Online Appendix for:
Wealth, Officeholding, and Legislative Ideology

August 7, 2016

Table of contents

1 1805 and 1807 lotteries

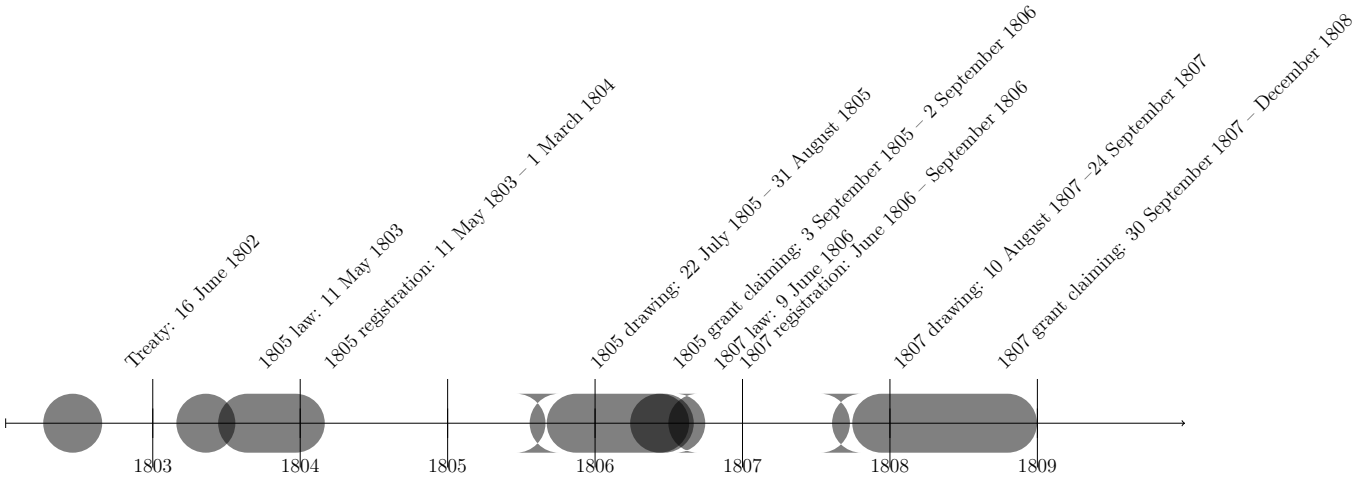


Figure 1: Timeline of 1805 and 1807 lottery events. (Graham, 2010, 2011).

Requirements	No. Draws (1805)	No. Draws (1807)
"Every free male white person, twenty-one years of age and upwards, being a citizen of the United States, and an inhabitant of this State, twelve months immediately preceding the passage of this act, or paid a tax towards the support of government (including such as may be absent on lawful business)" [1]	1	1
"Every free white male person of like description, having a wife, legitimate child or children, under twenty–one years of age"	2	2
"All widows having a legitimate child or children, under the age of twenty-one years, who have resided twelve months in this State, immediately preceding the passage of this act" [2]	2	1
"All families of orphans, under twenty-one years of age, having no parents living" [3]	1	1–2 [4]
"All families of orphans [with three years' residence], under twenty-one years of age, whose father is dead, "	N/A	1
"All free female white persons, who have arrived to the age of twenty–one years or upwards, who have resided in this State [for three years]"	1	N/A

Table 1: Lottery qualifications specified by Acts of 11 May 1803 and 9 June 1806 (Clayton and Adams, 1812). [1] The residency requirement is three years under 1807 lottery rules. An amendment to the 1807 rules also makes provision for persons laboring under accidents or misfortunes. [2] The 1807 lottery rules apply to all widows with three years residence in Georgia. [3] An amendment to the 1805 lottery rules entitles children whose father is dead and mother remarries to draw in the same manner. The 1807 lottery rules apply the three years residency requirement. [4] The 1807 lottery rules specify "families of orphans consisting of more than one" receive two draws and orphan families of "only one" receive one draw.

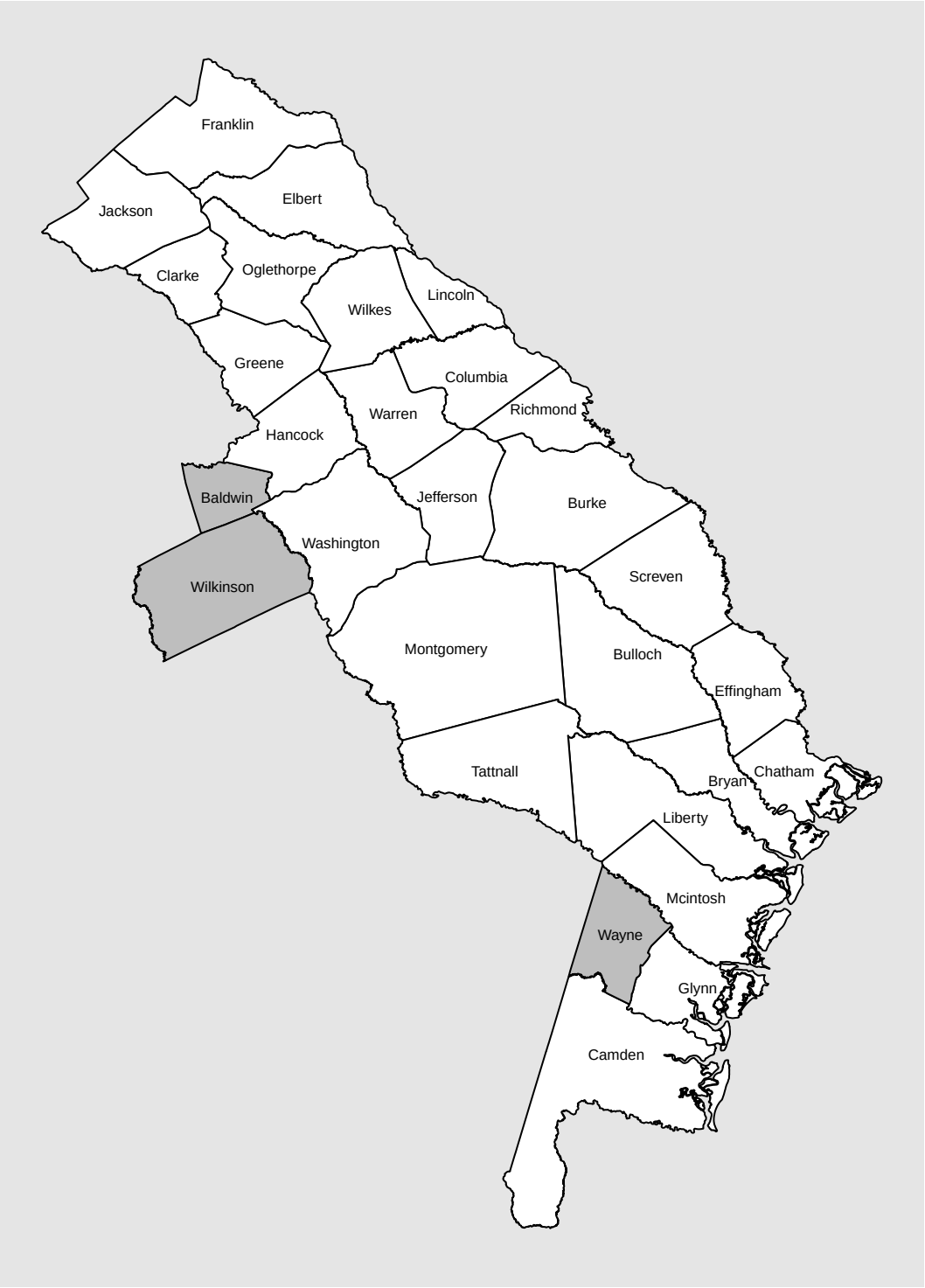
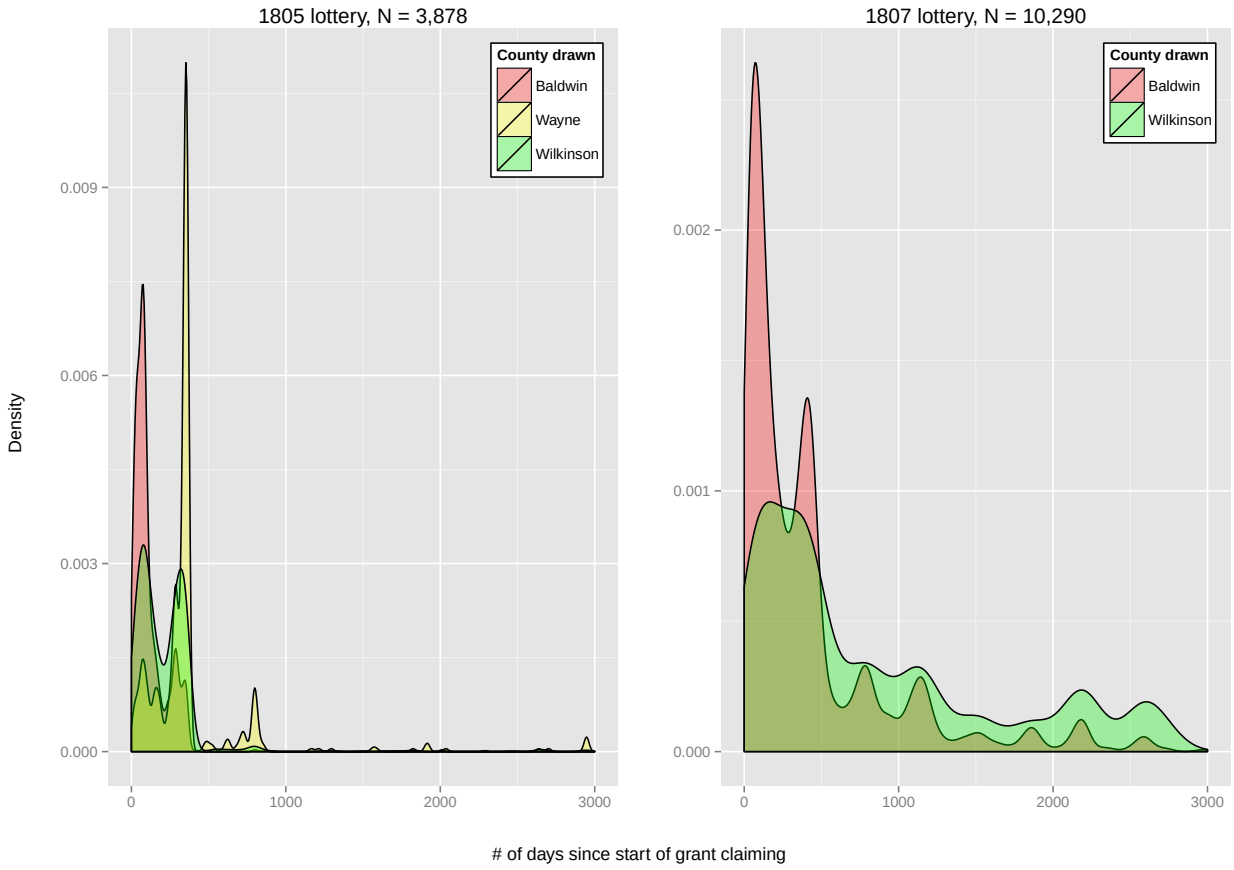


Figure 2: Map of Georgia with 1807 county boundaries (Long, 1995). The shaded counties are original counties created by the 1805 lottery.

Figure 3: Time lag in filing grants for 1805 and 1807 fortunate drawers.



Notes: grants filed for land reverted to state are excluded. See OA Figure 1 for the dates of grant claiming specified by the Acts of 11 May 1803 and 9 June 1806. The legislature extended the grant deadline for each lottery on an annual basis for about a decade.

Table 2: Counties created by 1805 and 1807 lotteries.

Panel A: 1805

Counties	No. Districts	Lot sizes (acres)	Lot length (chains square)	Lot orientation (degrees)	Grant fee ($)	Est. value of lot ($)
Baldwin	5	202.5	45	45 / 60	8.10	839.17
Wayne	3	490	70	13 / 77	19.60	842.64
Wilkinson	5	202.5	45	45 / 60	8.10	811.25

Panel B: 1807

Counties	No. Districts	Lot sizes (acres)	Lot length (chains square)	Lot orientation (degrees)	Grant fee ($)	Est. value of lot ($)
Baldwin	15	202.5	45	45 / 60	12.15	827.35
Wilkinson	23	202.5	45	45 / 60	12.15	799.82

Notes: counties and land lots specified by Acts of 11 May 1803 and 9 June 1806. Lot orientation is degrees from the meridian. Lot values are estimated by averaging the cash value of farms minus the value of farming implements and machinery by the number of (improved and unimproved) acres of land in farms (Haines, 2004; Bleakley and Ferrie, 2013). The 1850 values are deflated to 1805 dollars (Panel A) and 1807 dollars (Panel B) using a historical consumer price index (Officer and Williamson, 2012).

2 Qualifications for officeholding under 1798 Georgia Constitution

Candidates for state representative must be at least twenty–one years old, have been a US citizen for seven years, and a resident of the county one year prior to the election (unless absent on public business). Candidates for state senate must be at least twenty–five years old, have been a US citizen for nine years, a resident of Georgia for three years, and a resident of the county for one year. Felons, public debtors, and active members of the military are excluded from elective positions. Amendments to the 1798 constitution altered age and residency requirements and opened the following offices to popular election: inferior court judges (Amendment III; 1812), justices of the peace (Amendment VI; 1819); Governor (Amendment VII; 1824); state's attorney (Amendment XX; 1855).

3 Georgia Assembly roll call votes

Year	Title	Chamber	Direction	Vote total	Issue
1810	"To manumit a certain negro girl named Clarissa"	Senate	(-)	Yeas 24 – nays 10	Slavery
1810	"To incorporate the Bank of Augusta"	Senate	(+)	Yeas 23 – nays 7	Banking
1813	"To establish a bank in the town of Milledgeville"	House	(+)	Yeas 20 – nays 51	Banking
1813	"To consolidate the funds of this state and establish a bank thereon"	Senate	(+)	Yeas 17 – nays 15	Banking
1814	"To consolidate the funds of this state and establish a bank thereon"	Senate	(+)	Yeas 18 – nays 14	Banking
1814	"An act to establish an [sic] uniform mode of calculating interest in this state, and to prevent the collection of compound interest"	Senate	(+)	Yeas 19 – nays 11	Banking
1815	"To incorporate a bank, to be called, *The Bank of the State of Georgia*"	House	(+)	Yeas 60 – nays 7	Banking
1815	"To incorporate a Bank to be called the Bank of the State of Georgia"	Senate	(+)	Yeas 18 – nays 13	Banking
1815	"To incorporate the Bank of Milledgeville"	Senate	(+)	Yeas 27 – nays 9	Banking
1815	"To emancipate and set free Abraham Mauzo, jun. a person of color"	Senate	(-)	Yeas 12 – nays 25	Slavery
1816	"To emancipate a negro slave, named Caesar,	Senate	(-)	Yeas 12 –	Slavery

	commonly called Caesar Kennedy, and to carry into effect the last will and testament of Wn. Kennedy, late of Richmond county, dec'd"'			nays 19	
1816	"An act to restore William Wall and Andrew Guarde, two persons of color, to the privilege of piloting vessels in the several ports of this state"	Senate	(-)	Yeas 19 – nays 11	Slavery
1816	"To prevent the circulation of notes emitted by unchartered Banks"	Senate	(+)	Yeas 23 – nays 6	Banking
1817	"To prevent the issuing... or circulating [of] bills... other than those of chartered Banks, and for establishing the interest thereon"	Senate	(+)	Yeas 23 – nays 12	Banking
1818	"To incorporate the Bank of Darien"	House	(+)	Yeas 50 – nays 36	Banking
1818	"To pardon a negro boy named Peter, the property of the late Mather Jones of Tatnall county, deceased"	Senate	(-)	Yeas 16 – nays 21	Slavery
1818	"To manumit and make free a certain negro slave, named therein, (the property of Henry Parks)"	House	(-)	Yeas 39 – nays 51	Slavery
1818	"To manumit and make free a certain person of color, named therein"	House	(-)	Yeas 43 nays 44	Slavery
1818	"To repeal that part of an act, passed the 20th of December, 1817, relative to the introduction of slaves into this state"	House	(+)	Yeas 48 nays 41	Slavery –
1821	"To alter and amend the several laws for the trial of Slaves and Free Persons of Color in this State"	Senate	(+)	Yeas 34 – nays 7	Slavery
1824	"To emancipate a certain colored man by the name of Henry, commonly called Henry Adams"	Senate	(-)	Yeas 28 – nays 26	Slavery

1824	"To manumit and set free three negroes by the names of old Ben, Lizzy, and old Milley"	Senate	(-)	Yeas 23 – nays 24	Slavery
1824	"To repeal a law passed in the year 1817, prohibiting the introduction of slaves only on certain conditions"	Senate	(+)	Yeas 33 – nays 13	Slavery
1824	"[To repeal] an act to regulate the intercourse between the Banks incorporated by the General Assembly of the State of Georgia, " and the Bank of the United States"	Senate	(-)	Yeas 21 – nays 24	Banking
1824	"[To repeal] an act to regulate the intercourse between the Banks incorporated by the General Assembly of the State of Georgia, " and the Bank of the United States"	Senate	(-)	Yeas 23 – nays 22	Banking
1826	"To regulate the intercourse between the banks of this State, and other institutions and brokers"	Senate	(+)	Yeas 28 – nays 26	Banking
1826	"To amend an act to incorporate the bank of Darien, passed 15th Dec. 1818"	Senate	(+)	Yeas 30 – nays 26	Banking
1827	"To incorporate a bank in the city of Augusta""	Senate	(+)	Yeas 38 – nays 22	Banking
1827	"To amend an act to incorporate the bank of Darien, passed 15th Dec. 1818"	Senate	(+)	Yeas 39 – nays 27	Banking
1827	"To manumit a male slave and a female slave by the names of Davy and Hannah"	Senate	(-)	Yeas 35 – nays 20	Slavery
1828	"To establish a bank at Milledgeville, to be called... the Central Bank of Georgia"	Senate	(+)	Yeas 39 – nays 32	Banking

1831	"To alter and amend an act to impose an additional tax on Pedlers and other Itinerant Traders, passed the 9th December 1824; and to punish such traders for illegal trading with slaves "	Senate	(+)	Yeas 39 – nays 27	Slavery
1831	"To incorporate a Banking Company in the town of Hawkinsville"	Senate	(+)	Yeas 31 – nays 28	Banking
1831	"To incorporate the Insurance Bank of Columbus"	Senate	(+)	Yeas 36 – nays 21	Banking
1831	"To incorporate a Banking Company under the name of the Commercial Bank of Macon"	Senate	(+)	Yeas 43 – nays 29	Banking
1834	"To extend the charter of the Darien Bank"	House	(+)	Yeas 75 – nays 65	Banking
1838	"To authorize the Business of Banking, and to regulate the same"	Senate	(+)	Yeas 42 – nays 28	Banking
1839	"To repeal an act to authorize the Business of Banking"	Senate	(-)	Yeas 38 – nays 48	Banking
1841	"To protect the slave population of the people of the State of Georgia, by compelling vessels owned or commanded by citizens of, or coming from the ports of the State of Maine, and the officers, seamen and passengers thereof, to perform quarantine; and provide for a search thereof on their departure"	House	(+)	Yeas 78 – nays 92	Slavery
1842	"To amend the charter of the Central Bank of Georgia"	House	(+)	Yeas 116 – nays 71	Banking

1842	"To amend the charter of the Central Bank of Georgia"	Senate	(+)	Yeas 65 – nays 15	Banking
1845	"To reduce the rate of interest on money, to 7 percent"	Senate	(+)	Yeas 24 – nays 21	Banking

Table 3: Summary of roll call votes on motions to pass final bills related to slavery and banking legislation. 'Year' is the year the bill was voted on. 'Chamber' indicates whether the vote occurred in the House or Senate. 'Direction' indicates whether an affirmative vote is coded positively (+) or negatively (-). 'Vote total' is the result of the roll call.

4 Descriptive statistics

4.1 1800 Census

County	White males 16–25	White males 26-44	White males 45+	White male total pop.	White female total pop.	Slave pop. (%)
Bryan	57	64	26	286	242	0.813
Bulloch	158	151	97	871	758	0.141
Burke	726	743	242	3,356	3,167	0.312
Camden	104	131	60	496	440	0.437
Chatham	547	591	175	2,077	1,596	0.699
Columbia	478	516	256	2,848	2,473	0.360
Effingham	94	163	132	716	594	0.368
Elbert	637	689	348	3,709	3,546	0.279
Franklin	463	572	276	3,078	2,814	0.140
Glynn	68	116	60	445	334	0.583
Greene	593	857	295	3,716	3,381	0.340
Hancock	964	952	423	5,205	4,400	0.334
Jackson	563	654	243	3,266	3,062	0.181
Jefferson	311	421	219	2,066	1,942	0.289
Liberty	171	187	71	762	584	0.742
Lincoln	230	317	193	1,745	1,581	0.301
Mcintosh	79	117	60	460	371	0.684
Montgomery	286	270	147	1,445	1,297	0.137
Oglethorpe	643	653	341	3,479	3,207	0.316
Richmond	360	370	132	1,503	1,225	0.492
Screven	274	310	82	1,253	1,000	0.254
Warren	605	562	313	3,263	2,989	0.247
Washington	660	678	322	3,739	3,442	0.259
Wilkes	716	830	444	4,184	3,848	0.382
Georgia	9,787	10,910	4,957	53,965	48,298	0.365

Table 4: Summary statistics on selected county–level characteristics in the 1800 Census. 'Slave pop.' is the slave population over the total population.

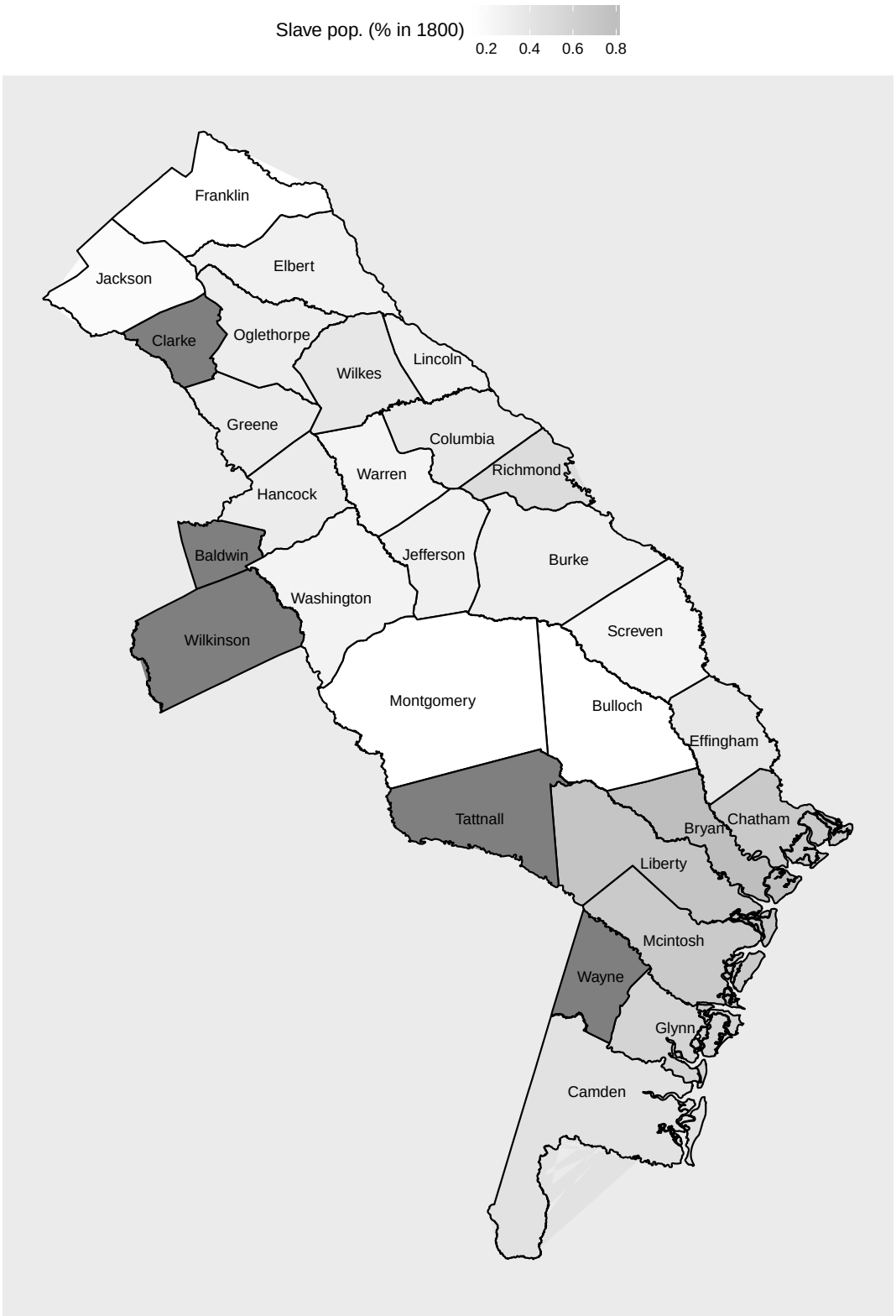


Figure 4: Slave population as a percentage of total population, drawn from the 1800 Census (Haines, 2004).

4.2 1820 Census

County	Slave pop. (%)	Slave wealth Gini
Baldwin	0.548	0.668
Bryan	0.739	0.804
Bulloch	0.264	0.829
Burke	0.476	0.872
Camden	0.594	0.820
Chatham	0.635	0.843
Clarke	0.368	0.746
Columbia	0.561	0.670
Effingham	0.450	0.775
Elbert	0.440	0.761
Glynn	0.758	0.765
Greene	0.256	0.664
Hancock	0.534	0.680
Jackson	0.246	0.834
Jefferson	0.437	0.796
Liberty	0.711	0.769
Lincoln	0.455	0.708
McIntosh	0.720	0.830
Montgomery	0.373	0.855
Oglethorpe	0.517	0.670
Richmond	0.568	0.793
Screven	0.448	0.751
Tattnall	0.111	0.842
Warren	0.381	0.748
Washington	0.358	0.800
Wayne	0.363	0.800
Wilkes	0.548	0.664
Wilkinson	0.209	0.853
Georgia	0.412	0.789

Table 5: Summary statistics on selected county–level characteristics in the 1820 Census, for counties existing in 1807. 'Slave pop.' is the slave population over the total population. 'Wealth Gini' is the gini coefficient based on imputed slave wealth (see footnotes to Table OA-6 for the slave value imputation method). Highlighted counties were created by the 1805 and 1807 lotteries.

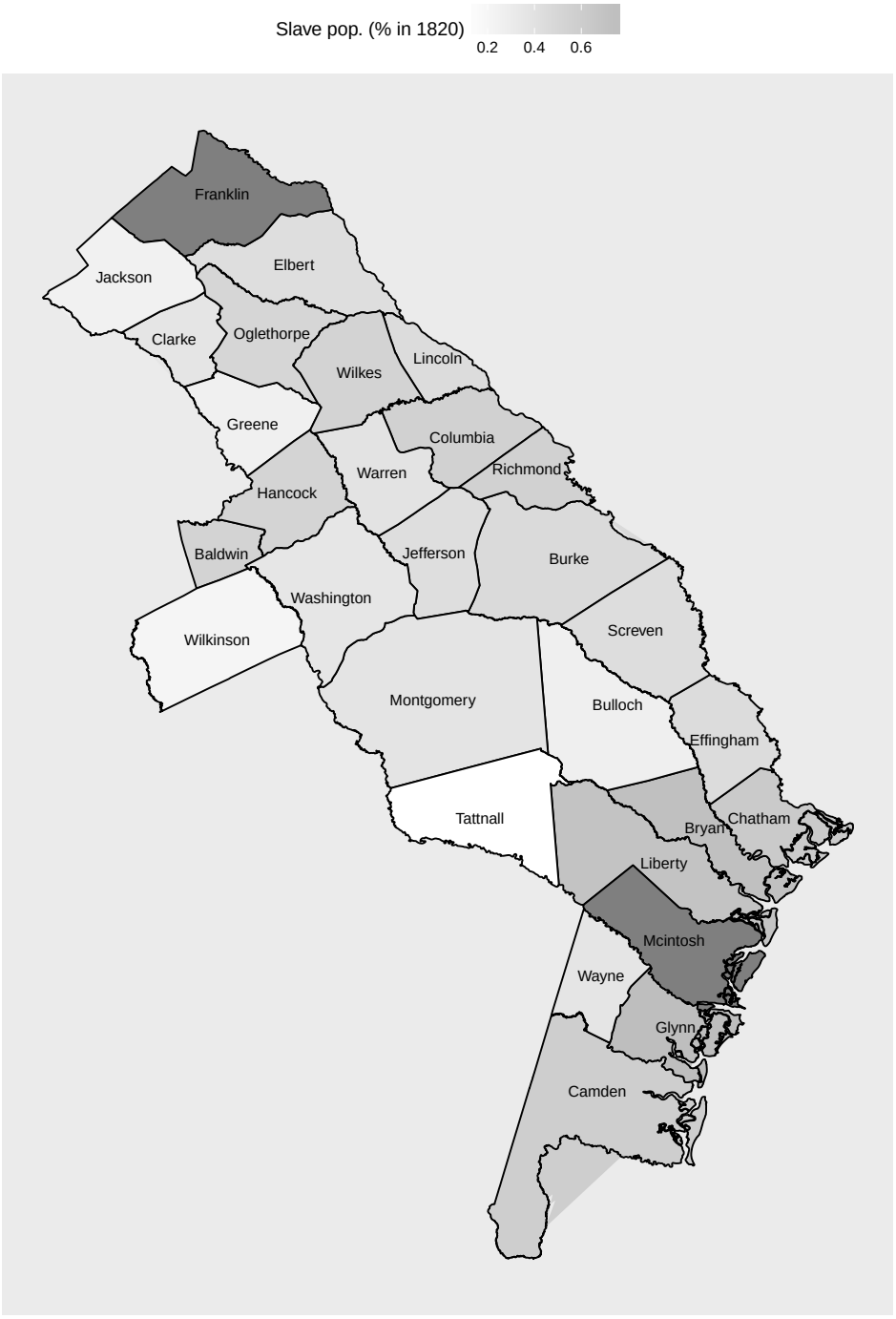


Figure 5: 1820 slave population as a percentage of total population for counties existing in 1807.

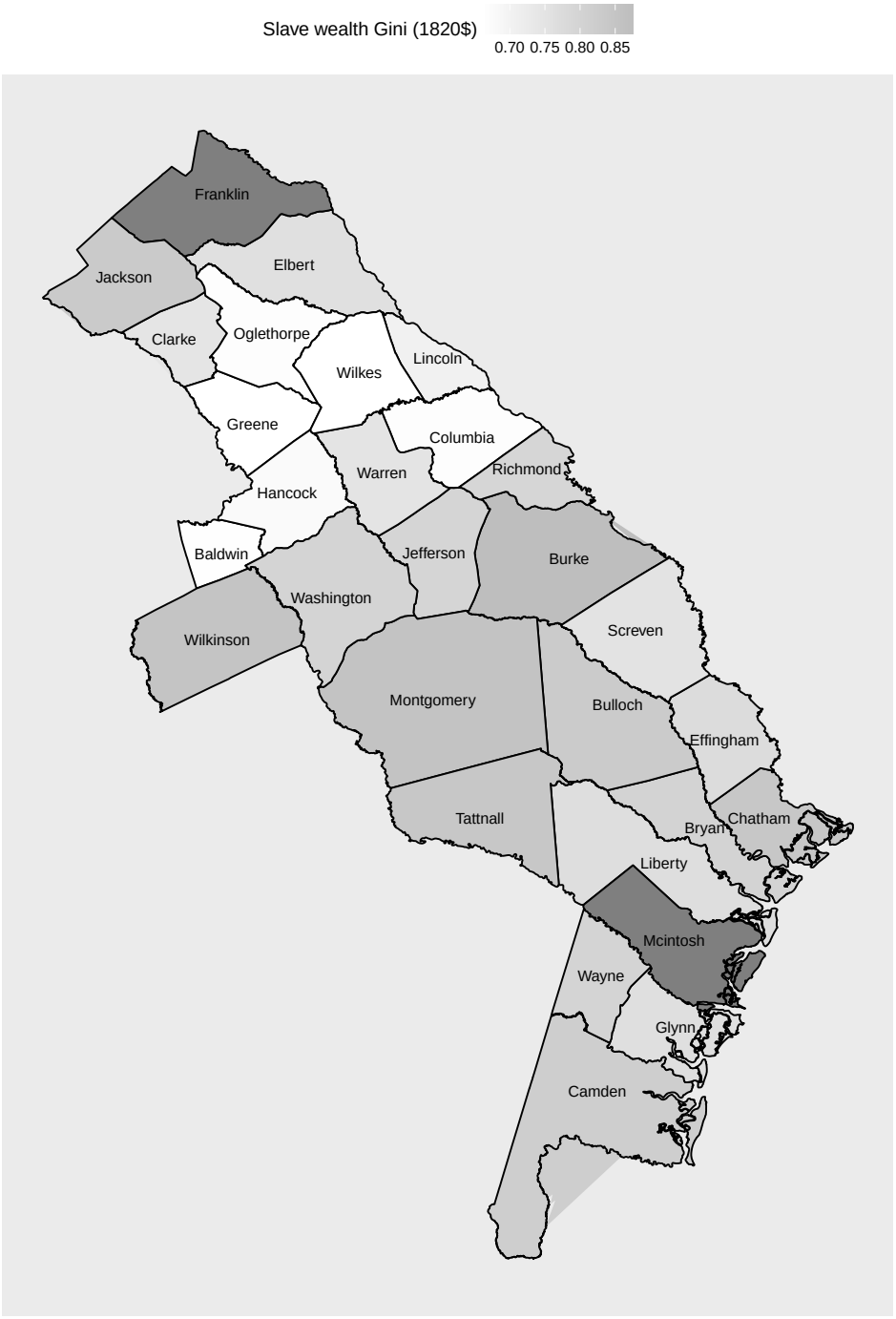


Figure 6: Gini coefficient based on 1820 slave wealth for counties existing in 1807. See footnotes to Table OA-6 for the slave value imputation method.

Table 6: Imputed slave values (1820$), by gender and age group.

	Male	Female
Under 14	331	303
14-25	700	642
26-44	425	389
45+	258	236

Notes: Phillips (1905) estimates the average value of male prime field hands (18-30 years old) in Georgia in 1821 is $700. I use the coefficients in Table II of Kotlikoff (1979) to adjust the average price according to age group and gender.

4.3 1850 Census

Variable	N	Min.	Mean	Max.	S.d.
Personal characteristics					
Age	25,506	21	38.042	101	11.195
Literate	25,520	0	0.891	1	0.311
In school	25,520	0	0.001	1	0.038
Real estate value (1850$)	25,520	0	2,324.389	250,000	5,538.743
Surname characteristics					
Surname length	25,520	3	6.224	14	1.560
Surname frequency	25,520	1	36.965	449	74.114
Occupations					
Blacksmith	25,520	0	0.006	1	0.080
Carpenter	25,520	0	0.009	1	0.092
Farmer	25,520	0	0.852	1	0.355
Laborer	25,520	0	0.004	1	0.065
Lawyer	25,520	0	0.009	1	0.093
Mechanic	25,520	0	0.008	1	0.087
Merchant	25,520	0	0.021	1	0.143
Overseer	25,520	0	0.006	1	0.075
Physician	25,520	0	0.014	1	0.117
Reverend	25,520	0	0.009	1	0.093
Teacher	25,520	0	0.005	1	0.067

Table 7: Individual–level summary statistics using sample drawn from the 1850 full–count Census Center (2008); Sarah Flood and Warren (2015). 'Surname length' is the character length of surnames. 'Surname frequency' is the number of times surnames appear in the sample. 'Literate' is a binary variable indicating literacy (can read and write). 'In school' is an indicator variable for individuals currently in school. The occupations dummies indicate contemporary occupational categories. Sample is restricted to male heads of households aged 21 and over who living in Georgia at the time of the census, were born in Georgia, and have non–missing surnames and property value.

County	Log value of farms ($)	Log value of farm equip. ($)	Log total # of farms	Log mean farm value ($)	Log total farm acres	Per acre farm value ($)	Slave pop. (%)	Real estate wealth Gini
Baldwin	13.407	10.341	5.481	7.879	12.343	2.761	0.565	0.594
Bryan	12.636	9.857	5.342	7.230	12.046	1.692	0.656	0.618
Bulloch	12.761	9.724	6.021	6.691	13.122	0.663	0.340	0.546
Burke	14.642	11.794	6.568	8.014	13.171	4.100	0.673	0.677
Camden	13.715	10.242	5.460	8.223	12.240	4.234	0.672	0.802
Chatham	14.513	12.251	4.883	9.520	11.866	12.643	0.587	0.723
Clarke	13.876	11.028	5.991	7.825	12.197	5.051	0.503	0.674
Columbia	14.213	11.682	6.192	7.938	12.613	4.559	0.692	0.555
Effingham	12.646	9.721	5.730	6.861	12.358	1.263	0.478	0.634
Elbert	14.262	11.443	6.690	7.511	12.655	4.691	0.484	0.649
Franklin	13.882	11.335	7.174	6.626	12.900	2.461	0.207	0.666
Glynn	13.544	10.353	4.522	8.980	11.574	6.877	0.858	0.801
Greene	14.385	11.266	6.238	8.101	12.444	6.659	0.633	0.606
Hancock	14.096	11.314	6.096	7.936	12.572	4.307	0.631	0.577
Jackson	13.505	10.856	6.304	7.127	12.203	3.418	0.301	0.523
Jefferson	14.118	11.483	6.288	7.756	12.603	4.227	0.588	0.613
Liberty	13.563	10.400	5.497	8.022	12.743	2.174	0.745	0.707
Lincoln	13.363	10.604	5.609	7.688	11.918	3.970	0.630	0.556
Montgomery	11.678	9.094	5.124	6.475	12.140	0.582	0.285	0.683
Oglethorpe	14.437	11.561	6.319	8.060	12.606	5.888	0.642	0.560
Richmond	13.969	10.838	5.606	8.318	11.913	7.468	0.481	0.712
Screven	13.320	10.672	6.211	7.036	13.144	1.109	0.536	0.753
Tattnall	12.345	9.503	5.790	6.495	12.883	0.550	0.258	0.522
Warren	14.335	11.434	6.405	7.873	12.825	4.277	0.492	0.570
Washington	14.102	11.444	6.449	7.580	12.962	2.908	0.488	0.622
Wayne	11.419	8.525	5.147	6.215	11.226	1.146	0.271	0.631
Wilkes	14.112	11.332	6.148	7.899	12.571	4.378	0.684	0.629
Wilkinson	13.723	11.147	6.469	7.175	12.662	2.670	0.331	0.591
Georgia	18.377	15.589	10.854	7.459	16.943	3.938	0.421	0.660

Table 8: Summary statistics on selected county–level characteristics for counties existing in 1807 from the 1850 Census. 'Log total farm acres' is the log of the sum of improved and unimproved acres of land in farms. 'Log average farm value' is the log of the difference between farm value and equipment value, over the total number of farms. 'Per acre farm value' is the difference between farm value and equipment value, over the sum of improved and unimproved acres of farm land. All dollar values are current (1850$). 'Slave pop.' is the slave population over the total population. 'Wealth Gini' is based on real estate values in sample drawn from the 1850 full–count Census (see footnotes to Table OA-7 for sample exclusions).

4.4 Wealth distribution for legislator–participants

Table 9: Pre– and posttreatment wealth distribution for legislator–participants who voted on roll calls

Panel A: Pretreatment wealth					
Variable	**N**	**Min.**	**Mean**	**Max.**	**S.d.**
Slaves held	376	0	2.335	24	4.581
Land (acres)	376	0	230.582	2851	353.329
Person tax ($)	376	0.318	1.655	21.9	2.548
Panel B: Posttreatment wealth					
Slaves held	323	0	4.059	33	6.788
Land (acres)	323	0	212.466	2167.5	303.364
Person tax ($)	323	0.4	3.416	20.303	3.963

Notes: distribution of pretreatment (Panel A) and posttreatment (Panel B) wealth measures derived from tax records for legislator–participants. Refer to the paper (Figure 9) for variable definitions.

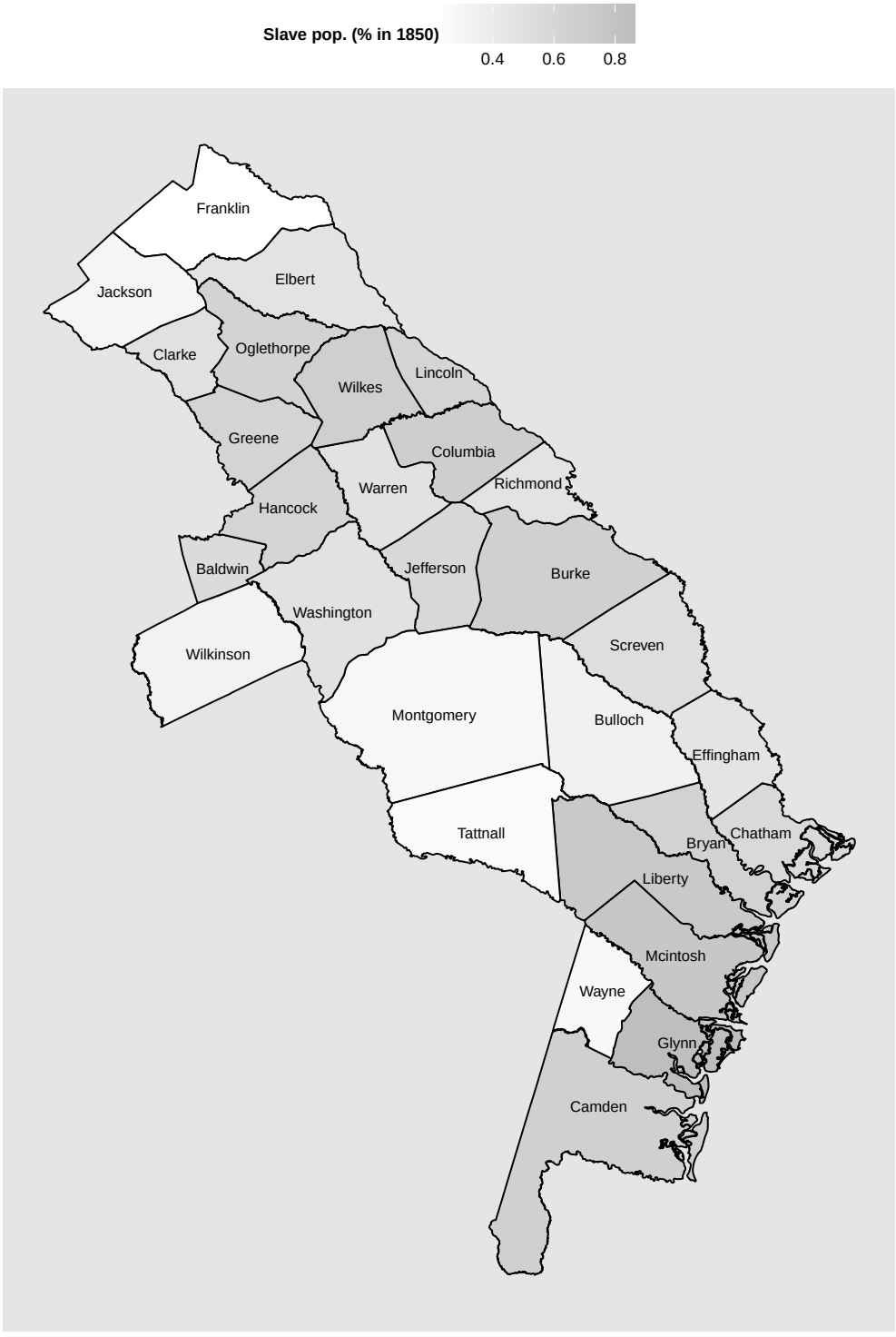


Figure 7: 1850 slave population as a percentage of total population for counties existing in 1807.

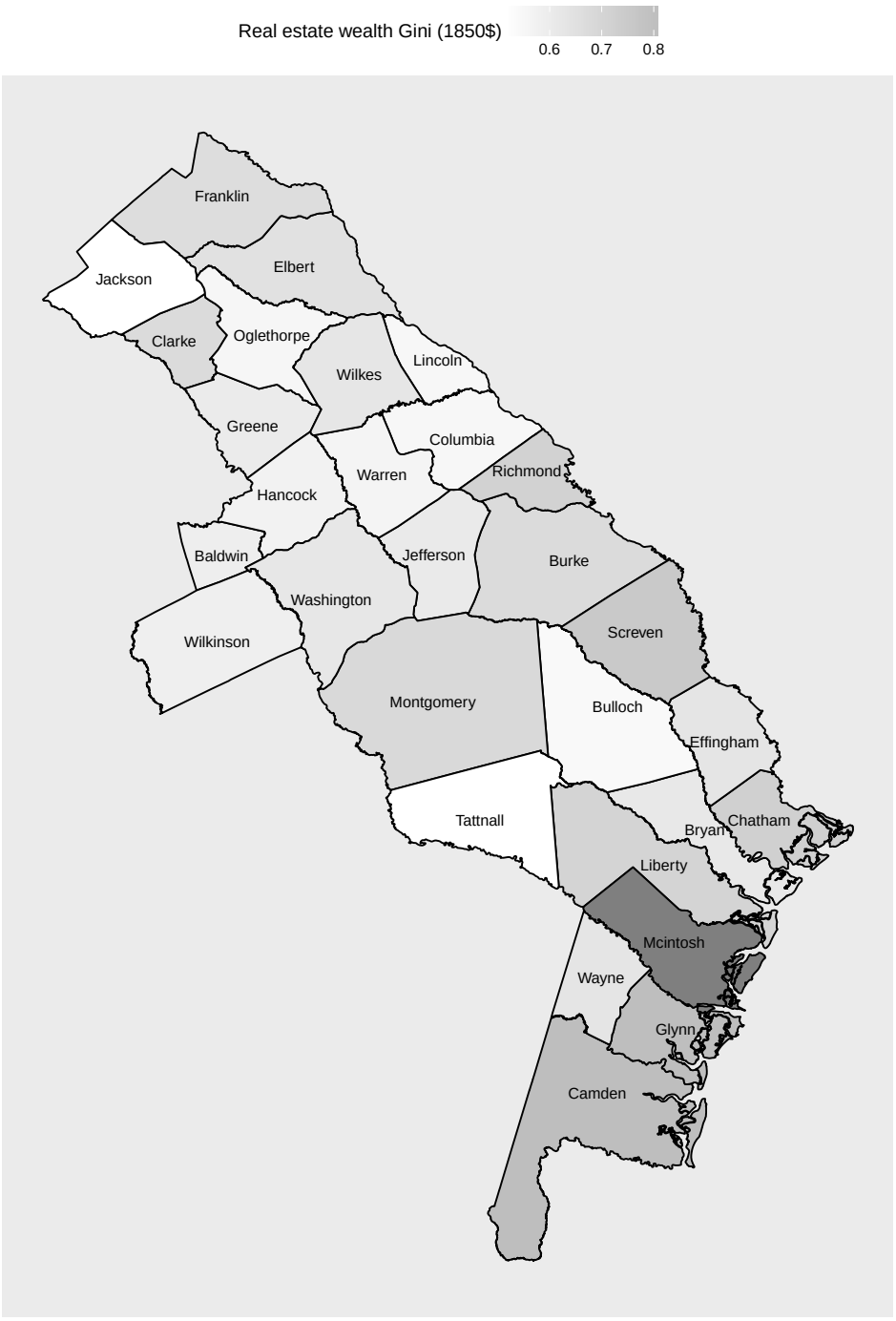
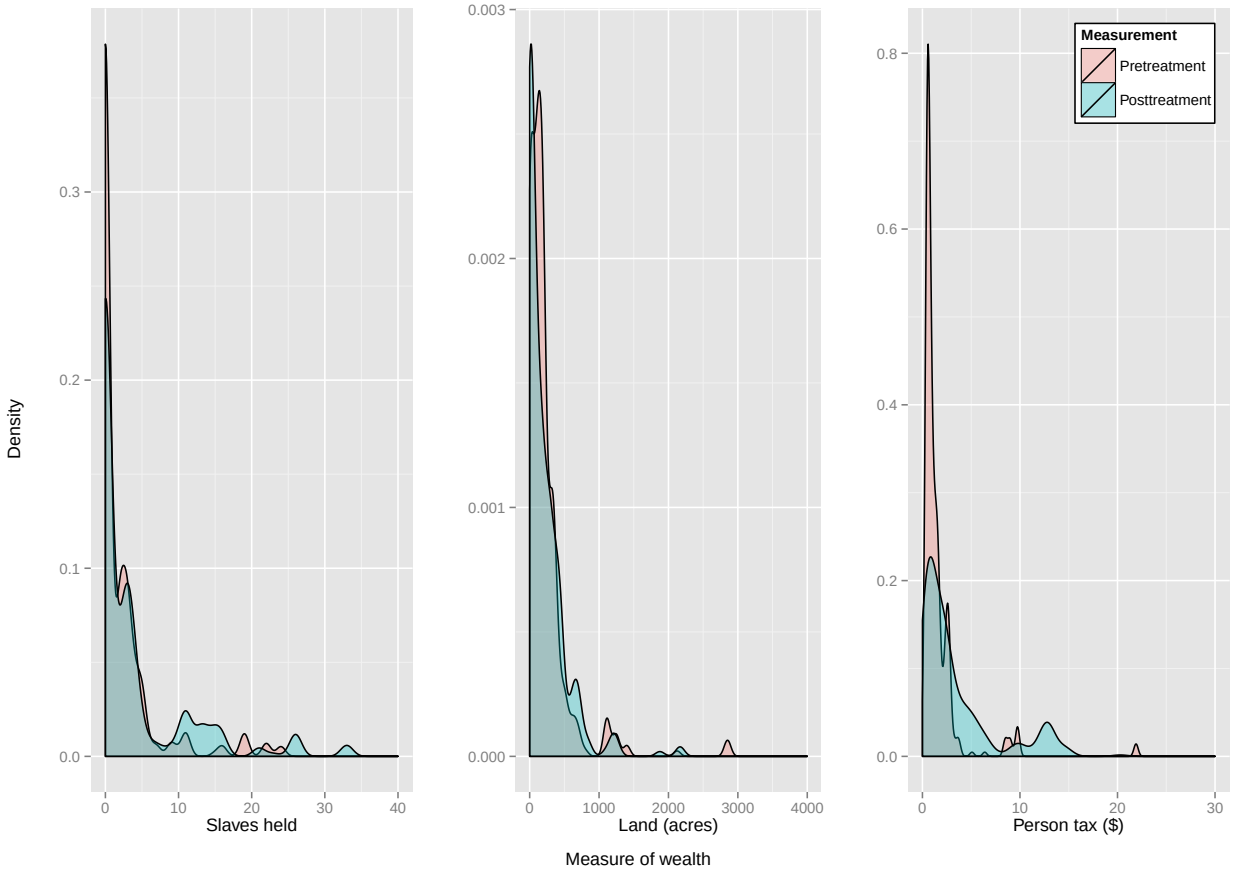


Figure 8: Gini coefficient based on 1850 real estate values for counties existing in 1807.

Figure 9: Pre– and posttreatment wealth densities for legislator–participants.



Notes: Densities of pre– and posttreatment wealth measures derived from tax records for participants who held office in the General Assembly before 1848. Wealth data are extracted from individual property tax records (Archives, 1890; Blair, 1926), and manually linked to legislators who voted on slavery roll calls. 'Slaves' is the number of slaves of age over 21 and under 60 owned by the taxpayer. 'Land' is the amount in acres of all qualities owned by the taxpayer. 'Person tax' is unadjusted dollar amount of taxes paid by the taxpayer. See Table OA–9 for summary statistics.

4.5 Distribution of response variables

Table 10: Distribution of response variables by treatment and compliance status.

Response	Group	N	Min.	Mean	Max.	S.d.
Banking	$\mathcal{C}$	29	1.000	1.000	1	0.000
legislation	$\mathcal{T}$	5	0.500	0.900	1	0.224
	$\mathcal{N}$	1	1.000	1.000	1	NA
	all	35	0.500	0.986	1	0.085
Candidacy	$\mathcal{C}$	18,313	0	0.012	1	0.110
	$\mathcal{T}$	3,027	0	0.014	1	0.116
	$\mathcal{N}$	299	0	0.010	1	0.100
	all	21,639	0	0.012	1	0.111
Officeholding	$\mathcal{C}$	18,406	0	0.036	1	0.186
(binary)	$\mathcal{T}$	3,044	0	0.036	1	0.186
	$\mathcal{N}$	300	0	0.023	1	0.151
	all	21,750	0	0.036	1	0.185
Officeholding	$\mathcal{C}$	18,406	0.004	0.057	0.910	0.181
(continuous)	$\mathcal{T}$	3,044	0.004	0.057	0.898	0.180
	$\mathcal{N}$	300	0.004	0.056	0.902	0.181
	all	21,750	0.004	0.057	0.910	0.181
Slavery	$\mathcal{C}$	23	0	0.451	1	0.382
legislation	$\mathcal{T}$	4	0	0.750	1	0.500
	$\mathcal{N}$	1	0	0.000	0	NA
	all	28	0	0.478	1	0.408
Slave wealth	$\mathcal{C}$	1,811	0	1,943	63,526	4,001
(1820$)	$\mathcal{T}$	282	0	1,929	25,583	3,355
	$\mathcal{N}$	38	0	1,745	10,412	2,579
	all	2,131	0	1,938	63,526	3,899
# terms	$\mathcal{C}$	228	0	0.526	8	1.506
	$\mathcal{T}$	49	0	0.510	7	1.516
	$\mathcal{N}$	5	0	0.200	1	0.447
	all	282	0	0.518	8	1.493

Response: 'Candidacy' indicates whether the participant ran for office between 1805 and 1847, inclusive, excluding women, orphans, pretreatment candidates, and pretreatment officeholders. 'Officeholding (binary)' indicates whether the participant held office between 1806 and 1847, inclusive, excluding women, orphans, and pretreatment officeholders. 'Officeholding (continuous)' is the probability of being matched to the officeholder records for the same restricted sample as the binary case. 'Banking legislation' and 'Slavery legislation' are the mean votes in favor of banking and slavery legislation, respectively, among participants who held office in the General Assembly before the 1805 lottery. 'Slave wealth (1820)' is the imputed slave wealth for participants matched to the 1820 Census (see footnotes to Table OA-6 for the slave value imputation method). '# terms' is the number of terms served by participants who held any political office in 1805 or earlier. *Group:* $\mathcal{C}$ denotes participants assigned to control; $\mathcal{T}$ denotes treated compliers, or participants assigned to treatment who accept treatment; $\mathcal{N}$ denotes never–treats, or participants assigned to treatment who decline treatment.

5 Power analysis

The purpose of a power analysis simulation is to estimate $\mathrm{P}(\text{Reject } \mathrm{H}_0 | \mathrm{H}_0 \text{ is false})$ at a fixed significance level of $\alpha = 0.05$ and sample size $N = 21,750$ for different treatment effects $\Delta_{1,\ldots,j}$. In this case N is the size of the observed sample of participants, excluding widows, orphans, and pretreatment officeholders. The simulation proceeds as follows:

1. Take a random sample of size N without replacement from from the observed distribution of treatment assignments, weighted by the observed propensity score, to create a vector of simulated treatment assignments.

2. Simulate response values with Δ_{jk} as the difference-in-means between the simulated treated and control units. Generate random values from the binomial distribution with the probability of success on each trial equal to the mean of the response in the observed sample.

3. Perform a randomization test on the simulated data and extract the p value.

Repeat the simulation $\mathcal{I}$ times and calculate power of the test by dividing the count of the number of p values that are less than α over $\mathcal{I}$. Normally, 80% power is required to justify a study. Figure 10 provides the results of power analysis simulations for the officeholding response.

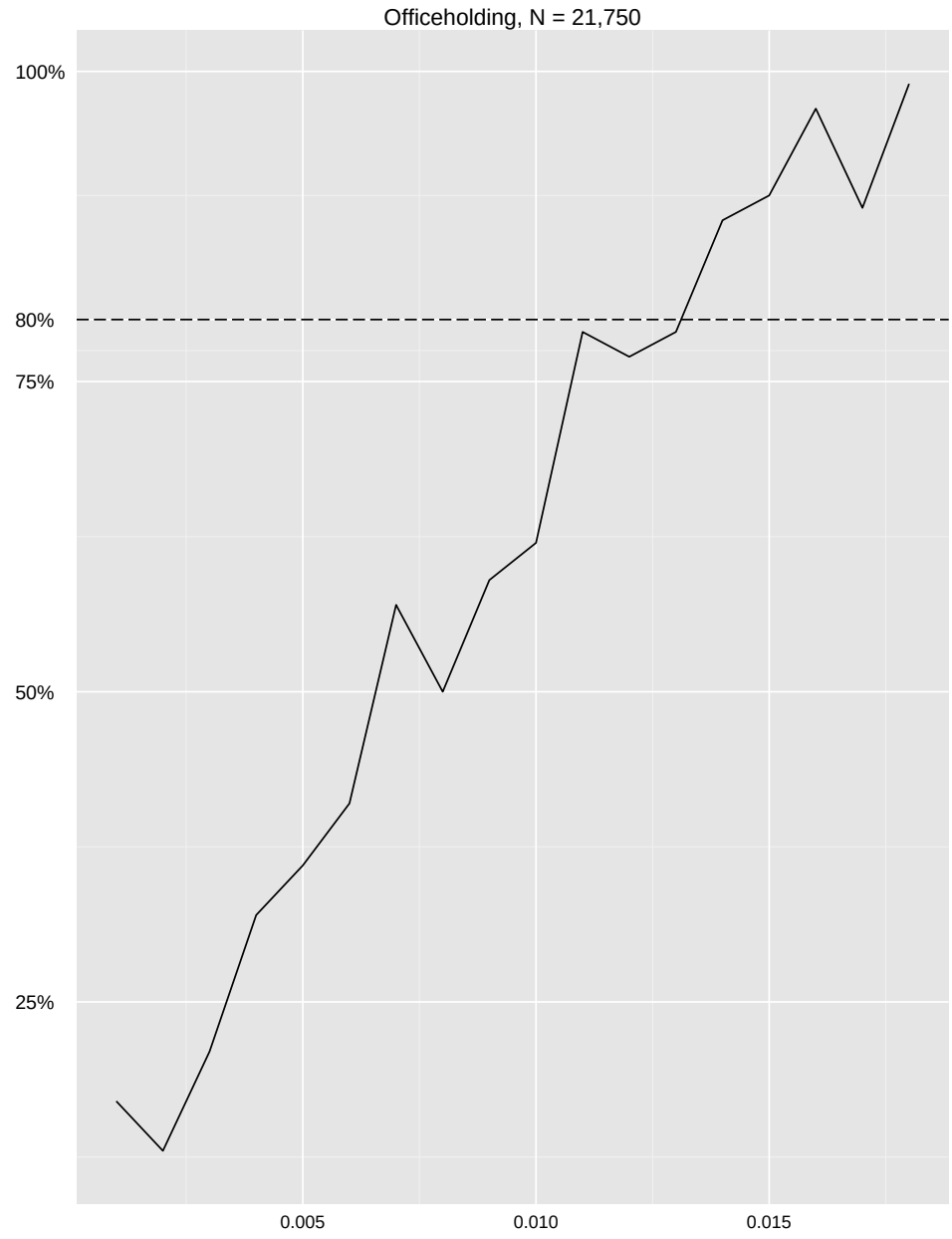
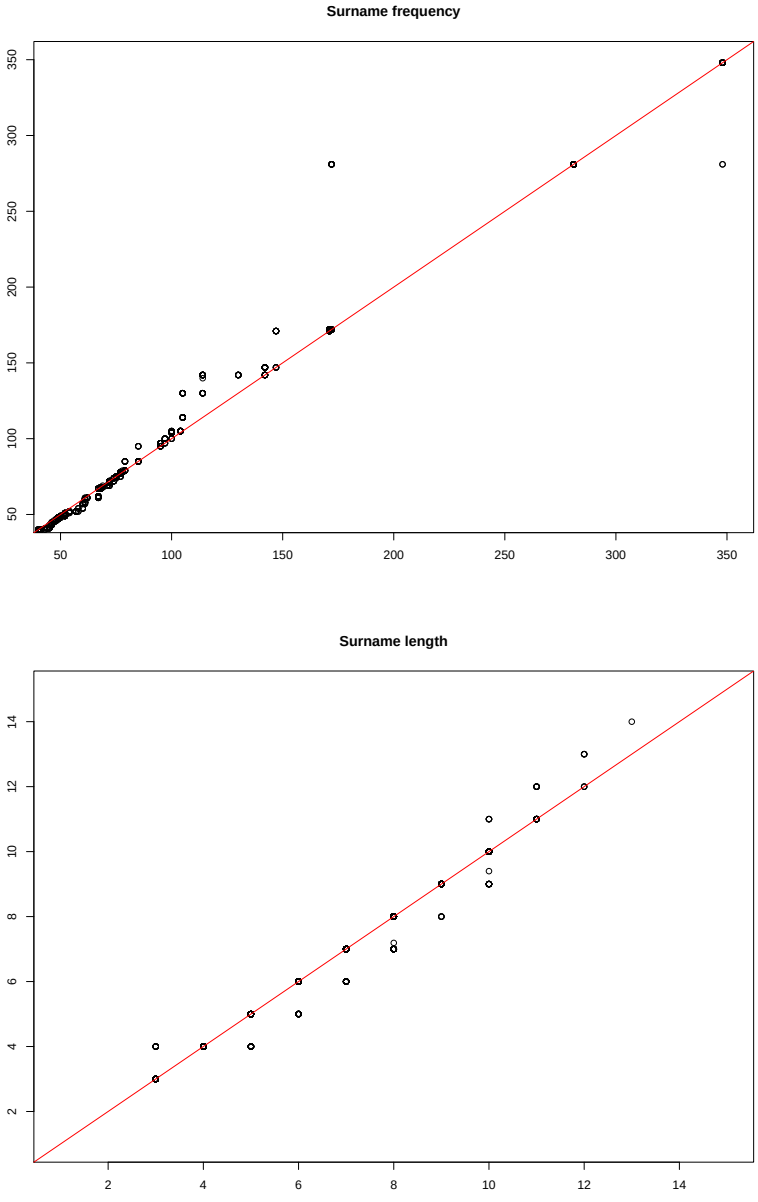


Figure 10: Power analysis by simulation ($\mathcal{I} = 100$ iterations) for continuous and binary response variables. The horizontal line indicates the 80% power that is normally required to justify a study. p values are calculated using a two–sided randomization test ($\mathcal{L} = 100$ iterations) for δ^*_{ITT}.

6 Balance of pretreatment covariates

Figure 11: Normal QQ plots of surname characteristics by treatment assignment for all lottery participants ($N = 23,927$).



Notes: 'Surname frequency' is the number of times surnames appear in the lottery records. 'Surname length' is the character length of surnames.

7 Auxiliary analyses

7.1 Hypotheses

In citizen-candidate models of political competition (e.g., Osborne and Slivinski, 1996; Besley and Coate, 1997; Caselli and Morelli, 2004; Messner and Polborn, 2004), policy-motivated citizens make the strategic decision to run if the expected returns of officeholding exceed the costs of running as a candidate, where candidacy costs are typically modeled as both campaigning cost and the opportunity cost of running. Osborne and Slivinski (1996) find the number of candidates entering political contests decreases with the cost of running and increases with the benefits of winning. I hypothesize that lottery wealth increases the probability of candidacy (H_1^{aux}) by decreasing candidacy costs.

Materialist interpretations of oligarchic power (e.g., Winters and Page, 2009) anticipate that increases in property wealth will increase the importance of holding office and voting to protect property interests. I hypothesize lottery wealth increases the probability of legislators' support for slavery (H_2^{aux}) and banking legislation (H_3^{aux}).[1]

To inform a hypothesis of the effect of lottery wealth on tenure, consider a static model of political labor supply in which legislators' tenure is a function of political (i.e., legislative salary or rents) and nonpolitical income (i.e., asset income and other unearned income). An increase in nonpolitical income increases the opportunity cost of tenure (i.e., a "wage effect"). However, an increase in nonpolitical income also decreases the importance of earned income in legislators' overall utility profiles and thus decreases the opportunity cost of tenure (i.e., a "wealth effect"). Lottery wealth isolates the wage effect from the wealth effect and is thus expected to increase the length of tenure in office (H_4^{aux}).

Finally, I hypothesize that lottery wealth increases the number of posttreatment slaves held (H_5^{aux}). This test allows us to determine whether treatment increased long-term wealth.

7.2 Data

Candidacy, officeholder, and roll call records I form a binary response variable indicating whether a participant was a candidate for public office by linking candidate records to the participant records (H_1^{aux}). The candidate names are extracted from two election datasets, the first covering all offices from the local level to the Federal level from 1787-1825 Lampi (2013) and the second covering Federal offices from 1788-1990 (university Consortium for Political and Research, 1984). I use a historical roster of officeholders published by the Georgia Archives (Archives, 1890) to construct the response variable on length of tenure in office (H_4^{aux}).

I extract roll call votes from the Journals of the House and Senate of the State of Georgia and historic newspapers from the antebellum capital of Milledgeville, which reproduce similar content found in the legislative journals. The roll call data contain information on the name and constituency of members present at each annual session of the General Assembly, roll

[1] H_2^{aux} and H_3^{aux} deviates from the pre–analysis plan (PAP) associated with this study by estimating changes in support for slavery in the legislature rather than policy change in the U.S. Congress. The goal is to improve the sample size and avoid problems inherent to the estimation of ideal points. Hypotheses H_4^{aux} and H_5^{aux} are not included in the PAP.

call votes, and the vote total. I compile 42 roll call votes on motions to pass final bills related to slavery (H_2^{aux}) and banking legislation H_3^{aux}). The 15 votes related to slavery are on acts to emancipate certain slaves, facilitate the introduction of slaves into the state and prevent slaves being carried out of the state, and to punish slaves, free blacks, and whites who illegally trade with slaves. The 27 votes related to banking are on acts to incorporate new public banks, and to regulate the interest rate and printing of currency. The roll call votes are summarized in Table 3.

Census and property tax records I use the 1820 U.S. Census, which is the earliest surviving enumeration of Georgia's population, to construct the response variable for the number of posttreatment slaves held (H_5^{aux}). All counties are represented in the 1820 Census, except for Baldwin, Franklin, Rabun, and Twiggs counties. The records include information on the name of the head of household and the number of slaves held by gender and age group.

To investigate heterogeneous treatment effects according to pretreatment wealth for legislator-participants, I extract data on individual wealth from individual property tax records, which are available sporadically for many counties (Archives, 1890; Blair, 1926). Specifically, I obtain information on the number of slaves of age over 21 and under 60 and the amount of land in acres owned by each taxpayer. I also obtain the unadjusted dollar amount of taxes paid.[2] I define pretreatment wealth as property held on or before 1805; postreatment wealth is property held between 1806–1847.

8 Estimation of treatment effects

8.1 ITT effects

Under the Neyman (1923) potential outcomes framework, each $i = \{1, ..., N\}$ participants have two potential outcomes, Y_{1i} and Y_{0i}, which represent participant i's response to treatment and control groups, respectively. $Z_i \in \{0, 1\}$ indicates i's treatment assignment and $\boldsymbol{Z}$ indicates the treatment assignments for all N participants. The observed response is thus a function of treatment assignment and potential outcomes, $Y_i = Z_i Y_{1i} + (1 - Z_i)Y_{0i}$.

Let Y^T be the average response in the treatment group and Y^C be the average response in the control group. The intention–to–treat (ITT) estimator for the sample average treatment effect is the difference between these two sample quantities:[3]

$$\delta^*_{\text{ITT}} = Y^T - Y^C = \frac{1}{N} \sum_{i=1}^{N} \left(\frac{Z_i Y_{1i}}{N_t/N} - \frac{(1 - Z_i)Y_{0i}}{N_c/N} \right), \tag{1}$$

[2]The Act of 1804, which was in effect from 1805–1852, established the following tax rates: free white males, 21 years or older, paid a poll tax of 31.25¢; an equivalent poll tax is paid for each slave over 21 and under 60 held; a per–acre tax of 4.25 mills, 2.5 mills, and 1.25 mills is paid on "oak & hickory" land of first, second, and third quality, respectively; 0.75 mills is paid on "all other pine land." For tax records before 1804 or after 1852, I use the Act of 1804 tax rates to determine the total person tax.

[3]Section OA–8.2 describes the procedure for obtaining an estimate of the effect of treatment–on–the–treated (TOT).

where N_t and N_c are the number of treated and control participants, respectively. The probability of receiving treatment is determined by the number of draws registered by participant i, and the total number of registered draws (tickets) and prizes:

$$\mathrm{P}(Z_i = 1) = \begin{cases} \frac{\#\text{Prizes}}{\#\text{Tickets}} & \text{if } i \text{ has one draw} \\ 2\left(\frac{\#\text{Prizes}}{\#\text{Tickets}}\right) & \text{if } i \text{ has two draws.} \end{cases} \tag{2}$$

The potential outcomes framework implicitly makes the following assumption:

Assumption 1. *Stable unit treatment value assumption (SUTVA). (i.) No interference: $Y_{i\boldsymbol{Z}}$ varies with Z_i, but does not vary with other elements of $\boldsymbol{Z}$. (ii.) No hidden variations in treatment: $Y_{i\boldsymbol{Z}}$ for all i and $\boldsymbol{Z}$ is well–defined.*

Interference undermines the framework because it creates more than two potential outcomes per participant, depending on the treatment assignment of other participants (Rubin, 1990). No hidden variations in treatment is required to ensure that each participant has the same number of potential outcomes (Imbens and Rubin, 2015). Assumption 1 (i.) is violated in the estimation of the treatment effect on officeholding if, for instance, treatment confers treated participants a competitive advantage over control participants in head–to–head contests for elective office. Assumption 1 (ii.) is violated if, for instance, variation in the quality of land prizes creates more than two potential outcomes per participant.

The potential outcomes framework explicitly requires random assignment:

Assumption 2. *Random treatment assignment:* $\mathrm{P}(Z_i|Y_{i\boldsymbol{Z}}) = \mathrm{P}(Z_i)$ *for all* i.

Assumption 2 will not hold if $\mathrm{P}(Z_i = 1)$ is affected by factors exogenous to Eq. (2).

Randomization p value Given assumptions 1–2, I use Monte Carlo sampling from a randomization distribution of δ^*_{ITT} to estimate an exact two–sided p value (Ernst, 2004).

8.2 TOT effects

Following closely Freedman's [2006] notation, let α denote the fraction of *always–treats* in the study population — participants who accept treatment regardless of their assignment — and γ be the fraction of never–treats. Let β be the fraction of compliers —those who comply with their assignment — and θ denote the fraction of *defiers* — those who behave contrary to their assignment.

Assumption 3. *Single crossover:* $\alpha = \theta = 0$ *and* $\beta > 0$.

Assumption 3, which can be verified with the data, ensures there are no always–treats and no defiers in the study population, so that $\beta + \gamma = 1$. Y^C is a mix of the average response of compliers assigned to control ($\mathcal{C}$) and the average response of never–treats ($\mathcal{N}$):

$$Y^C = \beta\mathcal{C} + \gamma\mathcal{N} \tag{3}$$

$$\mathcal{C} = \frac{Y^C - \gamma\mathcal{N}}{\beta}. \tag{4}$$

Due to random assignment, the mix is the same in the treatment group:

$$\mathcal{T} = \frac{Y^T - \gamma\mathcal{N}}{\beta}, \tag{5}$$

where $\mathcal{T}$ is the average response of compliers assigned to treatment. The average effect of treatment on the compliers is estimated taking the difference between Eq. (5) and Eq. (4):

$$\delta^*_{\text{TOT}} = \mathcal{T} - \mathcal{C} = \frac{Y^T - Y^C}{\beta}. \tag{6}$$

8.3 Heterogeneous treatment effects

Following Grimmer et al.'s [2014] notation, let $\boldsymbol{X}$ be a $N \times p$ vector of pretreatment covariates, $\boldsymbol{Z}$ a length–N vector representing treatment assignment, and $\boldsymbol{\Psi}$ a $N \times q$ vector representing number of draws in the lottery. In the current application, $\boldsymbol{X}, \boldsymbol{Z}$, and $\boldsymbol{\Psi}$ are binary vectors.

Given Assumptions 1–2, I estimate the conditional average treatment effect (CATE), which measures how treatment effects vary across each covariate:

$$\phi(\boldsymbol{Z}, \boldsymbol{\Psi}, \boldsymbol{x}) = \text{E}[Y(\boldsymbol{Z}) - Y(0) | \boldsymbol{\Psi}, \boldsymbol{X} = \boldsymbol{x}]. \tag{7}$$

Estimating Eq. (7) on the observed data may lead to estimates that are reflective of random variation in the sample, rather than systematic variation in the response to treatment, especially when the covariate group is small. Instead, I employ a weighted ensemble method, where each $m = \{1, 2, ..., M\}$ ensemble candidates estimate the response surface:

$$g_m(\boldsymbol{Z}, \boldsymbol{\Psi}, \boldsymbol{x}) = \text{E}[Y | \boldsymbol{Z}, \boldsymbol{\Psi}, \boldsymbol{x}]. \tag{8}$$

Heterogeneous treatment effects are estimated by taking differences across response surfaces:

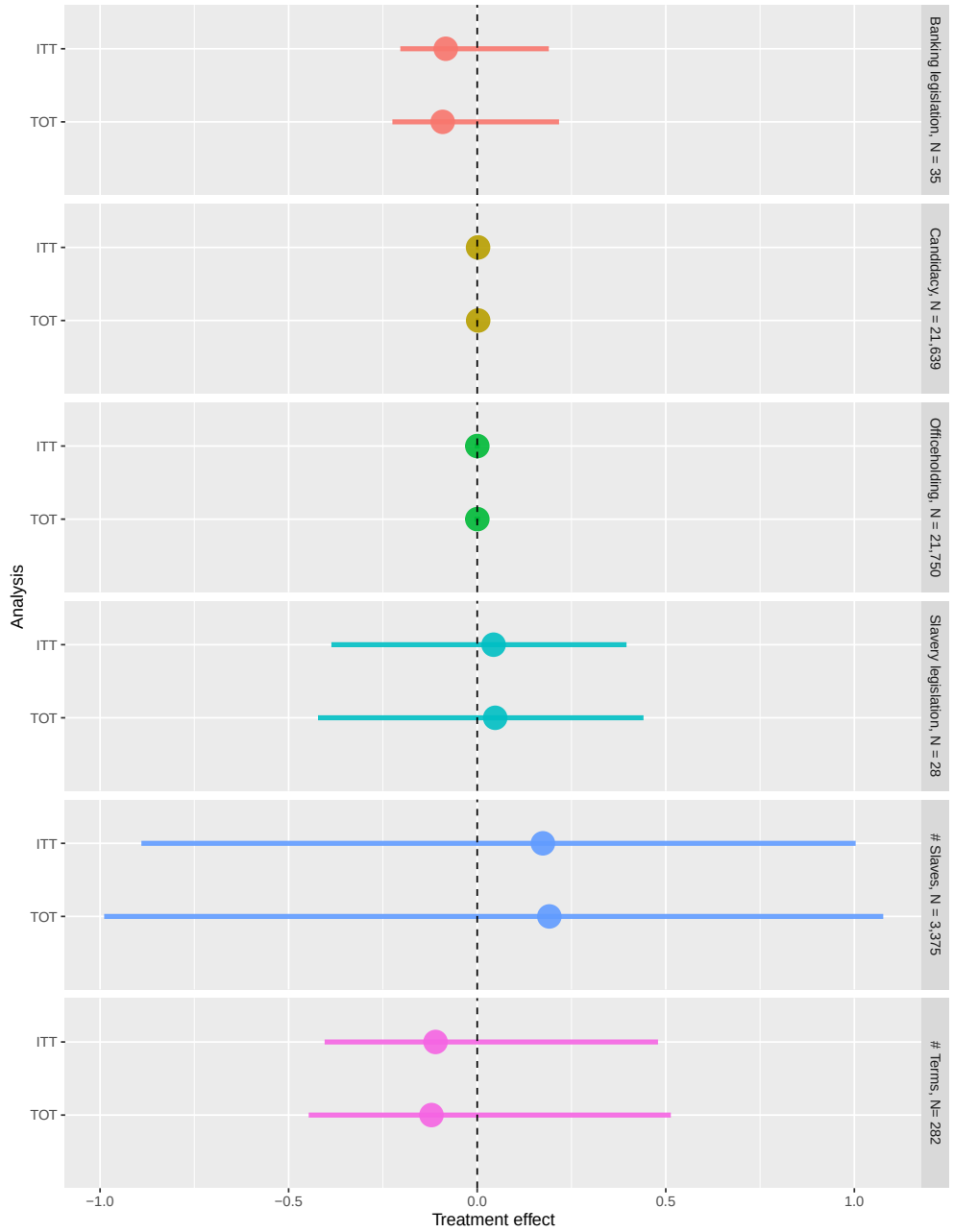
$$\hat{\phi}(\boldsymbol{Z}, \boldsymbol{\Psi}, \boldsymbol{x}) = \sum_{m=1}^{M} w_m g_m(1, \boldsymbol{\Psi}, \boldsymbol{x}) - \sum_{m=1}^{M} w_m g_m(0, \boldsymbol{\Psi}, \boldsymbol{x}), \tag{9}$$

where weights $\boldsymbol{w} = \{w_1, w_2, ..., w_M\}$ are attached to each candidate learner. Weights are selected based on the out–of–sample predictive performance of each candidate learner during 10–fold cross–validation (van der Laan et al., 2007).

9 Treatment effect estimates

9.1 ITT and TOT estimates

Figure 12: Summary of treatment effect estimates.



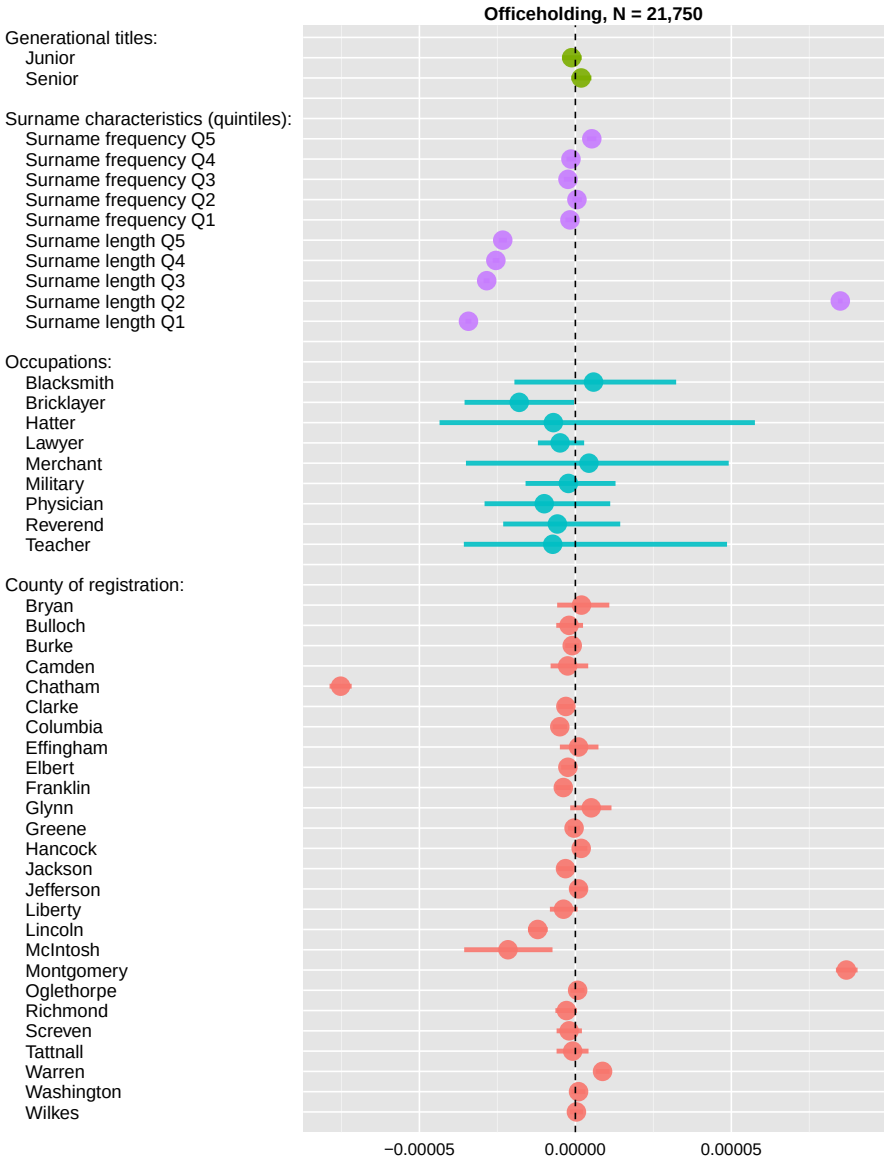
Note: Horizontal lines represent 95% bootstrap confidence intervals constructed using 10,000 smoothed bootstrap samples. Smoothed bootstrap samples are generated by sampling observations with replacement and then adding a random normal variate independently to each observation (Hesterberg, 2004).

Figure 13: Sensitivity of treatment effect on officeholding.

Note: see footnotes to Figure 12.

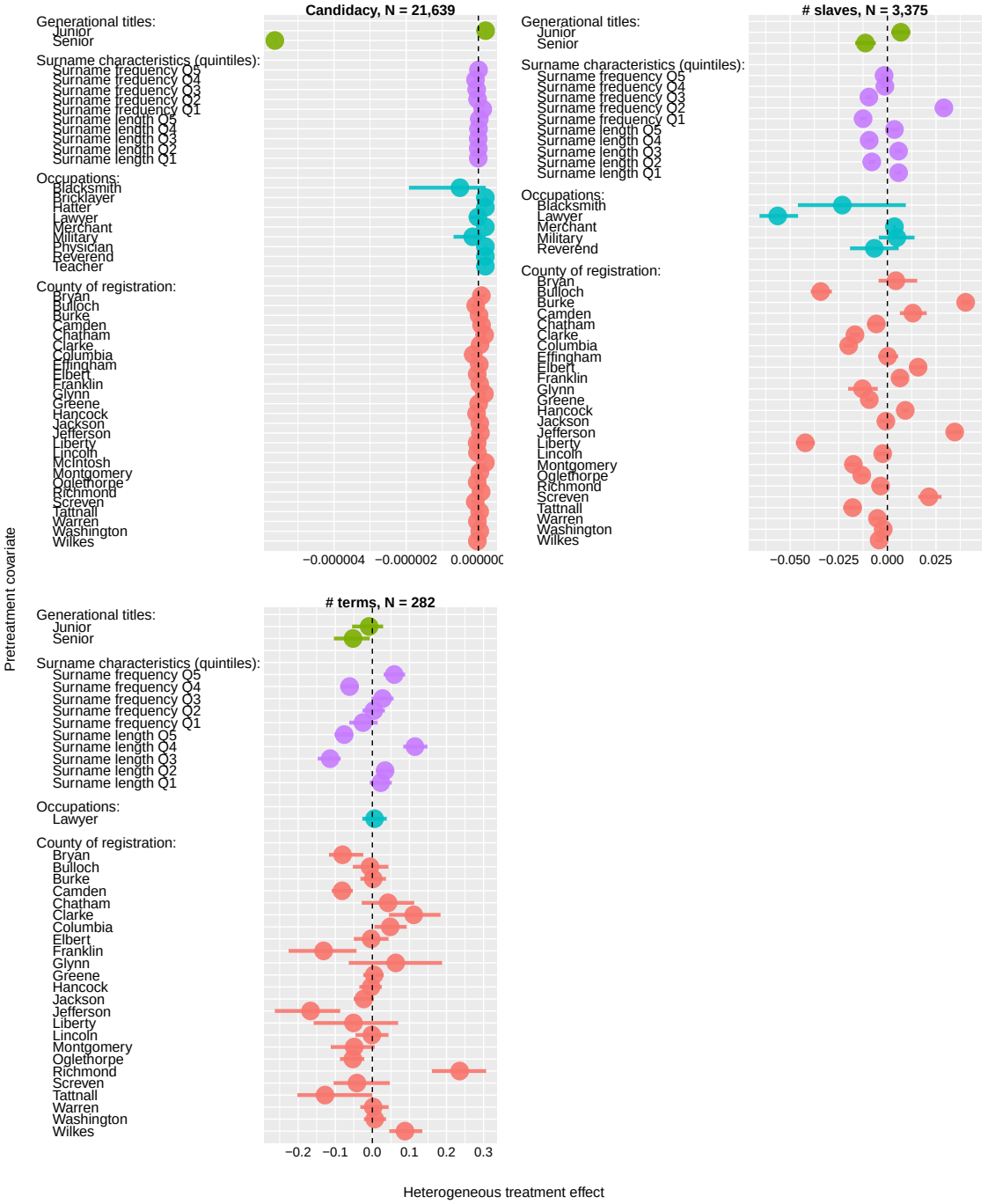
9.2 Heterogeneous treatment effect estimates

Figure 14: Heterogeneous treatment effects on officeholding according to pretreatment covariates.



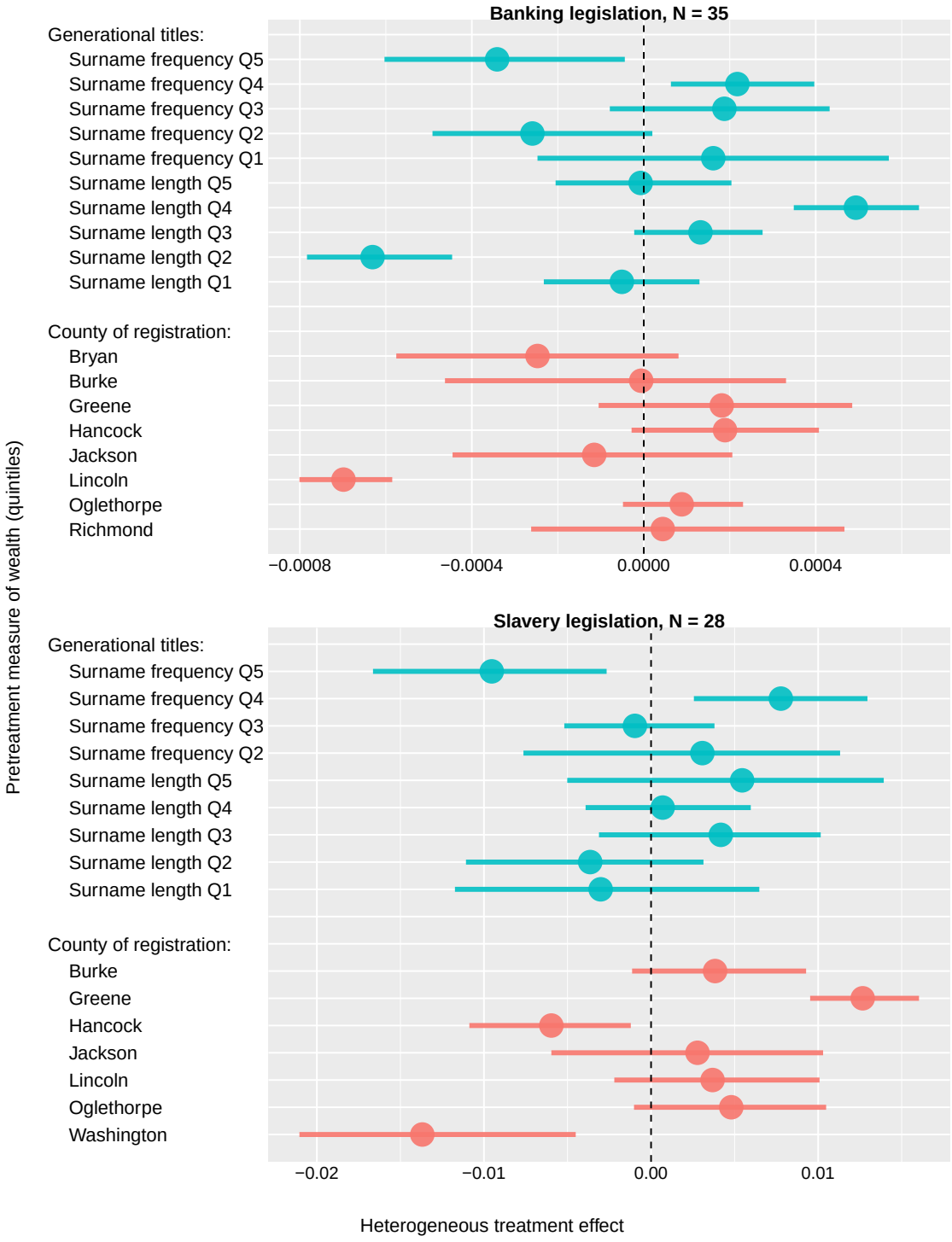
Notes: ensemble method used to estimate response surfaces for participants, given their treatment assignment, number of draws, and pretreatment covariates. Horizontal lines represent 95% bootstrap confidence intervals constructed using 10,000 bootstrap samples.

Figure 15: Heterogeneous treatment effects on auxiliary response variables according to pretreatment covariates



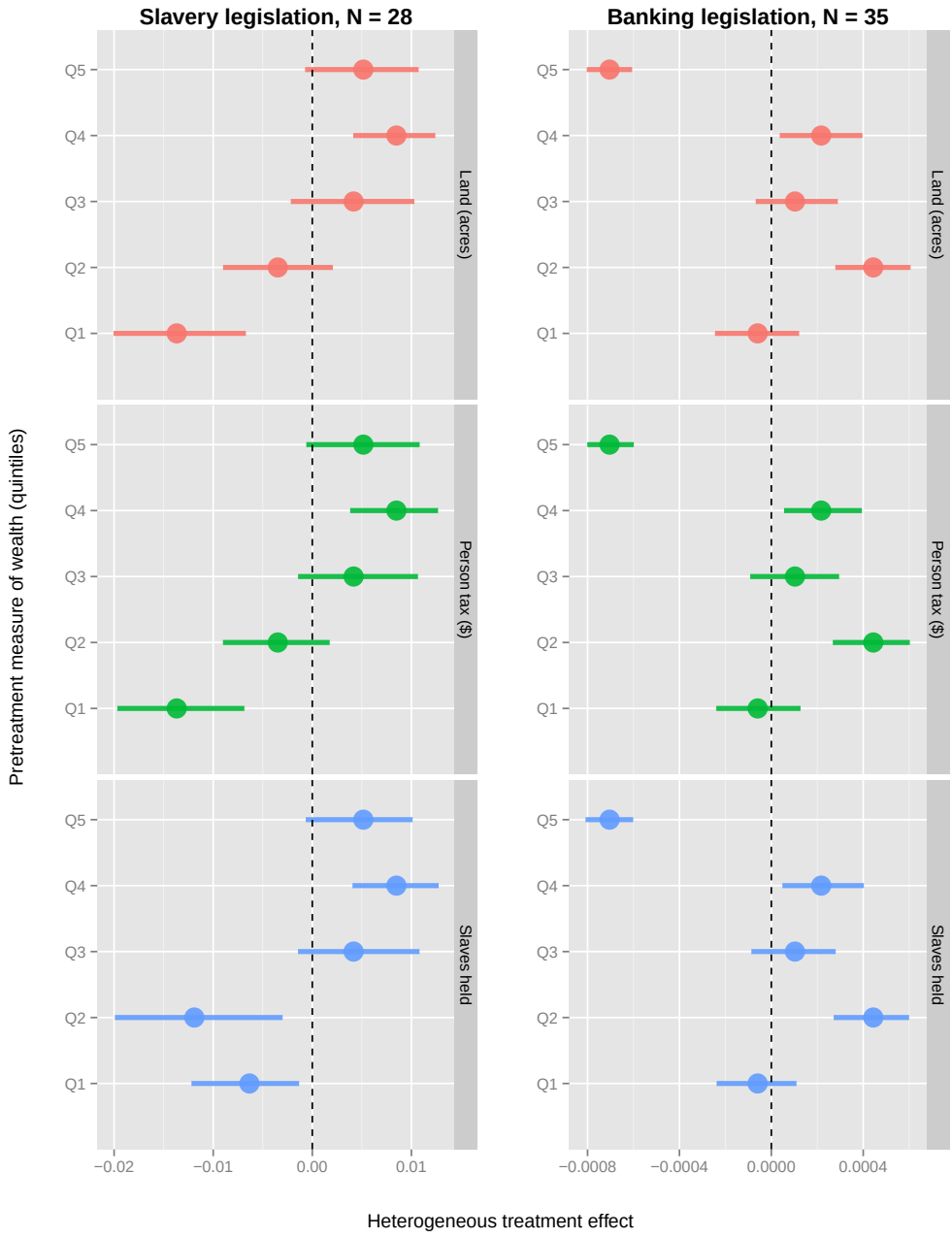
Notes: see footnotes to Figure 14. Covariate groups with insufficient observations to produce treatment effect estimates or confidence intervals are removed.

Figure 16: Heterogeneous treatment effects on support for banking and slavery legislation according to pretreatment covariates



Notes: see footnotes to Figure 14. Covariate groups with insufficient observations to produce treatment effect estimates or confidence intervals are removed.

Figure 17: Heterogeneous treatment effects on support for banking and slavery legislation according to pretreatment wealth



Notes: see footnotes to Figure 14. Missing feature values are imputed by taking the weighted average of nonmissing values, where the weights are proximities obtained from a random forest regression.

10 Ensemble characteristics

10.1 Record classification

Table 11: Record classification ensemble.

Algorithm	Parameters	Risk	Weight
Super Learner (`SuperLearner`)	default	0.023	-
Lasso regression (`glmnet`)	$\alpha = 1$	0.023	0.243
GLM with elasticnet regularization (`glmnet`)	$\alpha = 0.25$	0.023	0
GLM with elasticnet regularization (`glmnet`)	$\alpha = 0.5$	0.023	0
GLM with elasticnet regularization (`glmnet`)	$\alpha = 0.75$	0.023	0
Neural network (`nnet`)	default	0.066	0
Random forests (`randomForest`)	default	0.026	0
Random forests (`randomForest`)	mtry = 1	0.03	0.45
Random forests (`randomForest`)	mtry = 5	0.025	0.305
Random forests (`randomForest`)	mtry = 10	0.025	0
Ridge regression (`glmnet`)	$\alpha = 0$	0.025	0

Notes: cross–validated risk and weights used for each algorithm in Super Learner prediction ensemble for record classification model. 'Risk' is the 10–fold cross-validated risk estimate based on mean squared error for each algorithm. 'Weight' is the coefficient for the Super Learner, which is estimated using non–negative least squares based on the Lawson-Hanson algorithm.

10.2 Heterogeneous treatment effects

Banking legislation[†]			
Algorithm	Parameters	Risk	Weight
Generalized additive models (`gam`)	degree = 2	0.1	0
Generalized additive models (`gam`)	degree = 3	0.1	0
Generalized additive models (`gam`)	degree = 4	0.1	0
Generalized linear models (`glm`)	default	0.1	0
Random forests (`randomForest`)	default	0.008	0
Random forests (`randomForest`)	mtry = 1	0.007	1
Random forests (`randomForest`)	mtry = 5	0.008	0
Random forests (`randomForest`)	mtry = 10	0.008	0
Candidacy			
Algorithm	Parameters	Risk	Weight
Generalized boosted models (`gbm`)	default	0.012	1
Random forests (`randomForest`)	default	0.012	0
Random forests (`randomForest`)	mtry = 1	0.012	0
Random forests (`randomForest`)	mtry = 5	0.012	0
Random forests (`randomForest`)	mtry = 10	0.012	0
Officeholding			
Algorithm	Parameters	Risk	Weight
Generalized boosted models (`gbm`)	default	0.034	1
Random forests (`randomForest`)	default	0.036	0
Random forests (`randomForest`)	mtry = 1	0.035	0
Random forests (`randomForest`)	mtry = 5	0.035	0
Random forests (`randomForest`)	mtry = 10	0.035	0
Slavery legislation[†]			
Algorithm	Parameters	Risk	Weight
Generalized additive models (`gam`)	degree = 2	0.337	0.283
Generalized additive models (`gam`)	degree = 3	0.337	0
Generalized additive models (`gam`)	degree = 4	0.337	0
Generalized linear models (`glm`)	default	0.337	0
Random forests (`randomForest`)	default	0.147	0
Random forests (`randomForest`)	mtry = 1	0.171	0
Random forests (`randomForest`)	mtry = 5	0.148	0.716
Random forests (`randomForest`)	mtry = 10	0.149	0

# slaves			
Algorithm	Parameters	Risk	Weight
Generalized additive models (`gam`)	degree = 2	101.547	0.059
Generalized additive models (`gam`)	degree = 3	101.547	0
Generalized additive models (`gam`)	degree = 4	101.547	0
Generalized linear models (`glm`)	default	101.547	0
Random forests (`randomForest`)	default	104.643	0
Random forests (`randomForest`)	mtry = 1	100.528	0.94
Random forests (`randomForest`)	mtry = 5	102.68	0
Random forests (`randomForest`)	mtry = 10	107.647	0
# terms			
Algorithm	Parameters	Risk	Weight
Generalized additive models (`gam`)	degree = 2	2.582	0
Generalized additive models (`gam`)	degree = 3	2.582	0
Generalized additive models (`gam`)	degree = 4	2.582	0
Generalized linear models (`glm`)	default	2.582	0
Random forests (`randomForest`)	default	2.186	0.106
Random forests (`randomForest`)	mtry = 1	2.221	0.441
Random forests (`randomForest`)	mtry = 5	2.171	0
Random forests (`randomForest`)	mtry = 10	2.209	0.452

Notes: cross–validated risk and weights for each algorithm in response model ensembles. Ensemble method used to estimate response surfaces for participants, given their treatment assignment, number of draws, and pretreatment covariates. †: response models use pretreatment measures of wealth as features in addition to the pretreatment covariates included in Figure 1.

References

Archives, G. (1890). *Georgia Tax Digests*. Morrow, Georgia: Georgia Archives.

Besley, T. and S. Coate (1997). An economic model of representative democracy. *The Quarterly Journal of Economics 112*(1), 85–114.

Blair, R. (1926). *Some early tax digests of Georgia*. The Georgia Department of Archives and History.

Bleakley, H. and J. P. Ferrie (2013). Up from poverty? the 1832 cherokee land lottery and the long-run distribution of wealth.

Caselli, F. and M. Morelli (2004). Bad politicians. *Journal of Public Economics 88*, 759–782.

Center, M. P. (2008). North atlantic population project: Complete count microdata. version 2.0 [machine-readable database].

Clayton, A. S. and T. W. Adams (1812). *A Compilation of the Laws of the State of Georgia: Passed by the Legislature Since the Political Year 1800, to the Year 1810, Inclusive*. Adams & Duyckinck.

Crosby, D. (2015). Usgenweb archives.

Ernst, M. D. (2004). Permutation methods: A basis for exact inference. *Statistical Science 19*(4), 676–685.

Freedman, D. A. (2006). Statistical models for causation what inferential leverage do they provide? *Evaluation review 30*(6), 691–713.

Graham, P. K. (2010). *Georgia Land Lottery Research*. Georgia Genealogical Society.

Graham, P. K. (2011). *1807 Georgia Land Lottery Fortunate Drawers and Grantees*. Genealogy Company.

Grimmer, J., S. Messing, and S. J. Westwood (2014). Estimating heterogeneous treatment effects and the effects of heterogeneous treatments with ensemble methods.

Haines, M. R. (2004). The inter-university consortium for political and social research. historical, demographic, economic, and social data: The united states, 1790-2000 [computer file]. icpsr02896-v2. hamilton, ny: Colgate university. *Ann Arbor: MI: Inter-university Consortium for Political and Social Research [producers]*.

Hesterberg, T. (2004). Unbiasing the bootstrap-boot knife sampling vs. smoothing. *Section on Statistics and the Environment: American Statistical Association*, 2924–2930.

Imbens, G. W. and D. B. Rubin (2015). *Causal Inference in Statistics, Social, and Biomedical Sciences*. Cambridge University Press.

Kotlikoff, L. J. (1979). The structure of slave prices in new orleans, 1804 to 1862. *Economic Inquiry 17*(4), 496–518.

Lampi, P. (2013). A new nation votes: American election returns, 1787-1825. `http://elections.lib.tufts.edu/`. [Online; accessed 06-June-2016].

Libraries, E. U. Internet archive. `https://archive.org/details/emory`. [Online; accessed 08-September-2014].

Long, J. H. (1995). Atlas of historical county boundaries. *The Journal of American History*, 1859–1863.

Messner, M. and M. K. Polborn (2004). Paying politicians. *Journal of Public Economics 88*(12), 2423–2445.

Neyman, J. (1923). On the application of probability theory to agricultural experiments. *Annals of Agricultural Sciences 51*(1).

Officer, L. H. and S. Williamson (2012). The annual consumer price index for the united states, 1774-2010. *http://www.whatisitworth.com*.

Osborne, M. J. and A. Slivinski (1996). A model of political competition with citizen-candidates. *The Quarterly Journal of Economics 111*(1), 65–96.

Phillips, U. B. (1905). The economic cost of slaveholding in the cotton belt. *Political Science Quarterly 20*(2), 257–275.

Rubin, D. B. (1990). Comment: Neyman (1923) and causal inference in experiments and observational studies. *Statistical Science 5*(4), 472–480.

Sarah Flood, Miriam King, S. R. and J. R. Warren (2015). Integrated public use microdata series, current population survey: Version 4.0. [machine-readable database].

university Consortium for Political, I. and S. Research (1984). Candidate name and constituency totals, 1788-1984. `http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/2`. [Online; accessed 06-June-2016].

van der Laan, M. J., E. C. Polley, and A. E. Hubbard (2007). Super learner. *Statistical applications in genetics and molecular biology 6*(1).

Winters, J. A. and B. I. Page (2009). Oligarchy in the united states? *Perspectives on Politics 7*(04), 731–751.