 [0.58]***	-1.78 [0.60]***	-2.03 [0.55]***
Emp. fract. index		-1.85 [2.41]	-2.06 [2.37]
Agriculture (emp. share)		0.50 [2.04]	1.34 [2.17]
Trade (emp. share)		-1.76 [2.61]	-0.20 [2.66]
Professionals (emp. share)		16.6 [10.00]*	10.7 [9.99]
Population			0.00073 [0.00093]
Population density			1.22 [0.22]***
Thriving economy			-0.18 [0.42]
Declining economy			0.11 [0.42]
Adjusted R <sup>2</sup>	0.61	0.61	0.66
Obs. (constituencies)	244	244	244

Note: Table S17 reports least squares estimates associating the structural characteristics of the 244 English constituencies in 1831 and their distance to Sevenoaks (constants not report). We report White robust standard errors in brackets. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S18. Local Swing riots and the outcome of the 1831 election**  
**Reduced form and IV estimates controlling for Latitude and Longitude**

	(1)	(2)	(3)	(4)
<b>Panel A</b>		<b>Whig share 1831 (%)</b>		<b>Whig elected 1831</b>
		Second stage		
		2SLS	2SLS	IV-probit
Riots within 10km (instrumented)		3.91		0.088
Riots within 20km (instrumented)			0.89	
Spatial GMM std. errors <sup>a</sup>		(4.03)	(0.48)*	
2SLS robust std. errors		[2.47]	[0.43]**	
Anderson-Rubin Wald test (p-values) <sup>f</sup>		0.0096***	0.0096***	
Clustered std. errors <sup>b</sup>				{0.019}***
<b>Panel B</b>	<b>Whig share 1831 (%)</b>	<b>Riots within 10km</b>	<b>Riots within 20km</b>	<b>Riots within 10km</b>
	Reduced form	First stage		
Distance to Sevenoaks	-3.06	-0.78	-3.42	-0.82
White robust std. error	[1.17]***	[0.47]*	[1.39]**	
Spatial OLS std. errors <sup>c</sup>	(1.16)***			
Clustered std. errors <sup>b</sup>				{0.45}*
Latitude (p-value)	0.57	0.24	0.44	
Longitude (p-value)	0.65	0.56	0.95	
Partial R <sup>2</sup> on excluded instrument		0.01	0.04	
Kleibergen-Paap F statistic		2.78	6.05	
<b>Panel C</b>		<b>Whig share 1831 (%)</b>		<b>Whig elected 1831</b>
		Least squares		Probit
Riots within 10km		0.46		0.0062
Riots within 20km			0.15	
Spatial std. errors <sup>c</sup>		(0.19)**	(0.067)**	
White robust std. errors		[0.22]**	[0.073]**	
Clustered std. errors <sup>b</sup>				{0.0030}**
Baseline controls included <sup>d</sup>	YES	YES	YES	YES
Spatial controls included <sup>e</sup>	YES	YES	YES	YES
Longitude and Latitude included	YES	YES	YES	YES
Observations	244	244	244	489

Note: Panel A reports 2SLS and IV-probit estimates of the effect of local Swing riots (*Riots within 10km* and *Riots within 20km*) on the outcome of the 1831 election. Panel B, column (1) reports the reduced form estimate while columns (2) to (3) summarize the first stage estimates for the 2SLS procedure and column (4) summarizes the Maximum Likelihood estimates from the IV-probit procedure. Panel C reports the least squares estimates corresponding to the instrumental variables estimates in Panel A. The instrument is *Distance to Sevenoaks* (the village in Kent where the riots began). The point estimates in column (4) are marginal effects evaluated at the mean of the explanatory variables. The Kleibergen-Paap F statistic is low in both specifications and the instrument is weak. Since the specifications are just-identified, the 2SLS estimates are median-unbiased, but the 2SLS and GMM standard errors are unreliable. Inference should be based on the weak instrument robust Anderson-Rubin test. a. Spatial (Conley, 1999) GMM standard errors (50km radius). b. Clustered at the constituency level. c. Spatial (Conley, 1999) standard errors (50km radius). d. The controls are those from column (5) in Table 1. In column (4) *University constituency* is excluded because it predicts the election outcome perfectly as the two university constituencies elected Tories to all four seats in 1831. e. The spatial controls are *Distance to urban centre*, *Connection to London*, *Market integration*, *Cereal area*, and *Dairy area*. f. The Anderson-Rubin Wald test of significance of *Riots within 10km* or *Riots within 20km* is robust to weak instruments. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S19. Local Swing riots and the outcome of the elections in 1802, 1806, 1807, 1812, 1818, 1820 and 1826**

Election year	Whig share election year (%)						
	1802	1806	1807	1812	1818	1820	1826
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Least squares						
Riots within 10km	0.48 (0.19)** [0.19]**	-0.15 (0.13) [0.14]	-0.050 (0.13) [0.12]	0.12 (0.12) [0.13]	0.18 (0.13) [0.16]	-0.088 (0.13) [0.13]	0.16 (0.12) [0.12]
Whig share previous election	0.26 [0.18]	0.72 [0.18]***	0.44 [0.16]***	0.47 [0.17]***	0.55 [0.17]***	0.44 [0.16]***	0.67 [0.16]***
(Whig share previous election) <sup>2</sup>	0.0035 [0.0019]*	-0.00085 [0.0018]	0.0012 [0.0017]	0.0016 [0.0018]	0.00086 [0.0018]	0.0027 [0.0016]*	0.00013 [0.0017]
County constituency	-11.7 [8.33]	-11.3 [7.20]	-15.5 [6.94]**	4.08 [7.51]	-3.56 [7.09]	-5.01 [7.37]	-9.42 [7.02]
University constituency	-12.0 [9.36]	11.5 [24.9]	-19.9 [4.79]***	2.25 [5.62]	-13.3 [9.02]	-14.1 [8.49]*	-6.03 [6.71]
Narrow franchise	-0.77 [4.69]	-1.52 [5.59]	-6.78 [5.40]	1.90 [4.48]	-8.86 [4.38]**	-5.53 [4.68]	-6.55 [4.74]
Patronage index	-6.10 [3.04]**	-4.67 [3.14]	-3.27 [2.76]	-4.27 [3.23]	-3.55 [2.71]	-9.53 [3.02]***	-3.10 [3.89]
Emp. Fract. index	-4.91 [20.0]	4.31 [18.1]	24.7 [15.9]	28.0 [16.3]*	-0.14 [17.2]	-0.67 [14.5]	-7.15 [18.8]
Agriculture (emp. share)	5.19 [21.5]	-5.10 [15.7]	-2.67 [14.7]	16.1 [12.3]	2.55 [13.3]	0.97 [12.1]	20.5 [13.2]
Trade (emp. share)	-10.7 [9.34]	-4.42 [11.4]	-25.9 [9.97]***	23.6 [12.2]*	6.84 [16.0]	5.28 [11.0]	11.4 [13.6]
Population	0.075 [0.034]**	0.0078 [0.026]	0.018 [0.019]	0.010 [0.015]	0.013 [0.011]	0.0083 [0.017]	0.020 [0.0099]**
Population density	-1.44 [0.96]	0.68 [1.38]	-1.90 [1.17]	-2.44 [1.15]**	0.50 [1.54]	-0.94 [1.84]	-1.18 [2.23]
Adjusted R <sup>2</sup>	0.30	0.37	0.36	0.40	0.39	0.51	0.48
Obs. (constituencies) <sup>a</sup>	243	243	243	244	244	244	244

Note: Table S19 reports least squares estimates of the relationship between the local Swing riots and the share of Whigs elected in the 1802, 1806, 1807, 1812, 1820 and 1826 general elections (constant terms are not shown). We report spatial (Conley, 1999) standard errors (50km radius) in parentheses and White robust standard errors square brackets. For each regression in a given election year, all the demographic and employment related covariates are taken from the most recent Census. a. Data on inhabited houses missing for St. Ives (Cornwall) in 1801. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S20. Past labor and food riots (1793-1822) and the outcome of the 1831 election**

	Whig share 1831 (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
	Least squares					
Food Riots 1800-1818	-0.44 [0.29] (0.28)	-0.015 [0.22] (0.26)	0.011 [0.22] (0.23)	0.0014 [0.19] (0.23)	0.082 [0.21] (0.24)	0.0032 [0.21] (0.22)
Labor Riots 1793-1822	-0.53 [0.90] (0.72)	-0.68 [0.69] (0.53)	-0.28 [0.56] (0.43)	-0.34 [0.55] (0.46)	-0.25 [0.49] (0.43)	-0.13 [0.48] (0.39)
Whig share 1826		0.94 [0.20]***	0.41 [0.19]**	0.43 [0.18]**	0.46 [0.18]**	0.39 [0.070]***
(Whig share 1826) <sup>2</sup>		-0.0051 [0.0023]**	-0.00029 [0.0020]	-0.00038 [0.0019]	-0.00074 [0.0019]	
Reform support 1830		12.5 [5.33]**	12.6 [4.68]**	11.8 [4.67]**	12.7 [5.10]**	13.0 [4.75]***
County constituency			32.7 [5.16]***	36.0 [6.26]***	34.6 [7.81]***	31.7 [4.42]***
University constituency			-58.6 [8.49]***	-55.1 [9.73]***	-54.9 [6.87]***	59.6 [8.49]***
Narrow franchise			-1.69 [5.05]	-1.26 [4.53]	-2.05 [4.69]	
Patronage index			-17.1 [3.67]***	-14.6 [3.79]***	-13.6 [3.62]***	-15.6 [4.05]***
Emp. Fract. index				-2.74 [28.4]	-2.81 [28.8]	
Agriculture (emp. share)				-29.2 [29.0]	-29.5 [27.6]	
Trade (emp. share)				3.92 [31.2]	5.01 [29.8]	
Professionals (emp. share)				-179 [128]	-154 [129]	
Population					0.00025 [0.012]	
Population density					-0.34 [2.62]	
Thriving economy					-11.1 [6.29]*	
Declining economy					-9.71 [7.00]	-9.34 [6.46]
Adjusted R <sup>2</sup>	0.004	0.26	0.43	0.43	0.43	0.44
Obs. (constituencies <sup>a</sup> )	244	244	244	244	244	244

Note: Table S20 reports least squares estimates of the relationship between past labor and food riots (1793-1822) and the outcome of the 1831 election (constant terms are not shown). We report standard errors clustered at the county level in brackets and White robust standard errors in parentheses. The regression in column (6) is tested down using a general-to-specific approach. a. *Food Riots 1800-1818* and *Labor Riots 1793-1822* are measured at the county level; all other variables are measured at the constituency level. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S21. Past labor and food riots (1793-1822) and the local Swing riots**

	Riots within 10km					
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	Least squares					
All riots 1793-1822 <sup>a</sup>	-0.20 [0.12]* (0.057)***	-0.053 [0.079] (0.062)	0.0031 [0.071] (0.051)			
Food riots 1800-1818 <sup>a</sup>				-0.30 [0.097]*** (0.048)***	0.0013 [0.11] (0.068)	0.039 [0.088] (0.052)
Labor riots 1793-1822 <sup>a</sup>				0.38 [0.22]* (0.15)**	-0.25 [0.19] (0.18)	-0.14 [0.20] (0.17)
Distance to Sevenoaks			-1.01 [0.39]**			-1.02 [0.40]**
Cereal area			4.91 [2.93]			5.60 [3.17]*
Dairy area			-3.47 [1.88]*			-3.55 [1.96]*
Distance to urban centre			-0.21 [2.28]			-0.23 [2.28]
Connection to London			-0.63 [0.24]**			-0.66 [0.26]**
Market integration			0.0034 [0.0027]			0.0033 [0.0028]
Baseline controls included	NO	YES	NO	NO	YES	NO
Spatial controls included	NO	YES	YES	NO	YES	YES
Distance to Sevenoaks included	NO	NO	YES	NO	NO	YES
Adjusted R <sup>2</sup>	0.025	0.20	0.27	0.063	0.20	0.27
Obs. (constituencies)	244	244	244	244	244	244
Panel B	Poisson Regression					
All riots 1793-1822	0.98 [0.016]	0.99 [0.0081]	1.00 [0.011]			
Food riots 1800-1818				0.96 [0.015]***	1.00 [0.019]	1.00 [0.015]
Labor riots 1793-1822				1.04 [0.022]*	0.98 [0.014]	1.00 [0.016]
Obs. (constituencies <sup>a</sup> )	244	244	244	244	244	244

Note: Table S21 reports least squares and Poisson estimates of the relationship between past labor and food riots (1793-1822) and the occurrence of local Swing riots (constant terms are not shown). We report standard errors clustered at the county level in brackets and White robust standard errors in parenthesis. The baseline controls are those included in column (5) of Table 1. None of them are significant. The spatial controls are shown in columns (3) and (6). The Poisson regressions reported in panel B include the same control variables as the corresponding least squares regressions in panel A and the coefficients reported are incidence-rate ratios. a. *Food riots 1800-1818* and *Labor riots 1793-1822* are measured at the county level; all other variables are measured at the constituency level. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S22. Past labor and food riots (1793-1822) and the outcome of the elections in 1802, 1806, 1807, 1812, 1818, 1820 and 1826**

Election year	Whig share election year (%)						
	1802	1806	1807	1812	1818	1820	1826
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Least squares						
Food riots 1800-01	-0.29 [0.21] (0.23)						
Riots 1793-1805		0.016 [0.25] (0.25)	-0.023 [0.15] (0.27)				
Food riots 1810-13				-0.41 [0.33] (0.46)			
Riots 1815-18					0.22 [0.74] (0.94)	-0.013 [0.58] (0.62)	
Labor riots 1822							-0.22 [0.41] (0.42)
Whig share last election	0.25 [0.19]	0.71 [0.16]***	0.43 [0.14]***	0.48 [0.16]***	0.55 [0.19]***	0.43 [0.18]**	0.67 [0.12]***
(Whig share last election) <sup>2</sup>	0.0034 [0.0020]	-0.00086 [0.0017]	0.0012 [0.0014]	0.0015 [0.0018]	0.00086 [0.0020]	0.0028 [0.0015]*	0.00012 [0.0013]
County constituency	-13.6 [9.24]	-11.0 [5.90]*	-15.5 [6.71]**	3.14 [8.72]	-3.48 [6.25]	-4.70 [7.12]	-10.2 [8.94]
University constituency	-10.6 [9.94]	10.7 [24.8]	-20.2 [4.36]***	2.20 [5.84]	-12.8 [8.44]	-14.7 [9.23]	-4.91 [7.64]
Narrow franchise	0.45 [3.76]	-1.85 [4.64]	-6.89 [4.12]	2.36 [4.11]	-8.61 [5.80]	-5.69 [4.61]	-6.18 [5.92]
Patronage index	-7.48 [2.57]***	-4.40 [3.13]	-3.21 [2.48]	-4.17 [3.25]	-3.60 [2.79]	-9.34 [3.25]***	-3.73 [4.03]
Emp. Fract. index	-2.53 [17.4]	3.48 [17.5]	24.5 [19.0]	27.6 [16.2]*	-0.39 [17.1]	0.28 [14.3]	-10.0 [16.4]
Agriculture (emp. share)	6.30 [16.0]	-5.56 [16.3]	-2.87 [16.6]	14.9 [11.8]	2.16 [9.09]	0.038 [10.3]	22.1 [16.2]
Trade (emp. share)	-15.2 [8.57]*	-3.03 [11.3]	-25.5 [9.97]**	22.8 [12.0]*	5.71 [10.6]	5.93 [10.2]	8.80 [9.32]
Population	0.077 [0.038]**	0.0076 [0.026]	0.018 [0.021]	0.014 [0.016]	0.012 [0.012]	0.0080 [0.018]	0.021 [0.012]*
Population density	-1.81 [0.97]*	0.79 [1.29]	-1.86 [1.03]*	-2.60 [1.08]**	0.36 [1.24]	-0.89 [1.09]	-1.41 [1.51]
Adjusted R <sup>2</sup>	0.29	0.37	0.36	0.40	0.39	0.52	0.47
Obs. (constituencies <sup>a</sup> )	243	243	243	244	244	244	244

Note: Table S22 reports least squares estimates of the relationship between labor and food riots (1793-1822) and the share of Whigs elected in the 1802, 1806, 1807, 1812, 1820 and 1826 general elections (constant terms are not shown). We report standard errors clustered at the county level in brackets and White robust standard errors in parentheses. For each regression in a given election year, all the demographic and employment related covariates are taken from the most recent Census. a. Data on inhabited houses missing for St. Ives (Cornwall) in 1801. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S23. Local Swing riots and the outcome of the elections between the Great Reform Act and the Second Reform Act of 1867**

Election year	Whig/Liberal Party vote share in election year (%)							
	1835	1837	1841	1847	1852	1857	1859	1865
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Least squares							
Riots within 10km	0.00044 (0.001) [0.00095]	-0.00027 (0.002) [0.0015]	-0.00091 (0.001) [0.0011]	-0.0035 (0.002) [0.0022]	0.00057 (0.002) [0.0023]	0.0013 (0.001) [0.0016]	0.00038 (0.001) [0.0013]	0.0017 (0.002) [0.0015]
Whig vote share (previous election)	0.84 [0.20]***	-0.25 [0.43]	0.40 [0.42]	1.30 [0.68]*	0.43 [0.68]	0.31 [0.27]	0.071 [0.56]	0.91 [0.71]
(Whig vote share) <sup>2</sup> (previous election)	-0.11 [0.19]	0.70 [0.37]*	0.15 [0.38]	-0.54 [0.71]	0.13 [0.56]	0.23 [0.26]	0.29 [0.40]	-0.16 [0.55]
County constituency	-0.031 [0.059]	0.084 [0.083]	-0.12 [0.073]	0.089 [0.20]	-0.16 [0.084]*	-0.065 [0.087]	-0.016 [0.090]	-0.12 [0.12]
Population	-0.000029 [0.000059]	-0.000049 [0.000079]	0.000059 [0.000066]	0.00013 [0.00061]	0.000026 [0.000085]	-0.000014 [0.000078]	0.000082 [0.000054]	-5.1e-06 [0.000078]
Population density	0.020 [0.017]	0.0030 [0.0060]	-0.0073 [0.016]	-0.034 [0.035]	0.043 [0.025]*	0.024 [0.023]	0.044 [0.025]*	0.026 [0.015]
Agriculture (emp. share)	0.017 [0.23]	-0.20 [0.30]	-0.27 [0.27]	-1.46 [0.99]	0.80 [0.78]	-0.000061 [0.78]	0.78 [0.66]	0.64 [0.62]
Trade (emp. share)	0.069 [0.23]	0.35 [0.39]	0.26 [0.38]	-2.86 [1.57]*	1.05 [1.41]	-0.59 [2.10]	0.93 [1.62]	2.43 [1.47]
Emp. fract. index	0.12 [0.44]	0.57 [0.42]	-0.045 [0.64]	-1.23 [1.02]	-0.057 [1.10]	-0.69 [1.33]	-0.11 [1.12]	1.50 [1.04]
Adjusted R <sup>2</sup>	0.55	0.25	0.45	0.32	0.37	0.43	0.39	0.51
Obs. (constituencies)	97	86	75	55	67	73	68	68

Note: Table S23 reports least squares estimates of the relationship between the local Swing riots and the outcome of the elections held between the Great Reform Act and the Second Reform Act of 1867 (the Whig Party changed its name to the Liberal Party between 1859 and 1865) (constant terms not shown). We report spatial (Conley, 1999) standard errors (50km radius) in parentheses and White robust standard errors in square brackets. For the regression for a given election year, all the demographic and employment related covariates are taken from the closest Census. The sample is restricted to the 186 constituencies which existed before and after the Great Reform Act. Sample sizes vary because of missing vote share data. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.



**Table S24. Local Swing riots and the support for the Second Reform Act**

	Share of MPs' votes for 1866 reform bill			Share of MPs' votes for 1867 reform bill		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A	Least squares					
Riots within 10km	0.00010 (0.00067) [0.00070]	0.00013 (0.00065) [0.00068]	0.00068 (0.00068) [0.00073]	-0.00011 (0.00012) [0.00012]	-0.00011 (0.00012) [0.00013]	-0.00013 (0.00014) [0.00015]
Liberal seat share		0.024 [0.046]	0.013 [0.053]		-0.0088 [0.0090]	-0.011 [0.012]
Conservative seat share		0.051 [0.046]	0.041 [0.053]		-0.0086 [0.012]	-0.0081 [0.011]
County constituency			-0.048 [0.032]			0.0073 [0.0065]
Population			0.000076 [0.000034]**			-0.000011 [8.4e-06]
Population density			-0.00034 [0.015]			0.0059 [0.0058]
Agriculture (emp. share)			0.045 [0.44]			0.018 [0.031]
Trade (emp. share)			0.81 [0.89]			-0.18 [0.14]
Emp. fract. index			0.68 [0.56]			-0.20 [0.16]
Constant	0.11 [0.013]***	0.074 [0.040]*	-0.79 [0.95]	0.0036 [0.0030]	0.011 [0.012]	0.19 [0.15]
Adjusted R <sup>2</sup>	-0.005	-0.007	-0.023	-0.003	-0.007	0.018
Obs. (constituencies)	186	186	164	186	186	164
Panel B	Fractional estimator					
Riots within 10km	0.0011 [0.0072]	0.0014 [0.0068]	0.0069 [0.0070]	-0.10 [0.17]	-0.094 [0.15]	0.045 [0.048]

Note: Table S24 reports least squares and fractional estimates associating local Swing riots to the MPs' vote shares in favor of the bill leading to the Second Reform Act of 1867. In the least squares regressions, we report spatial (Conley, 1999) standard errors (50km radius) in parenthesis and White robust standard errors in brackets. The results obtained with the fractional estimator (Papke and Wooldridge, 1996) transform the dependent variable with a logit link. In these fractional estimates, we report robust standard errors. These fractional estimates include the same control variables as the corresponding least squares estimates. All the demographic and employment related covariates refer to the 1861 census year and the shares of seats for the Liberals and the Conservatives are those obtained in the 1865 general election (independent MPs make up the omitted category). The vote shares in favor of both bills refer to votes cast and recorded at the committee stages because the outcome of the second reading was decided by oral acclamation. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S25. Local Swing riots and the outcome of the 1831 election**  
**Alternative explanations for the Whig victory**

	Whig share 1831 (%)					
	(1)	(2)	(3)	(4)	(5)	(6)
	Least squares					
Riots within 10km	0.37 (0.18)** [0.19]*	0.60 (0.14)*** [0.18]***	0.46 (0.18)** [0.19]**	0.52 (0.17)*** [0.18]***	0.49 {0.19}** (0.17)***	0.51 {0.17}*** (0.16)***
Catholic Church		21.1 (6.93)***				
Religious fract. index		54.7 (56.8)				
Attendance ratio		-26.0 (21.9)				
Petitions against Catholic relief		1.06 (1.08)	1.44 (1.24)	2.15 (1.18)*	2.19 {1.31}	2.14 {1.33}
Petitions for Catholic relief		-0.41 (1.96)	0.82 (2.21)	2.35 (2.29)	2.85 {2.52}	2.26 {2.33}
Petitions against slavery			0.27 (0.93)	0.61 (0.92)	0.62 {1.00}	0.64 {1.00}
Petitions against reform				-8.02 (3.37)**	-7.76 {4.50}*	-7.83 {4.39}*
Petitions for reform				-1.30 (0.95)	-0.32 {1.84}	-1.30 {1.03}
Growth in poor law expenses					0.0081 {0.0050}	
Special Commission						-11.5 {5.27}**
Share of harsh sentences						0.18 {0.068}**
F-test for added group <sup>a</sup>	n.a.	3.10**	0.87	4.00**	n.a.	4.35**
Baseline controls included <sup>b</sup>	YES	YES	YES	YES	YES	YES
With Treasury Boroughs	NO	YES	YES	YES	YES	YES
Adjusted R <sup>2</sup>	0.44	0.47	0.45	0.46	0.47	0.46
Obs. (constituencies)	230	182	244	244	241	244

Note: Table S25 reports alternative estimates associating local Swing riots to the outcome of the 1831 election to account for the presence of Treasury Boroughs, the Catholic relief question, petitions against slavery, petitions for and against parliamentary reform, and the level of repression of the riots (constant terms are not shown). Columns (1), (3)-(6) correspond to Columns (1)-(5) in Table 7 and are reproduced for ease of reference. We report in columns (1) to (4) spatial (Conley, 1999) standard errors (50km radius) in parentheses and White robust standard errors in square brackets; in columns (5) and (6) where *Growth in poor law expenses*, *Share of harsh sentences* and *Special Commission* are measured at the county level, the standard errors in curly brackets are clustered at the county level. In column (1), we exclude the 14 boroughs (28 seats) that were controlled by the Treasury just before the passing of the Great Reform Act according to Philbin (1965). In column (5), three constituencies (including London, Monmouth and Monmouthshire) are excluded because Gonner (1912, Appendix B) does not report their poor law expenses. a. The null hypothesis is that the coefficients of the variables added in the column are all zero. b. The baseline control variables are those reported in column (5) in Table 1, except in column (2) where the 1851 Census of Religious Worship only surveyed 182 out of the 244 constituencies that existed before the Great Reform Act, and did not include the two university constituencies. \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% level, respectively.

**Table S26. Descriptive statistics for the pre-reform placebo tests**

	Obs.	Mean	Std. dev.	Minimum	Maximum
<b>Constituency level variation</b>					
Whig share 1796	244	31.4	35.3	0	100
Whig share 1802	244	35.3	37.4	0	100
Whig share 1806	244	40.5	38.9	0	100
Whig share 1807	244	34.1	36.7	0	100
Whig share 1812	244	33.1	36.3	0	100
Whig share 1818	244	36.7	37.4	0	100
Whig share 1820	244	41.2	38.4	0	100
Whig share 1826	244	39.2	39.4	0	100
Patronage index 1802	244	0.53	0.69	0	2
Patronage index 1806	244	0.54	0.69	0	2
Patronage index 1807	244	0.51	0.68	0	2
Patronage index 1812	244	0.52	0.71	0	2
Patronage index 1818	244	0.53	0.69	0	2
Patronage index 1820	244	0.50	0.68	0	2
Patronage index 1826	244	1.00	0.68	0	2
Population (1801)	244	38.1	103	0.026	839
Population density (1801)	243	5.72	1.61	1.95	16.8
Agriculture (emp. share) (1801)	244	0.12	0.14	0	1
Trade (emp. share) (1801)	244	0.25	0.20	0	0.93
Emp. fract. index (1801)	244	0.42	0.13	0	0.65
Population (1811)	244	45.4	122	0.095	973
Population density (1811)	244	5.73	1.34	2.25	15.0
Agriculture (emp. share) (1811)	244	0.27	0.23	0	0.88
Trade (emp. share) (1811)	244	0.50	0.20	0	0.97
Emp. fract. index (1811)	244	0.50	0.13	0.053	0.67
Population (1821)	244	53.9	147	0.098	1,173
Population density (1821)	244	5.69	0.94	2.85	9.84
Agriculture (emp. share) (1821)	244	0.24	0.20	0	0.83
Trade (emp. share) (1821)	244	0.51	0.20	0.027	0.97
Emp. fract. index (1821)	244	0.51	0.13	0.065	0.66
<b>County level variation</b>					
Food riots 1800-01	244	7.39	7.47	0	34
Riots 1793-1805	244	7.88	7.64	0	35
Food riots 1810-13	244	2.39	4.20	0	14
Labor riots 1822	244	0.77	3.03	0	13
Riots 1815-18	244	1.28	2.62	0	14
Food riots 1800-1818	244	10.8	9.81	0	39
Labor riots 1793-1822	244	1.49	4.08	0	18
All riots 1793-1822	244	12.3	10.7	0	40

Note: For the variables with county level variation, we attribute the county average to each constituency within that county.

**Table S27. Descriptive statistics for the post-reform placebo tests**

	Obs.	Mean	Std. dev.	Minimum	Maximum
<b>Constituency level variation</b>					
Whig vote share (1832)	136	0.67	0.23	0	1
Whig vote share (1835)	115	0.55	0.21	0	1
Whig vote share (1837)	134	0.49	0.20	0	1
Whig vote share (1841)	104	0.45	0.19	0	0.79
Whig vote share (1847)	93	0.51	0.22	0	1
Whig vote share (1852)	121	0.52	0.24	0	1
Whig vote share (1857)	105	0.60	0.25	0	1
Whig vote share (1859)	98	0.58	0.22	0.16	1
Whig vote share (1865)	114	0.55	0.21	0	1
Share of MPs' votes for 1866 reform bill	186	0.11	0.14	0	0.50
Share of MPs' votes for 1867 reform bill	186	0.0026	0.027	0	0.34
Liberal seat share	186	0.46	0.39	0	1
Conservative seat share	186	0.41	0.39	0	1
Population (1831)	186	81.9	197	1.38	1,371
Population density (1831)	186	5.60	0.90	4.54	9.79
Agriculture (emp. share) (1831)	186	0.14	0.14	0	0.52
Trade (emp. share) (1831)	186	0.40	0.11	0.19	0.87
Emp. fract. index (1831)	186	0.77	0.059	0.24	0.86
Population (1841)	185	93.7	232	0.57	1,667
Population density (1841)	185	5.79	2.78	2.01	33.7
Agriculture (emp. share) (1841)	156	0.21	0.11	0.0076	0.47
Trade (emp. share) (1841)	156	0.50	0.100	0.33	0.86
Emp. fract. index (1841)	156	0.64	0.063	0.25	0.74
Population (1851)	183	110	271	2.75	2,031
Population density (1851)	183	5.40	0.86	3.99	10.1
Agriculture (emp. share) (1851)	156	0.27	0.13	0.012	0.53
Trade (emp. share) (1851)	156	0.61	0.12	0.36	0.91
Emp. fract. index (1851)	156	0.51	0.099	0.17	0.64
Population (1861)	183	126	316	1.60	2,429
Population density (1861)	183	5.25	0.90	2.87	10.3
Agriculture (emp. share) (1861)	165	0.20	0.11	0.0078	0.41
Trade (emp. share) (1861)	165	0.70	0.095	0.52	0.91
Emp. fract. index (1861)	165	0.43	0.10	0.17	0.57

Note: Out of the 244 English constituencies that existed before the Great Reform Act, only 186 remained afterwards.

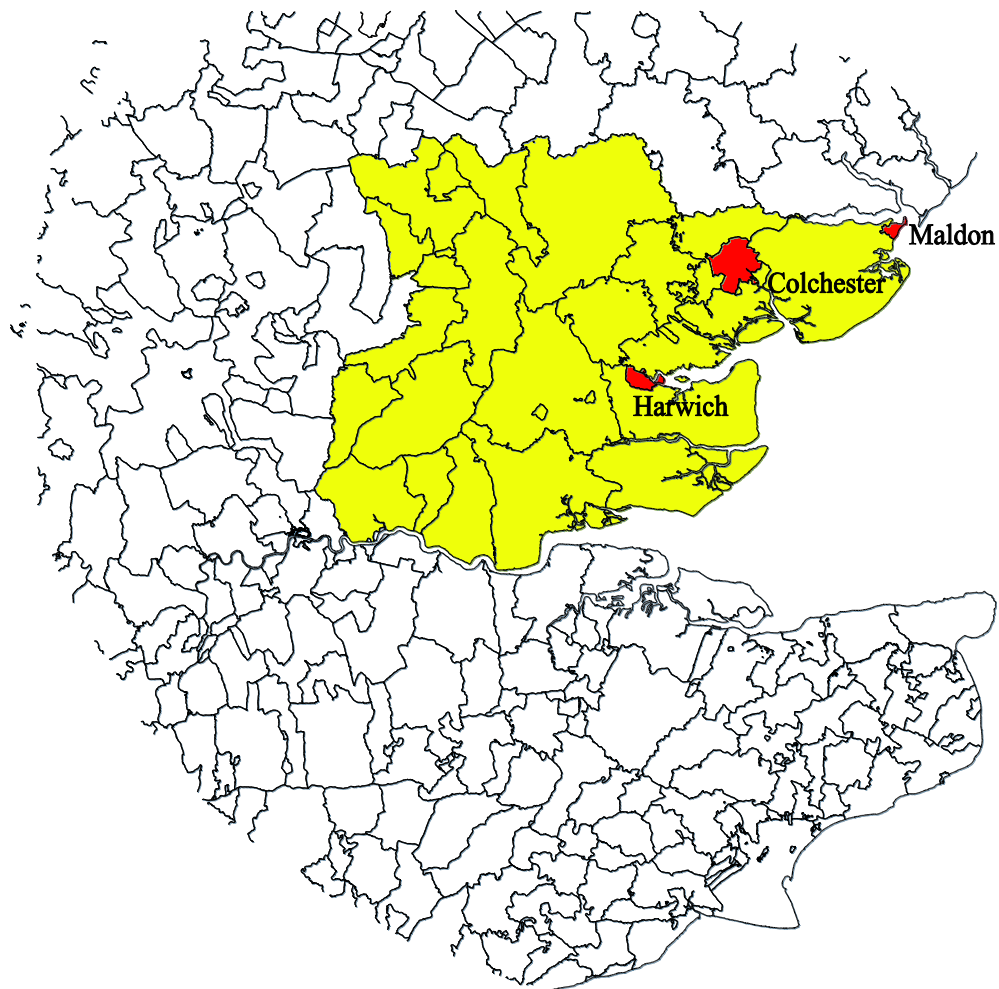
**Table S28. Descriptive statistics for the all variables used in Table S25**

	Obs.	Mean	Std. dev.	Minimum	Maximum
<b>Constituency level variation</b>					
Petitions against reform	244	0.26	0.60	0	4
Petitions for reform	244	1.69	2.50	0	31
Petitions against slavery	244	2.47	3.33	0	20
Catholic Church	182	0.79	0.41	0	1
Religious fract. index	182	0.50	0.044	0.36	0.64
Attendance ratio	182	0.48	0.11	0.13	0.92
Petitions against Catholic relief	244	1.30	2.16	0	18
Petitions for Catholic relief	244	0.62	1.14	0	8
<b>County level variation</b>					
Share of harsh sentences	244	23.1	27.2	0	100
Special Commission	244	0.21	0.41	0	1
Growth in poor law expenses (%)	241	706	323	258	1580

Note: For the variables with county level variation, we attribute the county average to each constituency within that county.



Map S1. English and Welsh Counties in 1831



### **Map S2 Parliamentary boroughs in Essex under the Unreformed Parliament**

Note: This map shows the borders of the three parliamentary boroughs of Colchester, Harwich and Maldon within Essex. In Colchester and in Maldon, the right to vote was given to the freemen of the boroughs while it was given to the members of the corporation in Harwich. Each of these three boroughs returned two MPs. According to Philbin (1965), there were, in 1831, 1084 voters in Colchester, 20 in Harwich and 3113 in Maldon. In addition, there were about 6000 county voters in Essex who returned two MPs.