Issue Discussion in the Georgia Senate Elections

Authors: Maggie Macdonald, Joshua A. Tucker, Richard Bonneau, Jonathan Nagler

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CSMaP CENTER FOR SOCIAL MEDIA AND POLITICS

NEW YORK UNIVERSITY

1   Introduction

The two Senate Run-off elections in Georgia present a unique electoral experience. The importance of the elections is in some sense unprecedented, two simultaneous senate elections in one state, unusual in and of itself, occur after the rest of the Senate is chosen - and have the possibility of changing the majority party in the chamber. And they occur after an exceptional presidential campaign molded by an ongoing pandemic. But despite their enormous interest to voters around the country, and in spite of the enormous amounts of money being contributed by voters outside the state, the election outcome will be determined by voters in Georgia. There is no shortage of horse-race polling trying to determine who the likely election winner will be. But in this report we try to determine what issues matter to voters in Georgia by analyzing their tweets.

We were interested in a set of research questions. First, what issues were Georgians talking about when they talked about each candidate? Second, were Georgians discussing the elections in nationalized or strategic terms: mentioning national Republican or Democratic figures? Third, were Georgians mentioning topics that were brought up in attack ads? Fourth, was there variation across ideological, ethnic, and gender lines in these behaviors?

We identified voters in Georgia from a random set of users on Twitter maintained by the Center for Social Media and Politics at NYU who provided their location as being a place in Georgia, and whose tweets mentioned any of the four senate candidates, or used a hashtag associated with the elections, during the period September 1 through November 3, 2020. We analyzed tweets posted during the period November 3 through December 18 by all of these users. Thus we are looking at users in Georgia, who were interested enough in the Senate elections to mention them in the campaign period before the general election. And we are examining their tweets in the post-general election period (i.e., the campaign for the run-offs). There were 945 users we located to be in Georgia who tweeted about the Senate elections between September 1 though November 3, 2020. And we found that 473 of them mentioned the Senate election at least once in the period November 3 through December 18. These 473 users generated 9,393 tweets about the elections during this period.

We categorized their tweets as being about 4 broad topics: substantive policy areas, mentions of claims made in attack ads in the race, mentions of national Democratic politicians, mentions of national Republican politicians. Then within the substantive policy areas, we examine tweets about: the economy, the Covid-19 pandemic, education, racial justice, law and order, health care, abortion, the environment, immigration, and LGBT issues. Tweets were identified as being in the broad topic categories based on keywords, and were also placed in specific issue categories based on sets of keywords (see Appendix A for a full list of keywords used).[1]

To enrich our analyses we estimated several characteristics of individual users: their ideology, ethnicity, and gender. We estimated users' ideology with the method developed in Barbera (2015) and Barbera, et-al (2015), which estimates the political affinity, or ideology, of a Twitter

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[1]All analyses were also done for tweets found in a random sample of all tweets that could be identified as being by users in Georgia. Results of those analyses are reported in Appendix D.

user based on the the accounts that he or she follows on Twitter.[2] Here we classify a user as "liberal" if their estimated ideology is to the left of MSNBC. A user is classified as "conservative" if their estimated ideology is to the right of *Wall Street Journal*. And finally a user is classified as "moderate" if their ideology score is between MSNBC and the *Wall Street Journal*. An overview of the frequency of users from our sample with each characteristic from is in Table 1. Of the 473 random users, we are able to estimate the ideology of 257 of them. As shown in Table 1, 72% are liberal (184), 26% are conservative, and the remaining 2% are moderate.[3]

2   The Data

	Characteristic	Number of Users
All Users		473
Ideology	Liberal	184
	Moderate	7
	Conservative	66
Gender	Women	153
	Men	156
Race	White	74
	African-American	1
	Hispanic	9
	Asian	5

Table 1: Description of sample of Twitter users who tweeted about the Georgia Senate runoffs between November 3, 2020 and December 18, 2020. Values for ideology, gender, and/or ethnicity indicate the numbers we were able to estimate, thus they do not cover the entire sample.

We predicted the probability that a user is male or female using the first name on their Twitter profile.[4] The breakdown by gender is shown in Table 1. Of the 473 users in the random user tweets, we were able to estimate the gender of 309 (65%) of them. Of these estimated users' gender, 153 (50%) were women and the other 156 (59%) were men.

We also estimated ethnicity using the user's supplied name (first and last), and this can also be seen in Table 1. Names were matched against U.S. census records to determine the probability that a user was white, African-American, Hispanic, or Asian. We limit the presented ethnicity estimations to those users who provide their full names on Twitter by reporting the race only for those users whose estimated probability of one ethnicity is above 0.85. Considering those 89 users whose ethnicity we could estimate from the random users – 83% were white (74), less than 1% were African-American (1), 10% were Hispanic (9), and 6% were Asian (5). Because of

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[2]Barbera, Pablo. "Birds of the same feather tweet together: Bayesian ideal point estimation using Twitter Data." *Political Anaysis* 23(1): 76-91; Barbera, Pablo, John T. Jost, Jonathan Nagler, Joshua A. Tucker, and Richard Bonneau, "Tweeting from Left to Right: Is Online Political Communication More than an Echo Chamber?", *Psychological Science*, 26(10): 1531-1542.

[3]Similarly, of the 3,200 users in the decahose corpora, we were able to estimate the ideology of 1,823 of them– 65% are liberal, 30% are conservative, and the remaining 5% are moderate.

[4]We consider their first name to be the first word in the name field on their account. If there is only one word, we assume that that is their first name.

the small number of users in the non-white categories, we restrict our ethnicity based analyses to whites.

3   Tweeting about the Candidates & the Issues

We analyze the data 'by candidate': we want to know whether when a Georgia Twitter user mentions one of the four candidates – John Ossoff, David Perdue, Raphael Warnock, and Kelly Loeffler – are they mentioning the candidate in the context of: 1) a policy issue; 2) an attack made against the candidate during the campaign; 3) a National Democratic Party figure; or 4) a National Republican Party Figure. These are the four broad topics we classify each tweet into. And we note that the topics are not mutually exclusive, thus a tweet can be labelled as being in more than one of the topics.

We also want to know which specific policies people are talking about. To label the content of tweets about the Georgia Senate elections, we created several keyword dictionaries on the topics of: health-care, the economy, Covid-19, the environment, civil rights and racial justice, LGBTQ, abortion, education, immigration, and law and order. We also used keywords to identify tweets about attacks made on candidates.[5] Tables B1 and B2 in the Appendix show the full dictionaries for each topic[6]. The topics are not mutually exclusive; it is possible (and even relatively common) for a tweet to have more than one of these labels.

Note that for the set of random users we have in Georgia, we look at whether or not they tweeted about the particular topic or issue, rather than what fraction of tweets were about the topic. It is well known that some users on Twitter account for a highly disproportionate number of tweets, and we are interested in what individuals care about, we do not want to overweight those individuals who are frequent tweeters.

Table 2 shows the proportion of people who mentioned any of our policy issues in any of their tweets, along with the proportion who mentioned something brought up in an attack ad as a criticism of one of the candidates, and the proportion who mention national politicians of each party.[7] These categories are not mutually exclusive, and so the sum of the proportions does not necessarily sum to 1. Table 3 breaks this down by ethnicity and gender of users, and Table 4 breaks this down by ideology of users.

We note that the argument that the election has been 'nationalized' is not supported by what these users are tweeting. Fewer than a third of users who mentioned Raphael Warnock also mentioned another national Democrat, and only slight more than a third of users who mentioned Jon Ossoff also mentioned a national Democrat. And in Table 4, where we provide this information broken down by the ideology of users, we can see that it was not the case that conservatives who

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[5]This category includes terms which are used in attack ads and the rhetoric used to talk about the candidates. These terms can be policy-related (e.g. "defund" the police), but are largely character critiques of a candidate (e.g. "socialist").

[6]The method that we use to label tweets only requires the keyword to be contained within a word– so for example "semit" in the attack ads keyword dictionary will label a tweet that contains "anti-semitism" AND "anti-semite".

[7]National Democrats are Vice-President-Elect Kamala Harris, Rep. Nancy Pelosi, President-Elect Joe Biden, Sen. Chuck Shumer, President Barack Obama, Rep. Alexandria Ocasio-Cortez, and Stacey Abrams. National Republicans are Vice President Mike Pence, Sen. Mitch McConnell, President Trump, Sen. Ted Cruz, and Governor Brian Kemp.

	Number Users	Policy	Attack Ads	National Democrats	National Republicans
Raphael Warnock	335	0.55	0.19	0.32	0.19
Kelly Loeffler	253	0.68	0.33	0.22	0.49
Jon Ossoff	294	0.62	0.05	0.37	0.24
David Perdue	251	0.62	0.28	0.27	0.48
Any Candidate		0.64	0.32	0.40	0.41

Table 2: Cell entries are the proportion of random users mentioning the row candidate that fall into each of the column categories. The attack ad keywords used vary by candidate. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 18, 2020 and limited to users in Georgia.

were tweeting about the Democratic candidates did so in a way to tie them to the national party. Fewer than one third of conservatives who tweeted about Raphael Warnock or who tweeted about Jon Ossof also mentioned a national Democrat.

We also looked to see if the candidates were tied together in mentions. 5217 tweets mention either or both of the Democratic candidates. 1600 tweets (31% of those) mentioned both Jon Ossof and Raphael Warnock, whereas 1610 tweets mention Ossof but not Warnock, and 2007 mention Warnock but not Ossof. 4059 tweets mention either or both of the Republican candidates. 1072 tweets (26% of those) mention both Perdue and Loeffler, and 1135 mention only Perdue and 1852 only Loeffler. Thus about half of tweets mentioning Ossof also mentioned Warnock, and vice-versa. For Perdue and Loeffler this was somewhat different, with a substantially higher percentage of tweets mentioning Loeffler but *not* Perdue.

We see, not surprisingly, that topics in attack ads against the Democratic candidates were mentioned more by conservatives than by liberals (Table 4). And topics in attack ads against Republican candidates were mentioned more by liberals than conservatives. And we note that for users mentioning Raphael Warnock and users mentioning Kelly Loeffler, women were more likely to mention issues than were men. This was not true for users mentioning Ossof and users mentioning Perdue.

A key research question is *which* issues users are talking about when mentioning the candidates. Table 5 gives the proportion of users who mention each candidate who also mention a specific issue in at least one tweet mentioning the candidate. By far the most frequently mentioned issue for each candidate was the economy: fully 78% of users who mentioned Perdue in a tweet mentioned him at least once in a tweet that also mentioned the economy. And the this varied little among the other three candidates, with both Warnock and Loeffler at 66% and Ossof at 71%. The covid pandemic was the next most frequently mentioned issue for all of the candidates other than Raphael Warnock. For Warnock, 44% of users who mentioned him also mentioned him in a tweet about racial justice, whereas 42% of users mentioned him in a tweet about covid. A slightly higher proportion of users mentioned the two Republican candidates in conjunction with the covid pandemic than mentioned the Democratic candidates. There were so few mentions of the environment,

Candidate	Demo	Number Users	Policy	Attack Ads	National Democrats	National Republicans
Warnock	White	53	0.58	0.23	0.26	0.23
	Women	115	0.61	0.23	0.42	0.22
	Men	104	0.53	0.18	0.25	0.14
	All Users	335	0.55	0.19	0.32	0.19
Loeffler	White	50	0.78	0.32	0.20	0.54
	Women	87	0.74	0.39	0.18	0.56
	Men	85	0.64	0.26	0.24	0.46
	All Users	253	0.68	0.33	0.22	0.49
Ossoff	White	46	0.67	0.02	0.30	0.26
	Women	106	0.63	0.06	0.48	0.28
	Men	89	0.60	0.07	0.28	0.20
	All Users	294	0.62	0.05	0.37	0.24
Perdue	White	45	0.67	0.27	0.27	0.42
	Women	86	0.62	0.29	0.35	0.56
	Men	84	0.64	0.26	0.18	0.39
	All Users	251	0.62	0.28	0.27	0.48
Total Users		473	304	151	188	192

Table 3: Cell entries are the proportion of random users by user gender and ethnicity who mentioned the row candidate who had tweets that fall into each of the column categories. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 18, 2020 and limited to users in Georgia. African-American, Hispanic, and Asian respondents are not shown due to the small number of them who tweeted about the runoffs in this sample.

LGBT issues, and immigration that we did not include them in the table. Thus while the Green New Deal may be a major topic among national Democrats, and immigration remains a powerful issue in American politics, these issues are not being discussed by users discussing the Georgia senate races.

We also looked at *which* users were talking about which issues. In Table 6 we break this down by demographics, and in Table 7 we break it down by ideology. In Table 6 we see that women are substantially more likely than men to mention health-care when discussing any of the candidates.

4 Discussion and Conclusion

While the sample of users analyzed here is likely not representative of voters in Georgia, it does provide insight into what voters are choosing to talk about. And what we notice is that voters are picking up on topics mentioned in attack ads in substantial numbers. And this is happening along anticipated partisan lines. But when mentioning the candidates they are more likely

Candidate	Demo	Number Users	Policy	Attack Ads	National Democrats	National Republicans
Warnock	Liberal	138	0.67	0.20	0.43	0.28
	Conservative	37	0.65	0.51	0.30	0.22
Loeffler	Liberal	113	0.67	0.39	0.23	0.47
	Conservative	43	0.72	0.09	0.28	0.72
Ossoff	Liberal	129	0.68	0.05	0.50	0.33
	Conservative	34	0.53	0.18	0.32	0.21
Perdue	Liberal	105	0.66	0.42	0.33	0.47
	Conservative	42	0.62	0.07	0.36	0.71
Total Users		473	304	151	188	192

Table 4: Cell entries are the proportion of random users by user ideology who mentioned the row candidate who had tweets fall into each of the column categories. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 18, 2020 and limited to users in Georgia. Moderates are not shown due to the small number of them who tweeted about the runoffs in this sample.

to mention specific policies than they are to mention items from attack ads. We also found that the narrative that voters are viewing this as a nationalized election may be false: most voters are *not* mentioning any national party figures when tweeting about each of the senate candidates. And finally while there is some heterogeneity based on gender and ideology of users, we generally did not find stark gender differences in issues being discussed.

Candidate	Number of Users	Econ	Covid	Educ	Racial Justice	Law & Order	Health Care	Abortion
Warnock	183	0.66	0.42	0.25	0.44	0.28	0.38	0.29
Loeffler	173	0.66	0.55	0.14	0.52	0.42	0.25	0.23
Ossoff	181	0.71	0.49	0.20	0.40	0.23	0.36	0.10
Perdue	156	0.78	0.58	0.08	0.37	0.35	0.34	0.12

Table 5: Cell entries are the proportion of random users who mention the row candidates and another topic that falls into each of the column issue categories. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 18, 2020 and limited to users in Georgia. Environment, LGBT, and immigration are not shown due to the small number of tweets on each topic.

Candidate	User Demo	Number of Users	Econ	Covid	Educ	Racial Justice	Law & Order	Health Care	Abortion
Warnock	White	31	0.58	0.45	0.13	0.42	0.29	0.35	0.29
	Women	70	0.66	0.46	0.19	0.46	0.30	0.46	0.34
	Men	55	0.55	0.36	0.29	0.36	0.20	0.29	0.25
	All Users	183	0.66	0.42	0.25	0.44	0.28	0.38	0.29
Loeffler	White	39	0.72	0.51	0.13	0.46	0.46	0.26	0.18
	Women	64	0.73	0.59	0.12	0.59	0.48	0.27	0.25
	Men	54	0.63	0.48	0.15	0.52	0.43	0.20	0.17
	All Users	173	0.66	0.55	0.14	0.52	0.42	0.25	0.23
Ossoff	White	31	0.55	0.39	0.29	0.48	0.19	0.39	0.13
	Women	67	0.69	0.48	0.24	0.42	0.27	0.40	0.12
	Men	53	0.74	0.49	0.13	0.32	0.13	0.34	0.09
	All Users	181	0.71	0.49	0.20	0.40	0.23	0.36	0.10
Perdue	White	30	0.80	0.60	0.17	0.33	0.23	0.27	0.10
	Women	53	0.85	0.62	0.13	0.42	0.40	0.42	0.15
	Men	54	0.74	0.52	0.04	0.37	0.28	0.20	0.09
	All Users	156	0.78	0.58	0.08	0.37	0.35	0.34	0.12

Table 6: Cell entries are the proportion of random users who mentioned the row candidate in at least one policy-labeled tweet that falls into each of the column issue categories, by user demographics. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 18, 2020 and limited to users in Georgia. African-American, Hispanic, and Asian respondents are not shown due to the small number of them who tweeted about the runoffs in this sample. Environment, LGBT, and immigration are not shown due to the small number tweets on each topic.

Candidate	User Demo	Number of Users	Econ	Covid	Educ	Racial Justice	Law & Order	Health Care	Abortion
Warnock	Liberal	92	0.71	0.51	0.26	0.47	0.26	0.40	0.26
	Conservative	24	0.50	0.38	0.54	0.50	0.50	0.12	0.46
Loeffler	Liberal	76	0.75	0.66	0.18	0.59	0.49	0.34	0.18
	Conservative	31	0.71	0.29	0.16	0.52	0.48	0.23	0.26
Ossoff	Liberal	88	0.75	0.58	0.30	0.49	0.30	0.45	0.14
	Conservative	18	0.44	0.50	0.11	0.33	0.28	0.11	0.22
Perdue	Liberal	69	0.88	0.74	0.13	0.45	0.39	0.45	0.16
	Conservative	26	0.62	0.50	0.08	0.50	0.42	0.27	0.12

Table 7: Cell entries are the proportion of random users who mentioned the row candidate in at least one policy-labeled tweet that falls into each of the column issue categories, by user ideology group. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 18, 2020 and limited to users in Georgia. Moderates are not shown due to the small number of them who tweeted about the runoffs in this sample. Similarly, environment, LGBT, and immigration are not shown due to the small number tweets one each topic.

Appendix A - Data Collection

For the period November 3 to December 16, 2020, we selected tweets we expected to be about the Georgia Senate elections by choosing tweets that contained any of the following keywords (regardless of case): "Warnock," "Ossoff," "Perdue," "Loeffler," "#Georgia," "#runoff," "GeorgiaRunoff," "GARunoff," "GaStrong," "CrookedKelly," "GeorgiaVotes," "GAVotes," "gapol," "GeorgiaPol," "GeorgiaSen," "gasen," "battlegroundGA," "Dems4GA." We then refined this collection to only include tweets by users who gave their location as being in the state of Georgia.

We collected 84,437 tweets from the decahose (a sample of 10% of all tweets on Twitter), by 51,537 unique users, that discussed the Georgia Senate runoffs– meaning that they include any of our keyword set that we use use to identify tweets being about the Georgia election– from November 3, 2020 to December 16, 2020. Of the users in this time frame from the decahose, 34,186 of them listed a US state in their profile (and they tweeted 58,612 times). Of these thirty-four thousand users, 3,200 of them self-describe as living in the state of Georgia (and tweeted 6,340 times about the runoffs). Therefore, just over 9% of all users with a state listed on their Twitter profile and tweeted about the runoffs in the decahose data are in the state of Georgia.

Appendix B - Keywords Used

Policy	Keywords
Covid-19	covid, corona, virus, pandemic, plandemic, ppe, rapidtesting, CDC, mask, social distanc, socialdistanc, vaccine, vaccination, heroesact, caresact, inject, disinfect, flu, superspreader, infect, relief bill, stimulus check, stimuluscheck, diagnosis, treatment, asthma, surge, safedistance, antibod, quarantine, furlough, lockdown, carona, coronga, corvid, convid, covd, nCoV, CoV2, codvid, trumpdemic, stayathomechallenge, stayhomechallenge, flatten the curve, flattenthecurve, sanitize, sanitise, quarantaine, quarantine, quarentine, remotework, selfisolat, social distanc, socialdistanc, stayhome, stayathome, washyourhands, wfh, corono, corrona, curona, frontline, essential workers, hydroxychloroquine, n95, notessential, nonessential, quaratine, remdesivir, pfizer, moderna, social_distanc, waragainstvirus, face shield
Economy	bank, job, tax, inflation, debt, deficit, recession, employ, minimum wage, min wage, fight-for-15, make ends meet, work, struggling families, business, stimulus, infrastructure, caresact, cares act, recovery, food bank, economic, economy, food stamps, loophole, wall street, wallstreet, bailout, bail out, pension, pay bills, bankrupt, loan, rent, furlough, dow, stock, welfare, capitalis, austerity, depression, budget, interest rate, corporat, gdp, labor, living wage, poverty, money, free trade
Education	school, student, DeVos, educat, teach, college, university, prek, pre-k, pre k, child, semester, course, k-12, k12, k 12, textbook, kids
Environment	environment, climate, green new deal, greennewdeal, notmeus, globalwarming, global warming, fossil fuels, frack, pollution, pollute, sea level, sunrisemvmt, solar, pipeline, cleanenergy, noplanetB, savetheplanet, renewable
Health Care	obamacare, bidencare, ACA, bidencare, medica, insur, doctor, m4a, m4all, mforall, health, hospital, preexisting, pre-existing, Affordable Care Act, affordablecareact, ProtectOurCare, pharma, opioid, cancer, medicine, addiction, prescription, CDC, vaccine, flu, infect, asthma, singlepayer, single-payer, public option
Immigration	immigrant, illegals, caravan, buildthewall, the wall
Law & Order	MomsDemand, background check, gun, NRA, police, defund, thinblueline, thin blue line, law and order, crime, riot, protest, mob, law enforcement, tough on crime, soft on crime, criminal, looting, antifa
LGBT	lgbt, translives, trans lives, gay, lesbian, bisexual, sexis, homophob
Racial Justice	blm, black, african american, all lives matter, black lives matter, blacklivesmatter, alllivesmatter, thin blue line, thinblueline, civil rights, racial, justice, POC, urban, proud boy, proudboy, disenfranchise, suppress, riot, protest, defund, sayhername, sayhisname, floyd, racis, white supremacy, colorism, intersectionality, nojusticenopeace, solidarity, saytheirname, mob, loot, I can't breath, I cant breath, icantbreath, handsupdontshoot, hands up dont shoot, hands up don't shoot, policebrutality, police brutality, voter suppression
Abortion	women, woman, reproducti, equality, abortion, plannedparenthood, planned parenthood, pro-choice, prochoice, pro choice, prolife, pro life, pro-life

Table B1: Issues of interest and the keywords we used to label tweets as falling into each. Labels are not mutually exclusive.

Policy	Keywords
Attacks on Warnock	molest, communist, commies, marx, socialist, semit, radical, Fidel Castro, socialized, ReverendWright, Reverend Wright, anti-police, antipolice, defund, Israel
Attacks on Loeffler	insider, stock, crook, KKK, WNBA
Attacks on Ossoff	liberal, defund, terrorist
Attacks on Perdue	insider, stock, crook
National Democrats	Kamala, Pelosi, Biden, Schumer, Obama, AOC, Abrams
National Republicans	@VP, Pence, senatemajldr, McConnell, Mitch, Cruz, Trump, Kemp

Table B2: Additional issues and topics with their corresponding keywords. Labels are not mutually exclusive.

Appendix C - Decahose Tables

Tables in this section are based on a 10% random sample of tweets, isolated to tweets from users self-identified to be in Georgia and who tweeted about the Senate elections.

	Characteristic	Number Users
All Users		3,200
Ideology	Liberal	1,180
	Moderate	89
	Conservative	554
Gender	Women	907
	Men	1,182
Race	White	541
	African-American	20
	Hispanic	41
	Asian	24

Table C1: Who tweeted about the Georgia Senate runoffs between November 3, 2020 and December 16, 2020 in the decahose? Number of users in the state of Georgia who tweeted about the runoff whose ideology, gender, and/or ethnicity we were able to estimate.

	Number Tweets	Policy	Attack Ads	National Democrats	National Republicans
Raphael Warnock	2,422	0.47	0.06	0.14	0.16
Kelly Loeffler	2,967	0.46	0.10	0.09	0.44
Jon Ossoff	1,857	0.44	0.01	0.17	0.18
David Perdue	2,209	0.43	0.08	0.10	0.46
Total Tweets	5,258	2,848	699	745	1,885

Table C2: Cell entries are the proportion of decahose tweets mentioning the row candidate that fall into each of the column categories. The attack ad keywords used vary by candidate. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 16, 2020 and limited to users in Georgia.

Candidate	Number Tweets (Cand Ment)	User Demo	Number Tweets (by Demo)	Policy	Attack Ads	National Democrats	National Republicans
Warnock	2,422	White	411	0.48	0.09	0.15	0.17
		Women	740	0.47	0.06	0.12	0.15
		Men	842	0.46	0.07	0.14	0.19
Loeffler	2,967	White	467	0.43	0.08	0.07	0.43
		Women	674	0.44	0.11	0.07	0.40
		Men	1,036	0.45	0.08	0.09	0.45
Ossoff	1,857	White	295	0.42	0.02	0.23	0.20
		Women	560	0.41	0.01	0.17	0.16
		Men	691	0.44	0.01	0.18	0.20
Perdue	2,209	White	365	0.40	0.07	0.08	0.46
		Women	500	0.41	0.11	0.09	0.40
		Men	866	0.41	0.07	0.12	0.46
Total Tweets			6,340	2,848	699	745	1,885

Table C3: Cell entries are the proportion of decahose tweets made by user ethnicity and gender mentioning the row candidate that fall into each of the column categories. The only ethnicity shown is white due to the low frequency of posts in the data by African-American, Hispanic, and Asian users. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 16, 2020 and limited to users in Georgia.

Candidate	Number Tweets (Cand Ment)	User Demo	Number Tweets (by Demo)	Policy	Attack Ads	National Democrats	National Republicans
Warnock	2,422	Liberal	1,063	0.47	0.06	0.12	0.13
		Moderate	58	0.28	0.03	0.12	0.22
		Conservative	254	0.47	0.10	0.15	0.20
Loeffler	2,967	Liberal	911	0.49	0.15	0.07	0.34
		Moderate	83	0.35	0.08	0.13	0.42
		Conservative	587	0.40	0.04	0.09	0.57
Ossoff	1,857	Liberal	830	0.43	0.00	0.16	0.14
		Moderate	48	0.23	0.00	0.17	0.23
		Conservative	191	0.46	0.02	0.22	0.25
Perdue	2,209	Liberal	673	0.46	0.15	0.07	0.32
		Moderate	59	0.27	0.10	0.10	0.39
		Conservative	461	0.39	0.04	0.11	0.58
Total Tweets			6,340	2,848	699	745	1,885

Table C4: Cell entries are the proportion of decahose tweets by user ideology mentioning the row candidate that fall into each of the column categories. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 16, 2020 and limited to users in Georgia.

Candidate	Number of Tweets	Econ	Covid	Educ	Racial Justice	Law & Order	Health Care	Abortion
Warnock	1131	0.52	0.24	0.09	0.24	0.15	0.11	0.08
Loeffler	1371	0.52	0.30	0.07	0.25	0.15	0.10	0.08
Ossoff	816	0.57	0.27	0.06	0.24	0.11	0.11	0.05
Perdue	948	0.56	0.30	0.06	0.23	0.14	0.10	0.06

Table C5: Cell entries are the proportion of decahose tweets mentioning the row candidate that fall into each of the column issue categories. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 16, 2020 and limited to users in Georgia. LGBT, the environment, and immigration are not shown due to the small number tweets one each topic.

Candidate	User Demo	Number of Tweets	Econ	Covid	Educ	Racial Justice	Law & Order	Health Care	Abortion
	White	197	0.53	0.28	0.07	0.23	0.29	0.09	0.08
Warnock	Women	347	0.55	0.22	0.11	0.22	0.21	0.11	0.10
	Men	388	0.50	0.26	0.08	0.27	0.11	0.12	0.08
	White	200	0.54	0.28	0.09	0.24	0.17	0.06	0.08
Loeffler	Women	298	0.51	0.29	0.11	0.22	0.15	0.09	0.10
	Men	470	0.53	0.30	0.06	0.26	0.11	0.10	0.07
	White	123	0.55	0.33	0.06	0.20	0.12	0.09	0.05
Ossoff	Women	227	0.54	0.25	0.08	0.22	0.11	0.11	0.06
	Men	303	0.62	0.30	0.06	0.24	0.10	0.11	0.04
	White	145	0.61	0.24	0.10	0.21	0.16	0.08	0.05
Perdue	Women	207	0.61	0.29	0.11	0.17	0.09	0.09	0.06
	Men	354	0.58	0.31	0.05	0.21	0.11	0.11	0.05

Table C6: Cell entries are the proportion of decahose tweets mentioning the row candidate that fall into each of the column issue categories, by user ethnicity and gender. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 16, 2020 and limited to users in Georgia. Environment, LGBT, and immigration are not shown due to the small number of posts on these topics.

Candidate	User Demo	Number of Tweets	Econ	Covid	Educ	Racial Justice	Law & Order	Health Care	Abortion
Warnock	Liberal	499	0.53	0.23	0.08	0.25	0.20	0.09	0.07
	Moderate	16	0.38	0.25	0.19	0.25	0.12	0.06	0.00
	Conservative	120	0.48	0.21	0.12	0.26	0.09	0.12	0.15
Loeffler	Liberal	444	0.51	0.33	0.05	0.29	0.13	0.10	0.06
	Moderate	29	0.48	0.34	0.07	0.24	0.14	0.14	0.03
	Conservative	232	0.53	0.24	0.07	0.18	0.10	0.10	0.10
Ossoff	Liberal	354	0.55	0.21	0.07	0.23	0.11	0.08	0.05
	Moderate	11	0.64	0.45	0.00	0.18	0.00	0.00	0.00
	Conservative	88	0.65	0.26	0.10	0.17	0.08	0.09	0.06
Perdue	Liberal	310	0.57	0.33	0.05	0.24	0.09	0.10	0.05
	Moderate	16	0.50	0.50	0.00	0.31	0.00	0.00	0.00
	Conservative	179	0.61	0.24	0.07	0.15	0.08	0.10	0.08

Table C7: Cell entries are the proportion of decahose tweets mentioning the row candidate that fall into each of the column issue categories, by user ideology group. Row proportions can sum to more than 1 as column categories are not mutually exclusive. Tweets are from November 3, 2020 to December 16, 2020 and limited to users in Georgia. Environment, LGBT, and immigration are not shown due to the small number of posts on these topics.

Candidate	N Quoted Tweets	Prop Policy Quoted Tweets	Prop Not-Policy Quoted Tweets
Warnock	44	0.36	0.64
Loeffler	21	0.38	0.62
Ossoff	26	0.31	0.69
Perdue	9	0.44	0.56

Table C8: Cell entries are the proportion of times that each candidate was quote-tweeted in the decahose tweets by Georgians from November 3, 2020 to December 16, 2020 split between policy and not-policy labeled tweets.