Candidate Identity and Strategic Communication

Exploratory Text Analysis of the Influence of Race, Gender, and Party on Candidate Issue Ownership

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Abstract

Issue ownership, which posits that voters assess candidates based upon perceived competency over issue domains, is prolific in the study of American politics. That parties are associated with different communication strategies and issue topics is thus uncontroversial. Yet, what other factors—beyond party affiliation—are capable of influencing strategic candidate communication? I expand the literature by analyzing not only the influence of party, but also the effects of candidate race and candidate gender on strategic campaign communication. I argue that strategic candidates differentially deliver information about their qualifications and issue positions based on their identity and the stereotypes they face. I create a dataset using website texts of 2,434 candidates from the 2014 campaign cycle. I find evidence of strategic policy issue selection influenced by party, but also find differences in the use of thematic frames by candidate race and candidate gender. Parties differ in the selection of policy issues, as do Incumbents. I also find that female and racial minority candidates differ from their male and White counterparts in policy engagement. Moreover, they differ in use of thematic frames and expositions of competency. Women and racial minority candidates respond to deficits in voter perceptions by discussing their background, endorsements, work ethic, fundraising and election.

1. Introduction

The principles of issue ownership—which find that voters assess candidates based upon perceived competency over issue domains—are prolific and widely respected in the study of American politics (Budge and Farlie, 1983; Damore, 2004, 2011; Petrocik, 1996; Petrocik et al., 2003; Sides, 2006; Walgrave et al., 2012). To siphon through large amounts of political information, voters employ information short-cuts. One well-documented heuristic is the party cue, which draws upon the historical records and policy positions of political parties to create party-issue associations. Given that voters employ party-cue heuristics, candidates are incentivized to discuss issues primarily associated with their party, issues which they "own." Competing candidates focus on these owned issues, avoiding any substantive campaign discourse (Bélanger and Meguid, 2008; Iyengar and Ansolabehere, 1994; Iyengar and Kinder, 1987; Simon, 2002).

The general notion that political parties are associated with differing campaign communication strategies and ideological beliefs is thus uncontroversial and enduring. And the reliance on party cues and trait inference in voter decision-making holds equal backing. Voters infer candidate characteristics from party affiliation and perceptions of owned issues, creating associations between traits, policy positions, and parties (Lau et al., 1991; Lupia, 1994; Rapoport et al., 1989). Thus a voter may perceive of Republicans as "strong" due to issue ownership in foreign affairs, and Democrats as "compassionate" due to issue ownership over social issues (Hayes, 2005).

Yet, voters are capable of engaging in trait inference on *many* dimensions, and easily ascertainable traits—such as gender and race—may lend themselves to similar stereotyping (Dolan, 2010; Sanbonmatsu, 2002; Sigelman et al., 1995). The literature on issue ownership is sparse regarding the influence of other cues and traits on candidate communication strategies. If cues generate salient associations between candidates and policy issues, and those associations beget incentives for candidates to communicate certian "owned" issues, then variations other than the party cue must be explored. Focus on party cues and affiliation occurs at the expense of alternative dimensions, such as candidate racial and gender identity cues, which may influence communication strategies. And, across all domains, extant candidate communication data relies on studies of speeches, press-releases, party platforms, and interviews—all of which face significant limitation in scope, topics, and control.

I expand upon the broader literature on issue ownership research by assessing the influence of party, race, and gender on the strategic communication of candidates and turning to a unique source of website data. This approach addresses a lacunae in the literature regarding the relationship between issue ownership and candidate identity. To accomplish this, I create a novel dataset built from the campaign website texts of 2,434 candidates who ran for office in the 2014 election cycle. This dataset includes variables regarding candidate race, candidate gender, and the demographics of candidate districts—analysis of the effects of these variables provide a significant contribution to the study of candidate communication.[1] I use text analysis based upon Latent Dirichlet Allocation (LDA) and Structural Topic Modeling to test the inferences of several hypotheses regarding the connection between candidate campaign topic variation and variables of interest such as race, gender, and party.

In accordance with the issue-ownership canon, I find robust evidence that candidates communicate issues "owned" due to affiliation with a given party and historical records of competency. Furthermore, I argue that candidate race and candidate gender—which voters use as trait heuristics for the evaluation of candidate competency—also determine communication strategy in two key ways. First, my results show that female candidates proactively select owned issues, while also working to counteract deficits in voter perceptions by discussing their background, endorsements, work ethic, and election. Second, minority candidates also use reactive strategies, potentially in response to low voter assessments of competency, by discussing endorsements, background, work ethic, and fundraising.

The findings show that racial minority, and female, candidates do not differ much from white, and male, candidates on standard policy issue engagement or selection. However, racial minority and female candidates *do* strategically use key thematic topics indicative of compensatory action. These compensatory and reactive communication strategies may explain why robust evidence of voter race and gender bias occur (Sanbonmatsu, 2002; Sanbonmatsu and Dolan, 2009; Sigelman et al., 1995) despite limited evidence of diminished electoral success (Bullock, 2000; Highton, 2004; Lawless, 2015). Female and minority candidates employ topics which highlight their competency, party orthodoxy, and work ethic. Moreover, because these topics enable candidates to deliver information about quality they potentially counteract the effects of bias. These topics are associated with an

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[1]Variables on candidate race are coded to examine Whites and non-Whites.

increase in the log-odds of electoral victory.

This article is organized as follows. I begin in Section 2 by laying out the current canon on strategic campaign communication, which is primarily limited to issue ownership and the party cue. In Section 3, I discuss how race and gender are equally as salient as party, from which voters have been shown to make inferences about candidate quality and competency for office. Given this, in Section 4, I improve upon the literature on candidate communication by arguing a new theory of two types of communication strategies used by racial minority and female candidates: a *proactive approach*, in which candidates communicate owned issues and avoid non-owned issues; and a *reactive approach*, which seeks to minimize detrimental effects of stereotypes and voter assessments. In Section 7, I find that female and minority candidates proactively select owned issues, while also working to counteract deficits in voter perceptions by discussing their background, endorsements, work ethic, and election prospects. Furthermore, racial minority and female candidates use key topics to compensate for perceived deficits in voter support. These compensatory and reactive communication strategies explain why robust evidence of voter race and gender bias occur despite limited evidence of diminished electoral success. Female and minority candidates employing these topics—which highlight their competency and party orthodoxy—increase their log odds of election victory.

2.   Issue Ownership in Congressional Campaigns

Empirical research finds that candidates are strategic in their campaign communication. This strategy is premised upon voter assessments of candidate competency. Evaluating candidate competency and policy positions is an intensive task, and voters often rely on heuristics, expedient cognitive methods, which aid in political information-processing (Popkin, 1994; Rahn, 1993). Voters possess inherent expectations regarding the ability of a given party to deliver a desired policy outcome, given the domain of the policy. Bellucci (2006) notes that candidate "[c]ompetence can be based or expressed (and perceived) also on issues outside the traditional policy preferences of parties. Parties can indeed be associated with any problem" (551). As such, voters stereotype political parties based upon historical records of achievement and party attentiveness to issues, generating a collection of perceived capabilities. One predominant heuristic is the "party cue", in which a

candidate's partisan affiliation is used to measure her capabilities and competency.

A party cue is a stereotype that "may reveal party affiliation", or alternatively "links a party to a stand on an issue" (Bullock, 2011, 497). The latter can be linked to the issues that are a priority for the party of focus, or reflections on partisan stances (Bélanger and Meguid, 2008; {van der Brug}, 2004). Party cues allow voters to use past information to quickly evaluate candidates without engaging with stated issue positions, without the need to "consult specific attribute information about the target" (Rahn, 1993, 484). Underlying these cues and stereotypes is the concept that there is an association between specific issues and political parties (Iyengar and McGrady, 2007; Petrocik, 1996; Petrocik et al., 2003; Walgrave et al., 2009).

That voters possess expectations of party abilities and stances generates sets of issues tied to parties. The policy records of the Republican and Democratic parties have led to differences in reputations, which result in the association between the parties and specific issues. Canonical research by Petrocik (1996) developed a theory of issue ownership in which a reputation for handling policy and ownership over issues is "conferred by the record of the incumbent and the constituencies of the parties" (827).

Even the association of an issue with with a party is an indicator of competency and the ability of the party to provide superior outcomes (Petrocik et al., 2003). Because parties have earned credibility on specific issues, they are viewed as consistently better able to resolve them (Campbell et al., 1960). Additionally, party cues extend to trait inference, in which evaluations of the personal characteristics of candidates are tied to issue ownership (Hayes, 2005). This results in views of Republican domains such as "strength" and "foreign affairs", and Democrat domains such as "compassion" and "social issues" (Hayes, 2005; Iyengar and McGrady, 2007). While this general perception is does not provide insight into the policy preferences of candidates, it provides a belief of which candidate may be competent enough to deliver a desired objective.

Given that voters care about specific issues, and utilize party cues to assess a candidate's competency, they vote for the candidate affiliated with the party which has "ownership over the issue (Petrocik, 1996; Petrocik et al., 2003). Hence, parties and candidates are advantaged when an owned issue is considered by voters, and thus have an incentive to discuss and advertise owned issues frequently (Iyengar and Ansolabehere, 1994). In fact, it behooves parties to stay within their issue domains, as voters both do not expect candidates to discuss issues that are not owned and do

not view such appeals as credible (den Bulck, 1993).

In discussing owned issues, thus amplifying perceived competency, a candidate shapes her campaign agenda (Damore, 2011). Issue ownership, in large part, coincides with a struggle to control a broader agenda. The more prominent an issue is in new media or campaign advertisement, the more salience it is afforded by voters (Baumgartner and Jones, 1993; Iyengar and Kinder, 1987). Candidates, through campaign agendas, are "in an advantageous position to simultaneously influence the media and public agendas" (Iyengar and Simon, 2000, 157). The effect of campaign effects on agenda setting, is that discussed issues become tools to evaluate the competency of candidates (Iyengar and Kinder, 1987). Competing candidates discuss issues over which they enjoy an advantage, do not address the same issues, focus on owned issues, and avoid substantive campaign discourse under normal circumstances (Simon, 2002).

3. Candidate Identity and Voter Heuristics

Voters use party affiliation as a heuristic or cue to determine competency over issue topics, and that this perception of competency yields a domain of owned issues. While party affiliation is a discernable trait, most candidate attributes and characteristics are unobservable. Because voters are not afforded the opportunity to have full information about internal candidate traits, they attempt to infer these traits based upon impressions formed during a campaign from media, advertising, and debates (Lupia, 1994). Impressions are based upon beliefs about party affiliation, behavior, and other observable traits tied to the candidates themselves. From these sources voters determine the personal characteristics of candidates (Lau et al., 1991).

Yet, trait inference and cues can extend to gender and race. Voters are cognizant of candidate racial identity and gender through either photographs or forenames. In the instance of race and gender, cues can generate associations between perceptions of identity and political ideology (Domke, 2001). Specifically, voters use candidate identity to form perceptions of ideological positions, personality traits, and issue competencies (Jacobsmeier, 2014; Koch, 1999; Mcdermott, 1998). These perceptions of identity group voting patterns are so strong that they endure even when in conflict with the candidate's true stances (Simon, 1992).

Critically, voters make inferences in several ways: (1) using one policy position to inform another, (2) using one characteristic to predict another, (3) using one policy position to infer a charac-

teristic, and (4) using a characteristic to infer policy positions (Rapoport et al., 1989). Ultimately, the literature concludes that individuals generate rigid political expectations of candidates—and fellow voters—which are premised upon common perceptions of group voting behaviors.[2] The result is that candidates are constrained to a restricted domain within which there are expected segments of policy positions given their social identity and party. Because these heuristics and expectations premised upon candidate identity may be rooted in bias, they pose unique challenges for female and racial minority candidates.

3.1. The Influence of Candidate Gender on Perceptions

The implications of voters using candidate gender as a heuristic is that resulting perceptions are tied to previous beliefs about women. These beliefs have been shown to include harmful views of women's character and abilities. Bias against women often arises due to perceived incompetence rooted in descriptive gender stereotypes. The broader literature in social psychology has found that these descriptive stereotypes lead to differences in perceptions of individual intelligence, assertiveness, leadership, and ambition based upon the gender of the individual under observation (Cejka and Eagly, 1999; Glick et al., 1995). When average women and men are compared by respondents, the women are perceived as communally oriented and the men as more agentic and independent (Eagly and Steffen, 1984).[3] Barriers exist in these perceptions such that women must outperform compared to general standards in order to be perceived as competent (Biernat and Kobrynowicz, 1997; Foschi, 2000). And yet when women adopt agentic and assertive male characteristics—countervailing common stereotypes about their gender—they are vulnerable to punishment and backlash, due to views that they are less empathetic and sensitive (Rudman and Glick, 2001).

These stereotypes about gender affect the perceptions of candidates, in addition to partisan stereotypes (Hayes, 2011; Iyengar and Simon, 2000). Additionally, perceived policy domains are influenced by perceptions of gender, with women viewed as being more concerned with "women's

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[2]Berelson et al. (1954) found that political differences and voting preferences are correlated with basic social groupings, and are specifically aligned across class, income, ethnicity, religion, and location. Specifically, they discovered that objective measures of these groupings directly influence the final vote decision. Additionally, voters' own subjective measures of their membership along these groupings influences their voting patterns. Most importantly Berelson et al. (1954) note that voters are *aware* of group voting patterns, and recognize that social groups vote as blocs.

[3]Here agentic refers to the characteristic of being assertive and "motivated to master" a specific set of skills (Eagly and Steffen, 1984). When women engage in agentic behavior, they are perceived as being equally as competent as similar men (Glick et al., 1995; Rudman and Glick, 2001).

issues," children, education, and health (Iyengar et al., 1996; Kathlene, 1994, 1995). Voters often assume that women are more liberal than men, a fact reflected in historical group voting patterns. However, women campaign on a similar array of issues as men, determined by the most salient topics of an election—creating a struggle against the problematic stereotypes that narrow their policy domains (Dolan, 2005). Moreover, because stereotypically "male" traits (like agentic behavior) overlap with perceptions of leadership, strength, and intelligence, female candidates are less likely to receive attention that highlights their qualifications, competency, experience, and intellectual acuity (Bystrom et al., 2004; Fridkin and Kittilson, 2008; Sanbonmatsu and Dolan, 2009). Rather, media coverage and voter discourse centers upon the relationship between female candidates and the family.

Judgments about a candidate's gender may also influence a voters' willingness to provide electoral support (Dolan, 2010; Sanbonmatsu, 2002). The traits and signals of quality which most voters use as an indicator of candidate competency are often associated with men. Notably, women are perceived as compassionate and sincere, whereas men are perceived as decisive leaders (Alexander and Andersen, 1993; Huddy and Terkildsen, 1993a,b; King and Zeckhauser, 2003; Koch, 1999). Voters care deeply about stereotypically "male" characteristics at the ballot box, perceiving of men as both better leaders and competent at legislating security issues (Lawless, 2004).

3.2. Race Cues, Stereotypes, and Candidate Campaigns

Use of race as a heuristic bears equally severe effects on voter assessments. The literature on racism and racial resentment is exhaustive, and evidence of the significance of race in political decision making is enduring (Hutchings et al., 2004). For example, although racism against Blacks and racial minorities has decreased, it is still the case that individuals perceive of Blacks as inferior or less intelligent (Huddy and Feldman, 2009; Tesler, 2013; Virtanen and Huddy, 1998). Racial minorities are perceived as incapable of managing significant policy issues, which may harm electoral success (Sigelman et al., 1995).

Race also serves as a cue regarding partisan positions. For example, racial minorities are often perceived by voters as being both liberal and concerned with identity-specific issues (Citrin et al., 1990; Jones, 2014; Lerman and Sadin, 2016; Mcdermott, 1998). Furthermore, measures of symbolic racism suggest that more prevalent than the belief in inferiority are the indirect beliefs

and stereotypes of Blacks and racial minorities. Sociocultural prejudice towards Blacks consists of a coherent belief system in which Blacks are perceived as unwilling to work hard, being too demanding, and receiving more than deserved (Kinder and Sears, 1981; Sears and Henry, 2003; Tarman and Sears, 2005). This combines anti-minority sentiment driven by stereotypes and moral traditionalism (Carmines et al., 2011).

The natural result of direct and indirect, symbolic racism, is a perception of racial minority candidates as less qualified and having specific issue focuses. The effects of this perception may be detrimental–for example, Blacks perform worse among white voters when running against non-minority candidates in experimental manipulations (Reeves, 1997; Terkildsen, 1993). Performance is inhibited not only in voting outcomes, but also in the evaluation of candidate competency and ideological positions (Mcdermott, 1998; Sigelman et al., 1995; Williams, 1990).[4] Voters are primarily concerned with perceptions of candidate leadership, strength, and intelligence—detrimental stereotypes undermine views of racial minority candidates in these areas (Hajnal, 2007; Sigelman et al., 1995). A persistent stereotype of black candidates exists, portraying them as unreliable and incompetent (Harris, 2012).

Voters believe minority candidates are more concerned with disadvantaged and identity groups, and generally issues of interest to other minorities (Jacobsmeier, 2014; Sigelman et al., 1995).[5] This perception of in-group bias generates fear that minority candidates will not preserve the interests of other groups—and perceptions of racial favoritism predict willingness to vote for Black candidates even when controlling for belief in racial stereotypes (Goldman, 2016). Additionally, voters view minorities as being less likely to support tough policies on issues such as crime (Peffley et al., 1997). Again, the issue domains of candidates becomes restricted by stereotypes about their identities.

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[4] Even perceptions of campaign strategies are influenced by racial cues. Black candidates who use negative advertisements were punished and rewarded by voters in accordance with the voters' perceptions of Blacks generally (Krupnikov and Piston, 2015).

[5] Furthermore, research has found that "intrinsically motivated descriptive representatives play a crucial role in advancing minorities' political interests" by being more responsive to the needs of minority constituents (Broockman, 2013).

3.3. The Paradox of Voter Bias and Electoral Outcomes

Extending trait ownership to candidate identity suggests that voter biases may lead to detrimental assessments of competency and misinformation about policy positions when race and gender are involved. Because candidate traits serve as heuristics for issue positions, voters may assume that women and racial minorities are more liberal than they truly are. Furthermore, candidate traits inform perceptions of competency, and stereotypes of women and racial minorities create bias which limits these perceptions.

Nevertheless, while research has found consistent evidence of biases, the literature is inconsistent on whether candidate gender or race affects electoral outcomes or media coverage. Media and voter perceptions of candidates have been shown shown to derive primarily from party affiliation, incumbent status, electoral context, and ideal points (Dolan and Lynch, 2016; Hayes and Lawless, 2015). Robust evidence of gender stereotyping conflicts with little empirical evidence of the diminished electoral success of female candidates (Lawless, 2015). The significance of racial stereotyping conflicts with evidence of equal vote-share outcomes for Black and White candidates (Bullock, 2000; Highton, 2004).

Still, scholarship argues that the "presence of the party cue does not preclude a role for candidate gender," and politicians are believed to differ by both party *and* gender in perceived issue competency (Sanbonmatsu, 2002; Sanbonmatsu and Dolan, 2009). Additionally, the limited number of minority congresspersons leads some to conclude that electoral outcomes must be affected by voter assessments.

The disconnect between evidence of voter biases and evidence of equal voting outcomes raises interesting questions. How does candidate identity interact with the parameters of strategic communication? Does some strategic campaign behavior preemptively counteract the detrimental effects of identity stereotyping? What about the campaign communication approaches of women and minority candidates may influence this paradox? In order to answer these questions, a contemporary approach must be used, in which the concepts of cues and competency are expanded to include race and gender.

4. Moving Beyond the Party Cue: Identity-Driven Ownership

Given that voters utilize party cues to assess a candidate's competency and confer ownership over issues (Petrocik, 1996; Petrocik et al., 2003), it can also be assumed that voters use identity cues in candidate assessment and ownership endowment. The body of literature discussed in Section 3 implies that, in addition to party, specific topics are associated with candidate gender and race, garnering identity-driven issue ownership. Moreover, there are burdensome perceptions of both minority and female candidates which, left unaddressed, could limit success. A contemporary theory of this identity-driven ownership is absent from the broader literature.

This suggests two types of communication strategies for these candidates: a *proactive approach*, in which candidates hold owned issues steadfast and avoids non-owned issues; and a *reactive approach*, which seeks to minimize detrimental effects of stereotypes and voter assessments.

4.1. Candidate Identity and Proactive Communication Strategies

Campaign communication can be proactive, with candidates focusing on salient issues frequented in media and easily owned issues to garner support among constituents (Druckman et al., 2010; Iyengar and Ansolabehere, 1994; Iyengar and McGrady, 2007; Kaufmann, 2004). The perceptions of candidate competency which result in issue domain ownership are also influenced by gender and race (Huddy and Terkildsen, 1993a,b; Mcdermott, 1998; Peffley et al., 1997). Thus, similar to proactive communication strategies driven by party-cues, candidates may also discuss issues owned due to voter assumptions about their identities.

As such, racial minority and women candidates would generally find success in selecting the issue topics primarily associated with their groups. It has been argued that minority candidates use campaign strategies that project non-threatening images to voters, and avoid non-owned issues. Specifically, minority "candidates cannot afford to be vulnerable on crime" and avoid it due to priming and linkage between crime and race (Sonenshein, 1990). Lastly, minority and female candidates may rely upon group based appeals used to pick up slack in the policy dimension—making trait inference stereotypes useful in appealing to aligned demographic groups (Dickson and Scheve, 2006).

Figure 1: Example of Proactive Communication Strategies

"For Congresswoman Alma Adams, education and women's rights aren't political issues, they are personal issues [...]. Growing up in a single parent household, Alma saw that the best way to get ahead was through dedication and hard work. Her mother's sacrifices motivated Alma to [...] complete her own education [...]."

Note: Congresswoman Alma Adams (D-NC). Source: almaadamsforcongress.com

4.2. Candidate Identity and Reactive Communication Strategies

Alternatively, strategic candidate communication and messaging can be *defensive*. The aim of a reactive strategy is to offset the negative trait stereotypes that impact perceptions of competency. This compensatory action and the keys of strategic communication coincide. That candidates may work to combat perceived or actual deficits in campaign strategy is not controversial.

For example, women are less likely than equally credentialed men to believe they meet the qualifications for office, creating a gap in self-efficacy (Fox and Lawless, 2011; Fox and Oxley, 2003). This diminished self-efficacy not only presents a barrier to women at the primary stages of candidacy, but also leads to doubt-driven compensation. On average, women engage in more fundraising, both to counter the disproportionate amount of primary competition they receive and for better performance in the election (Lawless and Pearson, 2008).[6] In communication, congresswomen stress the masculine aspects of their personal traits using language such as "tough," to a greater degree than their fellow congressmen to counteract gender perceptions (Lee, 2013).

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[6]Moreover, successful female candidates are often more highly qualified than their male counterparts, and successful female candidates are perceived by voters as being of "high quality" when compared to challengers (Fulton, 2012; Fulton et al., 2006). The linkage between quality differences and electoral success suggests that it behooves female candidates to emphasize their qualifications.

Further, scholarship on the electoral outcomes of minority candidates find success in a strategy of "deracialization," in which discussion of both racially-charged issues and racial identity are avoided to prevent negative voter reactions (Citrin et al., 1990; Jeffries, 1999; Jones and Clemons, 1993; Strickland and Whicker, 1992). Beyond avoiding sensitive racial issues, candidates also may send cues to reassure racially-resentful voters about their competency by communicating thematic frames of individualism, self-reliance, and hard work (Karpowitz et al., 2015).

Lastly, given the attribution of liberal stances, women and racial minorities may also find it necessary to provide information necessary to specify their ideological stances (Karl and Ryan, 2014; Mcdermott, 1998). At the root of these suggested strategies is an emphasis on how racial minority candidates can combat the detrimental effects of uncertainty and low-information in elections caused by identity cues. Because political stereotypes about women and minorities are so prolific, there is an active need for candidates to discredit and counter them. And yet given the negative perceptions of competency racial minorities and women must sufficiently prove that their performance and skill is rooted in true ability (Biernat and Kobrynowicz, 1997).

Figure 2: Example of Reactive Communication Strategies

"Rep. Love recalls both her parents working hard to earn a living. Her father, at times, worked more than one job [...]. On the day of Love's college orientation, her father said something to her that would become the mantra for her life: 'Mia, your mother and I never took a handout. You will not be a burden to society. You will give back.'"

Note: *Congresswoman Mia Love (R-UT). Source:* `love.house.gov`

4.3.   The Significance of Candidate Identity

While some literature does show the influence of candidate race and gender on *voter percep-tions*, inductive research on the domain of topics used by minority or female candidates in response to these perceptions is sparse. Many assumptions are made regarding the domain of issue topics linked to identity groups, but the literature has broadly overlooked rigorous investigation of their use by female and racial minority candidates. Candidate gender and racial identity not only may influence the ability and willingness to address particular issues, but also may be linked to spe-cific campaign strategies. This contemporary theory of identity-driven issue ownership provides a coherent, testable framework through which candidate communication can be explained.

5.   Assumptions and Hypotheses

By integrating the research on issue ownership and the role of candidate identity in strategic campaign communication, a new theory of candidate strategy can be reached. Candidates select issues based upon endowments of perceived ownership over a topic, but also may select issue topics to defend against detrimental voter perceptions. This assumption yields sets of hypotheses related to party affiliation and candidate identity.

5.1.   Issue Ownership Hypotheses

As previously noted, historical records of political parties beget voter perceptions of issue competencies which in turn yield issue ownership. As such, candidate party will determine the subset of issues discussed, in accordance with the literature on and party domains (Hayes, 2005; Petrocik, 1996; Petrocik et al., 2003). Different issue topics are more likely to be mentioned by different parties such that they can exert issue ownership and dominance, and weakly owned topics will be avoided.

However, beyond the party cue, race and gender cues may also influence what issues are selected by candidates. Voters' perceptions about candidate competency are often based upon heuristics about beliefs and ideology given the candidate's identity (Huddy and Terkildsen, 1993a,b; Mcdermott, 1998; Peffley et al., 1997). Because minorities and women are perceived as liberal and concerned with identity-specific issues, the domain over which they can assert issue ownership is

limited.

Female and minority (male and white) candidates will select (avoid) topics such as social issues, education, and compassion. Male and white (female and minority) candidates will select (avoid) issue topics such as taxation, militarism, and foreign affairs. Voter stereotypes about candidate propensities and beliefs will shape the issues owned. Because social issues and education are perceived as primarily female and minority domains, these candidates will select from the topics. Correspondingly, weakly-owned, "male" and non-minority trait issues will be avoided.

5.2. Compensatory Topics Hypotheses

Voters additionally infer candidate competency using heuristics about traits and character given the candidate's identity, which often is detrimental for minorities and women (Sanbonmatsu, 2002; Sigelman et al., 1995). In managing self-image, candidates select issues and words not only to leverage identity traits, but also to diminish detrimental effects of voter perception (Jeffries, 1999; Jones and Clemons, 1993; Lee, 2013).

In response to voter perceptions of traits, female and minority candidates will emphasize background qualifications, leadership, and competency to signal quality. In response to voter perceptions of traits, female and minority candidates will emphasize thematic frames such as leadership, individualism and hard-work. This results in campaign strategies that are reactive and compensatory, working to offset perceptions of ideology, competence, quality, and leadership.

6. Data and Methodology

The literature on candidate communication has focused on press releases, media messaging, public speeches, and chamber speech. However, one reasonable alternative yet to be widely used are candidate websites. Candidate websites are generated by campaigns at the behest of candidates, in order to communicate self-image and issue positions (Druckman et al., 2010). Websites reflect a dimension of candidate communication strategy; this is because whether personally crafted, or crafted by a liaison, the content is governed by the ideological desires and strategies of the candidate.

What distinguishes campaign websites from other, commonly used, sources of political campaign communication is that they are not subject to the same external constraints. They are not restricted by external agenda setters (as in the news media), allow freedom to select issue topics (as

opposed to interviews and responses), and go beyond limitations of time (as opposed to speeches and advertisements) (Druckman et al., 2010, 2009; Therriault, 2010). Additionally, the scope and breadth of the campaign website is at the candidate's discretion, and there are minimal size or information limitations. Websites generally are more amenable to research analysis because campaign websites have been shown to have a "distributional path dependence" in features and structure, even given "diffuseness in content" (Esterling et al., 2011; Esterling and Neblo, 2011).

6.1. Data and Measures

To measure issue ownership and strategic communication, I generate a novel dataset comprised of archived text saved through the Congressional Candidate Website.[7] The CCW project contains House and Senate candidate websites archived weekly, often for the entire year span. The 2014 campaign cycle archives were utilized to generate a dataset containing the full, visible text of each candidate website. The result is a new dataset of 2,434 individual candidate campaign website texts, as well as variables corresponding to candidate party, candidate race, candidate gender, and the demographics of candidate districts.[8]

Table 1: Descriptive Statistics, All Candidates

Democrat	Republican	Third Party	Male	Female	White	Minority	**Total**
808	976	650	2044	390	2090	344	**2434**

Note: Attributes of the individuals contained in the 2014 Congressional Campaign Website data. Each value is a proportion of the total 2,434 candidates in the 2014 campaign cycle dataset.

The analytical approach of the paper is designed to address the theoretical assumption that issue topics are the strategic response to specific considerations influenced by not only party-cues but also identity-cues. Given this, I focus on the core issue topics discovered across all website texts, and the effect of candidate party and identity on the prevalence of topic selection.

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[7]Access to this archive is maintained through the Stanford University Library. Data for the 2014 campaign cycle is accessible at https://archive-it.org/organizations/775. This data maintained through the program, operated through Archive-it™, was collected and maintained by a collaboration between Stanford University and the University of California, Berkeley.

[8]Each archived iteration of a candidate website listed in the archive was scraped using Python packages selenium, urllib2 and BeautifulSoup. See supplementary materials for replication code and data.

6.2.   Methodological Approach

Text analysis employs probabilistic topic modeling, specifically, Latent Dirichlet Allocation (LDA), to explore the topic distribution of candidate websites. Probabilistic topic modeling seeks to discover main themes within large and unstructured collections of documents, by organizing and categorizing them (Blei, 2012; Blei et al., 2008, 2012). However, automated text analysis in political science is concerned not only with the complexity of language used by actors, but also with how that complexity relates to various indicators. Oftentimes, pivotal variables are determined to be associated with topic selection, illuminating the influence of attributes on word and topic choice. Research has found that partisanship, electoral marginality, and electoral alignment, all influence the lexical and topical features of political texts (Grimmer, 2013, 2014; Grimmer et al., 2012; Monroe et al., 2008). While general LDA analyzes topic distributions, it does not have accommodations for related variables of interest connected to the observed text data, known as metadata.

One solution, the structural topic model (STM), is a mixed-membership topic model "in the style of LDA which allows for the inclusion of document-level covariates" to relate the document-level metadata to inferred topical structures (Roberts et al., 2014, 15).[9] While a topic within a document modeled by LDA is governed by a single distribution over words (Blei et al., 2008; Manning et al., 2008), STM allows for a document to be modeled as a representative combination of metadata and topical sets (Roberts and Stewart, 2015; Roberts et al., 2015).[10]

As such, STM will be utilized to test the inferences of several hypotheses regarding the connection between candidate campaign topic variation and variables of interest such as race, gender, and party. These variables of interest are contained in a matrix, $\mathbf{X}$, and each row of this matrix provides candidate and district information related to an individual website text. This matrix, $\mathbf{X}$, contains columns for party affiliation, gender, race, district demographics, and district partisanship. The topical content of each website text is contained in another matrix, $\mathbf{Y}$, which provides proportions of each topic. I follow (Roberts and Stewart, 2015), utilizing the data generating pro-

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[9]One alternative solution, the multinomial inverse regression model (MIRM), accounts for the influence of variables of interest and metadata on the distribution of words in a document (Taddy, 2013), and is made practical by the `textir` package in R (Taddy, 2015). Another approach, the inverse regression topic model (IRTM), builds upon this further, modeling the complexity of documents to discover variation in topic selection and expression (Rabinovich and Blei, 2014). Structural topic models can be performed using the `stm` package in R (Roberts et al., 2015).

[10]Specifically, the distribution of words in a text are modelled as a multinomial logit with where each token is "a combination of three effects (topic, covariates, topic-covariate interaction) operationalized as sparse deviations from a baseline word frequency" (Roberts et al., 2013, 2).

cess for document d, given the number of topics K, words $\{w_{d,n}\}$, and priors implies the following hierarchical model,[11]

$$\gamma_{p,k} \sim N(0, \sigma_k^2 I_p)$$

$$\theta_d \sim LogisticNormal_{K-1}(\mathbf{\Gamma}'\mathbf{x}_d', \mathbf{\Sigma})$$

$$\mathbf{z}_{d,n} \sim Multinomial_K(\theta_d)$$

$$\mathbf{w}_{d,n} \sim Multinomial_V(\mathbf{B}\mathbf{z}_{d,n})$$

$$\beta_{d,k,v} = \frac{exp(m_v + \kappa_{k,v}^{(t)} + \kappa_{y_d,v}^{(c)} + \kappa_{y_d,k,v}^{(i)})}{\sum_v exp(m_v + \kappa_{k,v}^{(t)} + \kappa_{y_d,v}^{(c)} + \kappa_{y_d,k,v}^{(i)})}$$

which implies the following full posterior distribution,

$$p(\eta, \mathbf{z}, \kappa, \gamma, \Sigma | \mathbf{w}, X, Y) \propto \left(\prod_{d=1}^{D} N(\eta_{\mathbf{d}} | X_d \gamma, \Sigma) \left(\prod_{n=1}^{N} M(z_{n,d} | \theta_{\mathbf{d}}) M(w_n | \beta_{d,k=z_{d,n}}) \right) \right) \cdot \prod p(\kappa) \prod p(\gamma)$$

This is estimated using an approximate variational expectation maximization algorithm, using a Laplace approximation. From this I gain topic prevalence measures, γ, for each document. I then estimate regressions in which the endogenous variable is the proportion of each document about a topic—topic prevalence—drawn from the Structural Topic Model. The exogenous variables are the document level covariates which contain information about candidate partisanship and district demographics. This is represented by the following regression model,

$$\gamma = \beta_1 X_{Dem} + \beta_2 X_{Male} + \beta_3 X_{White} + \beta_4 X_{Incumbent} + \beta_5 X_{Black_{Dist}} + \beta_6 X_{Educated_{Dist}}$$

$$+ \beta_7 X_{Male_{Dist}} + \beta_8 X_{MedAge_{Dist}} + \beta_9 X_{Poverty_{Dist}} + \beta_{10} X_{Pop_{Dist}} + \beta_{11} X_{CookPVI_{Dist}}$$

$$+ \beta_{12} X_{ObamaVoteChg_{Dist}}$$

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[11]"$\Gamma = [\gamma_1 | \ldots | \gamma_K]$ is a $P \times (K-1)$ matrix of coefficients for the topic prevalence model specified [. . .] and $\{\kappa_{.,.}^{(t)}, \kappa_{.,.}^{(c)}, \kappa_{.,.}^{(i)}\}$ is a collection of coefficients for the topical content model specified [. . .]" (Roberts and Stewart, 2015, 8). "The default prior specification for the topic prevalence parameters is a zero mean Gaussian distribution with shared variance parameter" (Roberts and Stewart, 2015, 11).

These estimates can be used to determine the degree to which covariates, such as race and gender, influence topic prevalency in candidate website text.

7. Analyzing Topic Selection: Substantive Findings

The central question of this paper is whether issue topic selection and strategic candidate communication are affected by party, candidate race, and candidate gender. The three hypotheses derived from this question each provide opportunities to test the question. However, in order to address this question, I first generate issue topic categories using LDA and Structural Topic Modeling. This provides a comprehensive domain—even if not every possible category is represented—of topics found in candidate campaign text during the 2014 campaign season.

Using this domain of issues, and the prevalence of their occurrence in each candidates text, I move to address the three hypotheses by estimating the influence of both candidate party and candidate identity on the selection of topic categories. The findings substantiate the hypotheses that both party and candidate identity influence messaging strategy.

7.1. Topics in Candidate Campaign Communication

The enumeration of policy platforms and issues associated with the two major political parties is prevalent in issue ownership literature (Petrocik, 1996; Petrocik et al., 2003; Walgrave et al., 2009). Yet, the topics over which candidates exert ownership often are pre-defined by scholars. To identity the range of topics and issues used without imposing assumptions regarding the domain of issues, I utilize Structural Topic Modeling (Roberts et al., 2014; Roberts and Stewart, 2015). However, this does require an assumption regarding the appropriate number of granular and coarse topics to use. Using LDA and four metrics, I determine the optimal range of topics given the texts within the campaign website dataset (Arun et al., 2010; Cao et al., 2009; Deveaud et al., 2014; Griffiths and Steyvers, 2004).[12] Although many estimates of model fit rely upon LDA to find the optimal number of topics given latent structure and topics, the Arun et al. (2010) approach uses information in both the topic-word and document-topic matrices. This combination allows for robust estimation of the number of topics that yield the best fit. Using the extremum of this estimate, I find that the

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[12]Maximum values of Deveaud et al. (2014) and Griffiths and Steyvers (2004) estimations and minimum values of Arun et al. (2010) and Cao et al. (2009) are considered optimal.

optimal number of topics to is 40, as shown by Figure 3.

Figure 3: Optimal Number of Topics, By Metric and Method
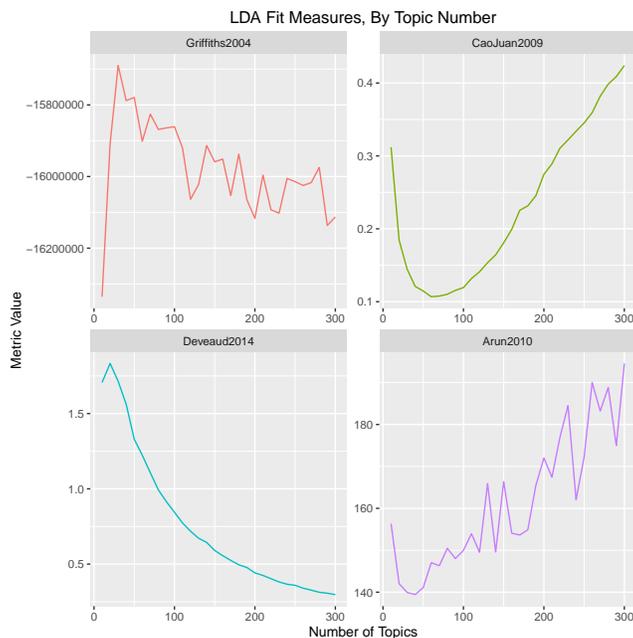
Note: The y-axis displays the values of four estimates of fit for LDA models, and the x-axis displays the topic numbers corresponding to those estimates. Maximum values of *Deveaud et al. (2014)* and *Griffiths and Steyvers (2004)* estimates, and minimum values of *Arun et al. (2010)* and *Cao et al. (2009)* estimates, are considered optimal. Thus, topic numbers corresponding to the highest estimates in the left two panels, and topic numbers corresponding to the lowest estimates in the right two panels, are considered optimal by the standards of each metric.

Given this, Table 2 provides labels for each of these 40 topics, as well as a set of words which highly identify and distinguish the documents within the topics from those within others. Bolded topics indicate issues traditionally linked to candidate party affiliations or identity based upon the expectations of ownership (Budge and Farlie, 1983; Petrocik, 1996; Petrocik et al., 2003). Bolded and italicized topics reflect the reactive strategies used to diminish the detrimental effects of stereotypes as discussed in Section 4. Figure 4 visually displays the proportions of documents assigned to each topic. Analyzing the prevalence of topics allows for both general insight into what members of Congress discuss in online communication, and the major debates and issues in congressional campaigns in 2014.

Of the forty total topics shown in Table 2, only a subset are directly relevant to the foci of this paper. Various dimensions of topic usage relates directly to the structure of websites, broad political ideology, and current events. This results in extraneous, yet logically coherent, topics. For example, one dimension of topic usage reflects the path dependence that comes with having

made a professional web site. Nearly all candidates launch professional web sites, and while web site may differ in issue engagement and campaign strategy they are united by the limitations and expectations of digital media. Uniformity in features and structure yield highly prevalent topics such as *Site Menu* (12), *Privacy Policy* (15), as well as those related to social media usage. Other issue topics such as *Volunteers* (21), *Donations* (20), *G.O.T.V.* (35), and *Social Media Outreach* (5) suggest the use of campaign web sites as collectivizing and fundraising forces. Another dimension of topic usage reflects the influence of period-specific events such as *Obamacare* (2), and the discussion of political ideology such as *Libertarianism* (11).

While all forty topics do reflect dimensions of candidate speech, they do not directly answer questions regarding issue ownership and compensatory behavior. Therefore, Table 2 only displays a subset of relevant topics, or specifically those unrelated to website structure, broad discussions of political events, and period-specific events.

Figure 4: Corpus Topic Proportions and Descriptions
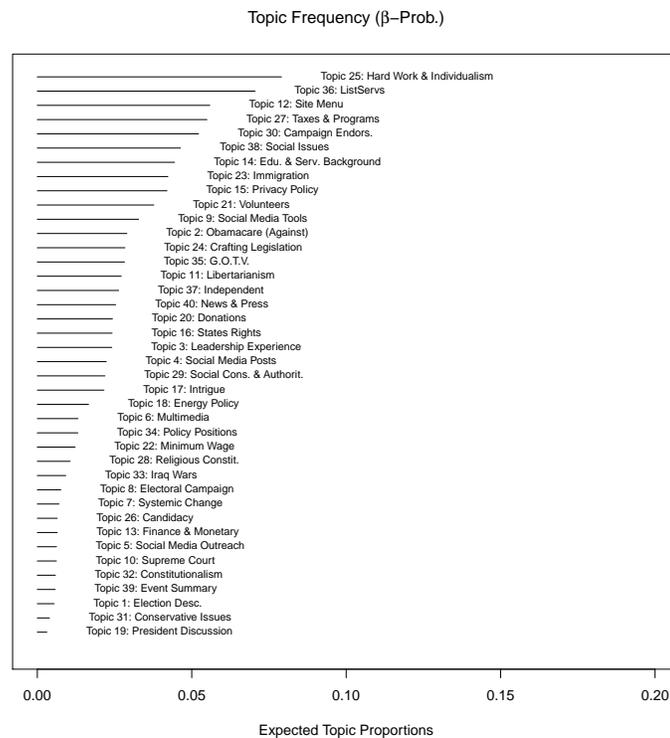
Note: Proportions, or prevalence, of topics within corpus with top words. High probability words are determined using a topic-word distribution parameter β. Frequent and Exclusive (FREX) words utilize the harmonic mean of rank by probability within topic and rank by distribution of topic given word.

Table 2: Selected Topics and Keywords

	Topic Label	Keyword Stems
1	*Election Desc.*	parti, elect, vote, state, stanc, comment, senat, environ, share, messag
2	**Obamacare (Against)**	conserv, obamacar, congress, nation, endors, obama, constitut, paid, famili, debt
3	*Leadership Experience*	militari, veteran, state, serv, district, armi, defens, school, high, leadership, presid, offic
4	Social Media Posts	comment, post, repli, leav, email, recent, blog, govern, free, file
5	Social Media Outreach	letter, involv, action, get, mail, believ, news, also, spread, senior
6	Multimedia	facebook, twitter, ago, youtub, week, day, congress, yesterday, today, get
7	Systemic Change	peopl, market, power, get, way, war, even, campaign, much, democraci
8	*Electoral Campaign*	hous, congress, polit, elect, campaign, write, nation, voter, current, econom
9	Social Media Tools	share, facebook, email, load, power, googl, twitter, pay, school, protect
10	Supreme Court	parti, independ, vote, court, elect, take, suprem, respons, health, leadership
11	**Libertarianism**	govern, liberti, libertarian, freedom, peopl, right, free, debt, make, market
12	Site Menu	donat, contact, event, issu, congress, home, counti, check, box, video
13	**Finance & Monetary**	tax, econom, gold, money, govern, monetari, chapter, video, currenc, year
14	*Edu. & Serv. Background*	school, year, univers, busi, famili, work, serv, presid, intern, inc
15	Privacy Policy	inform, site, privaci, use, polici, person, provid, issu, pleas, share
16	**States Rights**	state, constitut, shall, unit, law, right, amend, legal, america, first
17	**Intrigue**	year, one, law, said, get, time, now, legal, take, use, nsa, watch, immigr
18	**Energy Policy**	energi, climat, coal, support, job, gas, year, work, rail, growth
19	**President Discussion**	news, obama, presidenti, univers, america, elect, cnn, energi, olymp, futur
20	*Donations*	contribut, elect, feder, card, law, employ, tax, state, make, detail
21	Volunteers	email, sign, twitter, facebook, volunt, donat, get, share, republ, mail
22	**Minimum Wage**	state, campaign, peopl, view, parti, unit, polit, issu, year, wall
23	**Immigration**	nation, america, american, immigr, must, work, econom, creat, mani, feder
24	*Crafting Legislation*	congressman, hous, legisl, rep, act, committe, feder, transport, american, reform
25	*Hard Work & Individualism*	peopl, can, need, work, make, help, want, give, live, put
26	Candidacy	read, money, campaign, nation, elect, can, donat, someth, candid, act
27	**Taxes & Programs**	tax, job, govern, care, spend, health, busi, polici, can, current
28	**Religious Constit.**	govern, god, america, state, nation, liberti, religion, good, father, candid
29	**Social Conserv. & Authorit.**	state, peopl, issu, time, drug, system, unit, social, come, control, allow, power, problem
30	*Campaign Endors.*	district, congress, endors, congression, counti, campaign, state, paid, local, receiv
31	**Conservative Issues**	parti, energi, nuclear, internet, comment, record, facebook, reactor, run, credit
32	**Constitutionalism**	state, right, peopl, govern, properti, unit, interest, categori, countri, matter
33	**Iraq Wars**	said, war, post, democrat, comment, iraq, american, forc, afghanistan, soldier
34	Policy Positions	senat, candid, state, right, vote, get, unit, issu, associ, polici
35	*G.O.T.V.*	vote, congress, elect, district, voter, regist, support, home, class, school
36	ListServs	get, news, meet, home, updat, contribut, contact, code, media, support
37	**Independent**	candid, parti, campaign, polit, independ, run, congression, system, announc, way
38	**Social Issues**	veteran, women, job, educ, health, care, work, busi, program, creat
39	Event Summary	upload, democraci, profil, town, date, photo, visit, order, commit, parent
40	News & Press	news, releas, press, read, senat, volunt, campaign, issu, voter, first

Note: 40 topics generated using STM with semi-collapsed variational EM. Keywords selected from matrix of highest probability words and word cloud visualizations. Bold indicates topic is associated with owned partisan issues. Bold-Italics indicates topic is associated with reactive candidate strategy. Model covariates: `dem`, `Male`, `White`, `Incumb`, `totblk`, `educ`, `totmale`, `age_med`, `poverty`, `pop`, `CookPVI`, *and* `ObamaNet`. *High probability words, determined using a topic-word distribution parameter β, are provided. See supplementary materials for explanation of variables.*

Furthermore, Figure 4 reveal topics dedicated to non-policy domains, which either use thematic frames or mobilize action. For example, among the top five most prevalent topics is *Hard Work & Individualism* (25). This topic is associated with words that draw upon themes of traditional work ethic and discuss the ways in which the candidate has embraced them.

Additionally, candidates naturally spend a proportion of their time discussing their back-

grounds such that voters can engage in a favorable evaluation of their competency. The *Education & Service Background* (14) topic enables candidates to detail personal and professional success. Lastly, candidates also devote a significant amount of space to the discussion of *Campaign Endorsements* (30) and the solicitation of *Donations* (20).

Overall, the diversity of topics in the model underscores how candidates use digital media to share personal anecdotes, explain ideological issue positions, provide contextual information, and levy calls to action (Hemphill et al., 2013, 878). It is therefore unsurprising that strategic issue ownership is only one of many tools deployed in candidate communication. We should expect topics to function not only as specifications of ideology, but also as campaign strategies seeking distinct outcomes and effects.

7.2. Strategic Candidate Communication, Issue Ownership, and Topic Selection

Druckman et al. (2010) find that "despite the unique capacity of the Internet to allow candidates to explain their positions on a large number of issues, candidates continue to behave strategically, selecting a few issues [...]" (3). Given the substantive topics found within the corpus of candidate web sites, it is necessary to estimate what factors are associated with their selection.

First, I find statistically significant evidence of a relationship between party and topic selection, in accordance with the broader literature. More importantly, however, I find robust evidence of the effect of candidate race and gender on topic selection. Specifically, minority and female candidates engage in reactive communication strategies at a statistically significant rate, drawing upon topics which work to rectify potentially negative voter assessments caused by bias.

<u>Robust Evidence of Party-Based Issue Ownership</u>

Because historical records of political parties result in issue ownership, and strategic candidates communicate owned issues, candidate party affiliation should determine the subset of issues discussed. Stated differently, the prevalence of owned issues should be associated with party affiliation. The literature suggests that Democrats ought to discuss topics such as compassion, social issues and education. It also suggests that Republicans ought to discuss issues such as taxation, militarism and foreign affairs. To test this, I address topic prevalence as a function of affiliation with the Democratic party. Robust support of these party-based issue ownership hypotheses should

reveal that quintessential party domains would be selected more often by in-party members.

Figure 5, displaying the relationship between party and topic prevalence, shows that Democratic candidates are associated with a statistically significant higher proportion of the *Education & Service Background* (14), *Campaign Endorsements* (30), and *Social Issues* (38). Of note, the *Social Issues* (38) topic has the largest positive effect size, indicating that Democrats are more likely to discuss social issues on their web sites than non-Democrats. In line with the literature on owned issues, Democratic issue engagement includes topics of health, workers rights, and social needs (Petrocik, 1996; Petrocik et al., 2003).

Affiliation with the Democratic party is also associated with a statistically significant lower proportion of the *Obamacare (Against)* (2), *Libertarianism* (11), *States Rights* (16), *Taxes & Programs* (27), and *Religious Constitutionalism* (28) topics. The negative effect sizes suggest both that Democrats are less likely to discuss these topics, and that Republican and third-party candidates are more likely to select these issues. These findings are in line with the literature which suggests that owned Democrat issues center upon compassion and public service and Republican issues address fiscal policy and the law (Hayes, 2005; Petrocik, 1996; Petrocik et al., 2003). Figure 5 also exhibits that the *Obamacare (Against)* (2) topic held a substantial effect size, indicating that Republicans and third-party candidates were more likely to discuss critical opinions of the 2010 Affordable Care Act.

This evidentiary support of party-based issue ownership is in accordance with the broader literature. Candidates, aware of their endowments of issue ownership, take a proactive approach in which they strategically communicate owned issues to their benefit (Hayes, 2005; Iyengar and McGrady, 2007). However, candidates may also be reactive, acting in response to the negative stereotypes and voter assessments linked to their identities. This suggests that candidate race and sex, in generating perceptions of traits and beliefs, may lead candidates to communicate messages that combat any negative effects. Therefore, I move to analyze identity-influenced communication to the broader literature on strategic candidate communication.

Statistically Significant Support of Identity-Influenced Topic Selection

Voters use a candidate's race and gender not only to infer about her beliefs, but also to make inferences about her competency and underlying traits. Because minorities and women face negative

Figure 5: Effect of Party Membership on Issue Topic Selection

Effects of Democratic Affiliation on Topic Selection
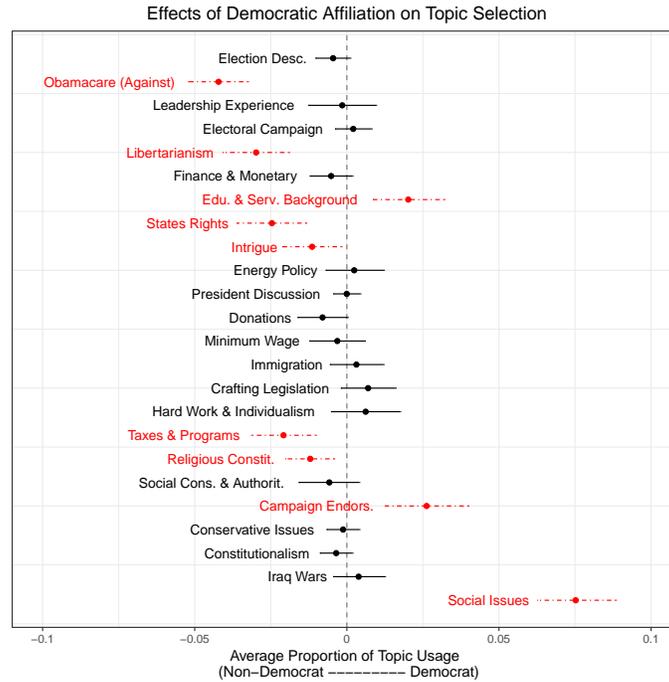
Note: *Difference in topical prevalence given Democratic affiliation with 95% percent confidence intervals. All other variables held at their median. Each point estimate is the estimated difference in a topic proportion when shifting from membership to exclusion. Negative (positive) values indicate topics prevalent among Non-Democrat (Democrat) congressional candidates.*

voter perceptions of intellectual acuity, competency, and preparedness, they have an incentive to manage their self-image. As such, it is expected that candidates select topics which work to diminish any detrimental effects of voter perception. This could manifest itself in women and minorities placing greater emphasis on their qualifications, leadership skills or competency. Alternatively, it may manifest in the form of women and minorities tending to select thematic frames commonly associated with grit, party orthodoxy, and leadership skill—examples include the frames of "individualism" and "work ethic".[13] Thus, use of these non-policy oriented topics and frames should be related to candidate gender and race.

As noted above, and exhibited in Figure 6, Male candidates are associated with statistically significant higher proportion of the *Finance & Monetary Policy* (13) and *Social Conserv. & Authorit.* (29) topics. Male candidates are more likely to engage with owned issues on their campaign web sites, and discuss socially conservative and authoritarian views of the world. Moreover, male

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[13] Jacoby (2014) lists a variety of cultural value positions which include freedom, equality, economic security, morality, individualism, social order, and patriotism. Individualism is defined as the belief that "everyone getting ahead in life on their own, without extra help from government or other groups" (Jacoby, 2014, 759). This perception of individual responsibility and work ethic has been associated with measures of symbolic racism (Kinder and Mendelberg, 2000; Sears and Henry, 2003) and linked to perceptions of affirmative action (Lodge and Taber, 2007).

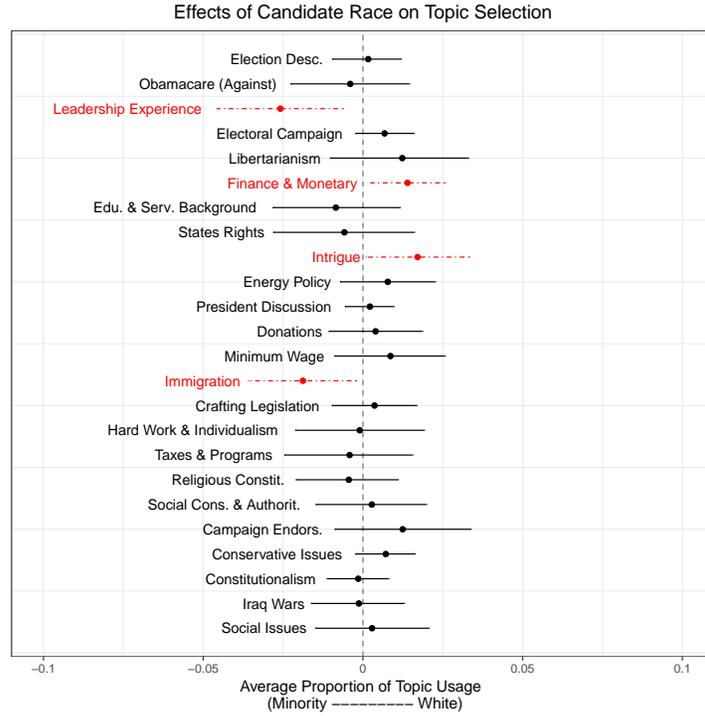Figure 6: Effect of Gender on Issue Topic Selection
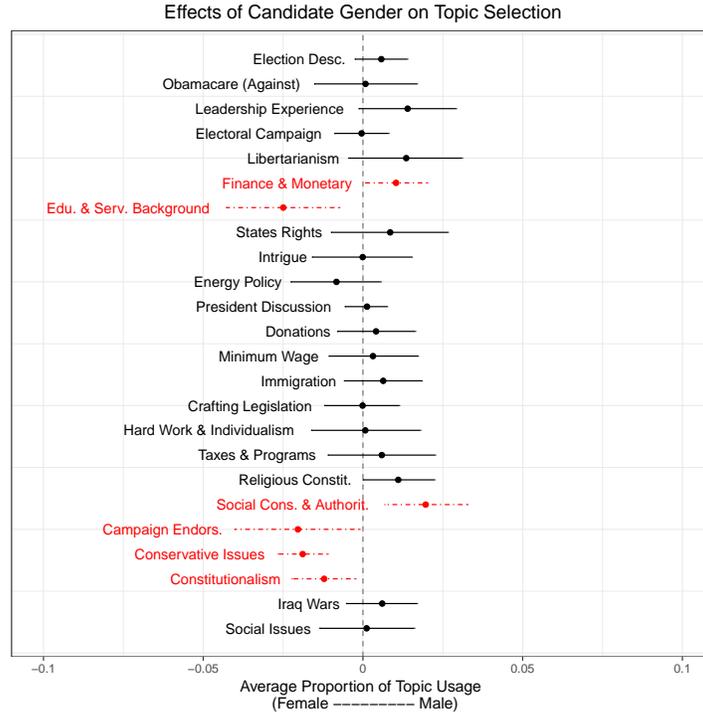
Note: *Difference in topical prevalence given gender with 95% percent confidence intervals. All other variables held at their median. Each point estimate is the estimated difference in a topic proportion when shifting from membership to exclusion. Negative (positive) values indicate topics prevalent among female (male) congressional candidates.*

candidates are associated with a statistically significant lower proportion of the *Education & Service Background* (14), *Campaign Endorsements* (30), *Conservative Issues* (31), and *Constitutionalism* (32) topics. The negative effect size suggests that male candidates are less likely to discuss these topics, whereas women are more likely to select among them. These findings reveal that female candidates are more likely to discuss broad ideological themes and their qualifying background. Furthermore, the two topics with the largest effect sizes— *Education & Service Background* (14) and *Campaign Endorsements* (30)—illuminate how women engage on topics regarding their qualifications, providing support for the hypotheses previously discussed.

Figure 7 shows that White candidates engage on the topics of *Finance & Monetary Policy* (13) and *Intrigue* (17) at a higher proportion than minority candidates. Furthermore, White candidates are associated with statistically significant lower rate of the *Leadership Experience* (3) and *Immigration* (23) topics. That minority candidates are more likely than White candidates to discuss their leadership background, and owned topics such as immigration, comports with the central hypotheses, by providing robust evidence of the use of proactive and reactive strategies.

Figure 7: Effect of Race on Issue Topic Selection

Effects of Candidate Race on Topic Selection

Note: Difference in topical prevalence given race with 95% percent confidence intervals. All other variables held at their median. Each point estimate is the estimated difference in a topic proportion when shifting from membership to exclusion from the category. Negative (positive) values indicate topics prevalent among non-white (white) congressional candidates.

Robust Evidence of Differential Topic Selection when Moderating for Party

The previous section provides some sufficient evidence in support of the hypotheses, suggesting that women and minorities engage with leadership, individualism, hard-work, and issue-owned topics, in order to signal competency to biased voters. These findings hold even when controlling for incumbency, district partisanship, and other moderating variables.[14] However, the effect of candidate gender and candidate race on issue topic selection may be attenuated by party affiliation.

Using Democratic affiliation as a moderating variable in Figure 8, I reassess the prevalence of issue topics by gender. For Democrats, there are few differences between male and female candidates. Male Democrats draw upon the *Taxes & Programs* (27) topic at a statistically significant higher rate. However, they select both the *Campaign Endorsements* (30) and *Social Issues* (38) topics at a statistically significant lower rate. Again, the negative effect size suggests that female Democratic candidates are more likely to engage these frames.

That female Democratic candidates would seek to emphasize their campaign endorsements

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[14]See supplementary materials and appendix for figures detailing the findings of these robustness checks.

with greater prevalence suggests some need to improve perceptions of qualification and competency. This supports my hypotheses by showing that women emphasize their competency and party orthodoxy, in response to biased voter perceptions. The findings also show that Democratic women are more likely to discuss social issues, which aligns with identity-based issue ownership.

Figure 8: Effect of Gender on Issue Topic Selection
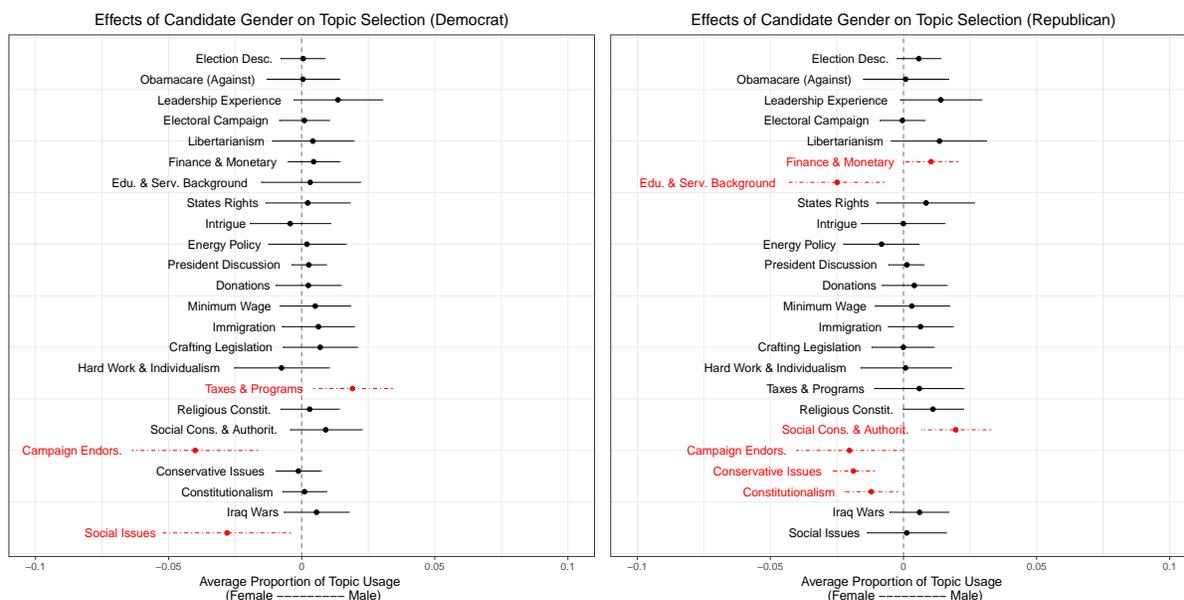
Note: Difference in topical prevalence given gender, & moderated by party affiliation, with 95% percent confidence intervals. All other variables held at their median. Each point estimate is the estimated difference in a topic proportion when shifting from membership to exclusion from the category. Negative (positive) values indicate topics prevalent among female (male) congressional candidates.

Male Republicans are more likely to engage on the *Finance & Monetary* (13) and *Social Conserv. & Authorit.* (29) topics at a statistically significant level. Importantly, Figure 8 also shows that female Republican candidates are associated with a higher prevalence of the *Education & Service Background* (14), *Campaign Endorsements* (30), *Conservative Issues* (31), and *Constitutionalism* (32) topics.

In accordance with the reactive communication strategy discussed in Section 4, women are providing evidence of their qualifications by discussing their endorsements and background, as well as reaffirming their partisan orthodoxy. These outcomes support my hypotheses by exhibiting how women emphasize their competency and their dedication to work ethic.[15]

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[15]Frederick (2009) notes that female Republican candidates are ideologically indistinguishable from their male counterparts. However, King and Matland (2003) find that a hypothetical Republican woman candidate was perceived by Republican voters as less conservative than an identical male Republican candidate, further suggesting that gender

In Figure 9, I again use Democratic affiliation as a moderating variable and I reevaluate the prevalence of issue topics by race. On average, white Democratic candidates discuss the *Taxes & Programs* (27) issue topic more than minority candidates within the same party. However, they are associated with a statistically significant lower proportion of the *Campaign Endorsements* (30) topic. This suggests that minority Democratic candidates are more likely to draw upon these topics. This shows how minority candidates deliver information indicative their competency.

Figure 9: Effect of Race on Issue Topic Selection
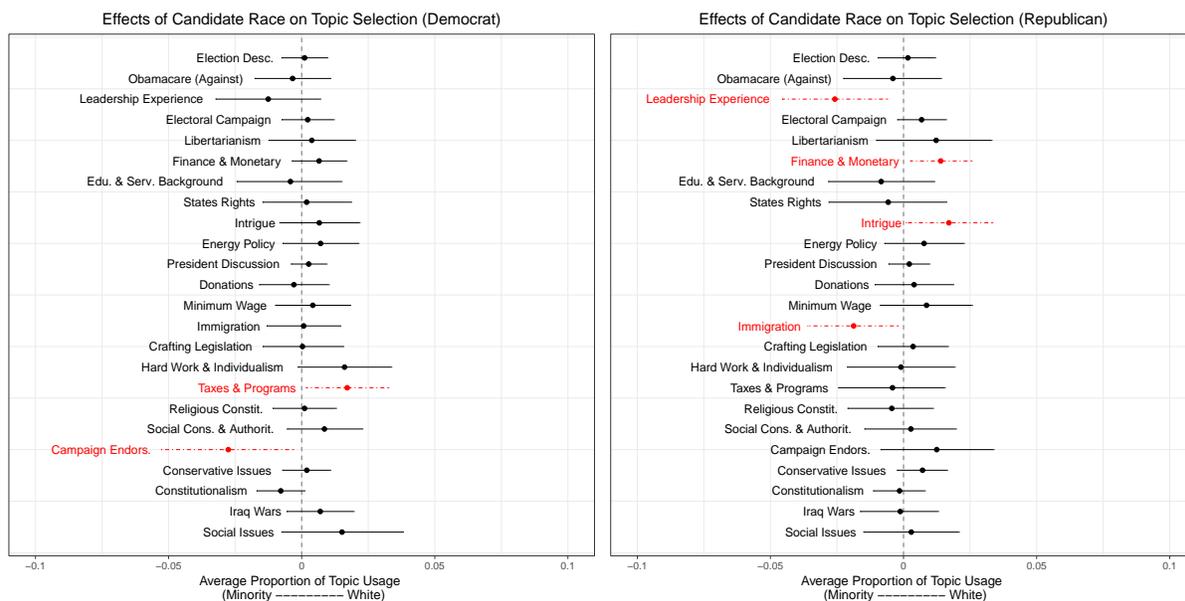
Note: Difference in topical prevalence given race, & moderated by party affiliation, with 95% percent confidence intervals. All other variables held at their median. Each point estimate is the estimated difference in a topic proportion when shifting from membership to exclusion from the category. Negative (positive) values indicate topics prevalent among non-white (white) congressional candidates.

The topic selection among minority Republican candidates reflects the same trend of reactive strategy. White Republicans use the *Finance & Monetary Policy* (13) and *Intrigue* (17) topics more often than minority party members in the text of their campaign web sites. Moreover, I find robust evidence that white Republican candidates utilize the *Leadership Experience* (3) and *Immigration* (23) topics at a lower rate than minority Republican candidates. Hence, minority Republican candidates are more likely to describe their leadership qualifications. Again, this provides statistically significant evidence that bolsters my hypotheses which theorize that minority voters will utilize

stereotypes operate within the parties. This may explain the desire of female Republicans to engage on topics related to conservativism.

reactive strategies of emphasizing competency.

8. Topic Selection Influences Electoral Outcomes

It has been shown that candidate demographics—for example, the race, sex, and incumbency status of a candidate—influence topic selection. Women and racial minority candidates are more likely to select topics which address deficits in voter perceptions, while also drawing upon owned issues. However, it is first necessary to revisit the debate concerning whether women and racial minority candidates are at a disadvantage, electorally. The prevailing literature has argued against the existence of significant gender disparities in electoral outcomes:

> "*Women who run for state and federal office fare just as well as their male counterparts (Fox 2010, Seltzer et al. 1997, Smith & Fox 2001). This is true not only in general elections but also in congressional primaries (Burrell 1992, Lawless & Pearson 2008). Of course, even if we observe no gender disparities in election outcomes, that does not mean the electoral process is as gender neutral as it is commonly described*" (Lawless, 2015, 352)

A straightforward model might test this assertion by examining the relationship between the rate of electoral victory and demographic group status. The results shown in Table 3 present the proportion of winners by demographic group, and reaffirm the arguments found in the canon. This basic confirmation insinuates that there are no discernable differences in electoral outcomes based upon gender or race.

Table 3: Mean Candidate Victory, by Category

Group	Mean	SD
All	0.219	0.413
White	0.216	0.412
Minority	0.233	0.423
Male	0.214	0.410
Female	0.244	0.430
Democrat	0.254	0.435
Non-Democrat	0.201	0.401
Incumbent	0.952	0.214
Challenger	0.068	0.252

Note: The average proportion of general election winners—determined using the 2014 Federal Election Commission results.

Nevertheless, this reaffirmation of the finding that there are no differences in electoral outcomes—examined here as the rate of victory—across demographic groups simply reifies the paradox. How

can race- and sex-based bias exist, but fail to interfere with electoral outcomes? The theoretical premise of this paper suggests that strategic campaign communication may be employed as a tool to negate the detrimental effects of bias. Previously, in Section 7, exploratory text analysis was used to reveal the strategic behaviors of racial minority and female candidates in campaign messaging. More evidence is needed to both determine whether this strategic behavior is a remedy to electoral disadvantage, and to reconcile the paradox between observational and experimental studies on racial bias in elections.

However, beyond an assessment of the strategic communication of women and racial minority candidates, a measurement of the *effectiveness* of their strategies is necessary. Thus far, the degree to which candidate topic selection is associated with a given electoral outcome has not been explored. In the case of racial minority and female candidates, does the likelihood of election victory have a connection to the topics chosen?

To address this question, election results data from the Federal Election Commission was utilized. To examine the effect of topic selection of candidates on election victory, I specified logistic regression models. The dependent variable in each model is the candidate's general election outcome—coded 1 if the candidate won the general election, and 0 if the candidate either lost the general election or failed to get past the primary election stage.

Key to our focus is the effectiveness of the topics previously discussed in Section 7. Given this, the independent variables in the model are the selected logged topic proportions, and control variables[16]. The resulting binomial response logistic regression model can be expressed as follows,

$$\mathbf{X} = \begin{bmatrix} 1 & \mathbf{P} & \mathbf{C} \end{bmatrix}$$

$$Pr\{Y_i = y_i\} = \binom{n_i}{y_i}\pi_i^{y_i}\left(1 - \pi_i\right)^{n_i - y_i}, \ \pi_i = \mathbf{X_i'}\beta$$

where $\mathbf{P}$ is a matrix of logged topic proportions, and $\mathbf{C}$ is a matrix of document level data used as control variables. Control variables include incumbency status, race, gender, party affiliation,

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[16]Control variables include: incumbency status, race, gender, Democratic party affiliation, district total black population, district mean education level, district total male population, district total female population, district total white population, district legal citizen population, district median age, district total impoverished population, district total population, and Cook PVI score.

district demographics, and district partisanship. Here, the topic proportions have been logged transformed to transform the right skewed distributions into one that is more approximately normal[17].

If there are no differences in election victory, one possible explanation may be that the use of strategic candidate communication effectively *offsets* bias. Should we find that the proportions of those topics identified in Section 7 have statistically significant effects on victory, then we gain additional traction with the theory.

The first column of Table 4 shows the effect of topic selection, on election victory. A 2-fold increase in the logged proportion of the *Campaign Endorsements* (30) topic is associated with a change in the odds by a multiplicative factor of $2^\beta = 2^{0.207} = 1.154$. Increasing the logged proportion of the *Crafting Legislation* (24) topic by two fold is associated with a change in the odds by a multiplicative factor of $2^\beta = 2^{0.145} = 1.106$. Lastly, a 2-fold increase in the logged proportion of the *Electoral Campaign* (8) topic is associated with a change in the odds by a multiplicative factor of $2^\beta = 2^{-.323} = 0.799$. All of these results are statistically significant at the 0.01 significance level.

A 2-fold increase in the logged proportion of the *Donations* (20) and *GOTV* (35) topics are associated with a change in the odds by a multiplicative factor of $2^\beta = 2^{0.058} = 0.956$ and $2^\beta = 2^{-0.079} = 0.956$, respectively. These results are statistically significant at the 0.10 significance level.

In sum, the results of the logistic regression model shown in Table 4 show that overall, increasing the logged proportion of the topics related to competency, accomplishment, and campaign resources, is associated with a statistically significant increase in the log odds of election victory. While strategic topic selection is associated with an increase in log odds, neither race nor gender bears an influence on electoral outcomes. These findings fully illuminate the weight of the paradox described in Section 3.3.

When subsetting the data to contain only the female and racial minority candidates who ran for office, the results yield similar intuitions. The results of a logistic regression model containing only female candidates is shown in Column 2 of Table 4, and Column 3 of Table 4 displays the results for only racial minority candidates. In each group, increasing the logged proportion of the selected topics is associated with an increase in the log odds of election victory. For example, for

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[17]These distributions are displayed in Figure **??** of the appendix. The result of the transformation is a log-log logistic regression interpretation in which multiplying X by the log base, *base*, will result in a multiplication of the expected value of Y by $base^{\hat{\beta}}$

the subsets of female and minority candidates, increasing the logged proportion of the *Campaign Endorsements* (30) topic by two fold is associated with an increase in the odds by a multiplicative factor of $2^{\beta} = 2^{0.345} = 1.271$ and $2^{\beta} = 2^{0.416} = 1.334$, respectively.

And yet, among female candidates being white was associated on average with a statistically significant decrease in the log odds of general election victory. Moreover, for racial minority candidates, on average being a male was associated with a statistically significant decrease in the log odds of general election victory. Such a result implores us to question the role of *intersectionality* in campaign strategy–research must consider whether being a minority female bears electoral advantages and disadvantages.

In sum, all of these findings suggest that while generally all candidates are advantaged when they discuss their endorsements and draw upon broad undertones that counter resentment, women and racial minorities particularly benefit from discussion of their competency and world-views. This aligns with experimental findings that suggest that when presented with additional information about a candidate, voters are capable of minimizing the effects of bias (Mo, 2014). Moreover, even in considerable cases of resentment, Karpowitz et al. (2015) found that minority Republican candidates that emphasized individual responsibility held an advantage.

The results also show that minority candidates benefit from the use of these topics to a greater degree than women. All of these results are robust across different specifications of the model, suggesting that drawing upon these highlighted communication strategies may yield significant increases in the log odds of electoral victory. Each topic sends information about the quality, preparedness, and ideological perspective of the candidate that enables voters to overcome their biases. As such, the use of these identified topics reflect the rational behavior of strategic candidates facing deficits and hurdles in valence and voter perceptions.

Table 4: Logistic Regression Results Predicting Candidate Victory

	Dependent variable:		
	General Election Victory		
	Overall	Women	Minorities
	(1)	(2)	(3)
Constant	20.601***	48.152	58.066
	(7.181)	(33.898)	(35.650)
Log_2(Topic: Election Description)	0.076*	0.122	0.361**
	(0.040)	(0.132)	(0.165)
Log_2(Topic: Leadership Experience)	−0.025	−0.165	−0.225
	(0.034)	(0.148)	(0.170)
Log_2(Topic: Electoral Campaign)	−0.323***	−0.193	−0.228
	(0.050)	(0.151)	(0.230)
Log_2(Topic: Edu. & Serv. Background)	0.009	0.036	0.071
	(0.037)	(0.126)	(0.159)
Log_2(Topic: Donations)	0.058*	0.336***	0.378**
	(0.034)	(0.127)	(0.153)
Log_2(Topic: Crafting Legislation)	0.145***	−0.0002	−0.056
	(0.040)	(0.143)	(0.185)
Log_2(Topic: Hard Work & Individualism)	−0.065	−0.360***	−0.100
	(0.044)	(0.127)	(0.176)
Log_2(Topic: Campaign Endors.)	0.207***	0.345**	0.416**
	(0.033)	(0.139)	(0.190)
Log_2(Topic: G.O.T.V.)	−0.079*	−0.319***	−0.345*
	(0.041)	(0.116)	(0.178)
Incumbent	5.363***	8.154***	8.294***
	(0.313)	(1.324)	(1.585)
White	0.084	−1.414*	
	(0.287)	(0.774)	
Male	−0.026		−2.281***
	(0.238)		(0.741)
Democrat	−0.699***	0.509	0.666
	(0.216)	(0.618)	(0.862)
Dist. Tot. Black	−0.021	−0.071	−0.040
	(0.014)	(0.054)	(0.048)
Dist. Tot. Educated	−0.00000	−0.00001	0.00001
	(0.00000)	(0.00002)	(0.00002)
Dist. Tot. Male	−0.472***	−1.027*	−0.941
	(0.132)	(0.597)	(0.576)
Dist. Tot. White	0.020	−0.031	0.0003
	(0.013)	(0.043)	(0.044)
Dist. Tot. Citizens	0.097	0.495*	−0.041
	(0.079)	(0.299)	(0.461)
Dist. Med. Age	−0.056*	−0.005	−0.333
	(0.033)	(0.200)	(0.202)
Dist. Tot. Impoverished	−0.00001	−0.00005	−0.00003
	(0.00001)	(0.00004)	(0.00003)
Dist. Pop	0.00001	0.0001	0.00002
	(0.00001)	(0.00004)	(0.00003)
CookPVI	0.012	−0.006	0.015
	(0.009)	(0.034)	(0.045)
Observations	2,434	390	344
Log Likelihood	−483.462	−59.662	−43.414
Akaike Inf. Crit.	1,012.923	163.324	130.828

Note: *p<0.1; **p<0.05; ***p<0.01

Note: Logistic regression model of general election victory on covariates. Topic proportions—the proportion of the candidate website addressing a given topic—were logged to ensure standardization of the distributions. Given the log transformation of the topic proportions, the β coefficient are interpreted as a change in the log odds by a multiplicative factor of 2^{β}.
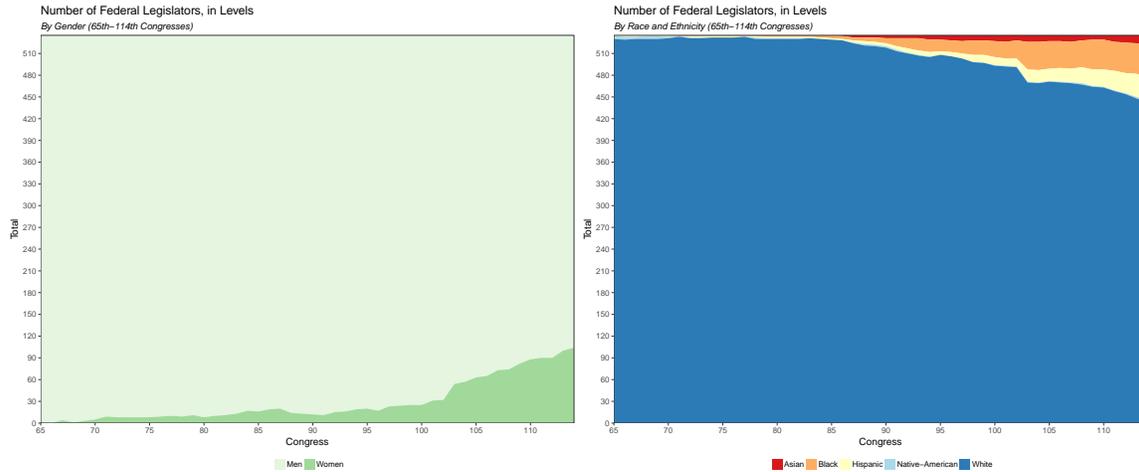
9.   Discussion

These findings represent a significant addition to the literature. Descriptive representation is widely considered socially relevant political aim (Mansbridge, 1999). Legislators with descriptive memberships in disadvantaged groups are an improvement over non-descriptive legislators, as they better speak for minority perspectives in deliberation (Mansbridge, 1999, 635). The direct benefits of reaching, and engaging with, an underrepresented group qua descriptive representation are wide reaching. Female and racial minority representation is associated with increased positivity in attitudes regarding the political system; greater knowledge of, and engagement with, representatives; and a broader sense of legitimacy (Banducci et al., 2004; Karp and Banducci, 2008). The effect is not limited to attitudes, as descriptive representation also may increase direct participatory behavior, such as voting and politicization, among racial minorities (Griffin and Keane, 2006; Rocha et al., 2010; Whitby, 2007). Moreover, descriptive political representation of women and racial minorities is associated with more equitable social policy outcomes (Mendelberg et al., 2013; Preuhs, 2006; Reingold and Smith, 2012).

While the beneficial effects of descriptive representation can be easily enumerated by empirical findings, the progress of electing more women and racial minorities faces difficulty. Nearly eighty percent of the members of Congress are white or are male (Bump, 2015). The numeric underrepresentation of women and racial minorities shown in Figure 10 suggests that it is necessary to investigate both the barriers faced by these candidates.

Unfortunately, the research on gender, race, and political candidacy often results in a seeming paradox. Experimental evidence shows that voters, on average, find men to be more capable candidates and perceive of minorities as less intelligent, poor leaders (Holman et al., 2011; Huddy and Feldman, 2009; Lawless, 2004; Tesler, 2013). Additionally, voters' reliance on stereotypes attributes incorrect ideological positions based on candidate demographic identity (Kathlene, 1994; Lerman and Sadin, 2016; Mcdermott, 1998). In essence, stereotypes about women and racial minorities foment misperceptions and disadvantages (Dolan and Kropf, 2004; Fridkin, 1996; Huddy and Terkildsen, 1993b; Sanbonmatsu, 2002). These collective voter biases are argued to affect the electoral outcomes of candidates. Yet, analysis of electoral outcomes shows that bias towards women and minorities does not present a barrier to holding office (Bullock, 2000; Dolan, 2004; Highton, 2004;

Figure 10: Racial Demographics of Federal Legislators, by Congress and Group

Number of Federal Legislators, in Levels
By Gender (65th–114th Congresses)

Number of Federal Legislators, in Levels
By Race and Ethnicity (65th–114th Congresses)

Men Women

Asian Black Hispanic Native–American White

Note: Total number of Federal congresspersons by demographic identity. Source: Brookings Institution. 2017. Vital Statistics on Congress.

Lawless, 2015). Moreover, other research argues that it is not voter bias, but rather the supply of candidates, that is responsible for the dearth of female and racial minority candidates (Fox and Lawless, 2005; Shah, 2014).

These conflicting findings lead to a perception of mutual exclusivity. How might we resolve the paradox of evidence of voter bias, and findings of equal candidate outcomes? The findings presented in this paper represent a reasonable explanation. While voters do hold attitudes and biases about demographic groups, they likely perceive of candidate identity as a single piece of information to be analyzed and processed (Ditonto et al., 2014). The effects of voters' attitudes regarding gender and race are attenuated by other information (Karl and Ryan, 2014; Mo, 2014). By providing information on their qualifications and partisanship, women and racial minority candidates are may effectively persuade vocters of their competency, thus overcoming bias.

10. Conclusion

I have sought to understand the factors that are capable of influencing candidate communication. By drawing upon a unique new data source to examine strategic candidate behavior and issue ownership, I have been able to illuminate the novel influences of race and gender on topic selection. Structural topic modeling of this data set revealed that race and gender were statistically significant factors in topic prevalence. The findings add increased clarity and support to the broader literature, but importantly address a lacunae regarding the influence of candidate race and gender on strategic

campaigning.

Using a model of 40 topics, I find that candidate race and candidate gender—which voters use as trait heuristics for the evaluation of candidate competency—also determine communication strategy. Specifically, female candidates proactively selected owned issues, while simultaneously reacting to deficits in voter perceptions by discussing their background, endorsements, work ethic, and election. Furthermore, minority candidates also use reactive strategies to counteract biased voter assessments by discussing endorsements, background, work ethic, and fundraising.

My findings have several important implications. First, the use of candidate web sites as a direct data source yields a more comprehensive domain of the issues and topics candidates communicate in their campaigns. Second, the findings not only show that minority and female candidates may differ slightly from their other colleagues on standard issue engagement, but also that they strategically use key topics indicative of compensatory action. Third, these communication strategies provide a possible explanation for why robust evidence of voter race and gender bias (Sanbonmatsu, 2002; Sanbonmatsu and Dolan, 2009; Sigelman et al., 1995) may coexist with limited evidence of diminished electoral outcomes (Bullock, 2000; Highton, 2004; Lawless, 2015). Potential bias can be attenuated by candidate strategy.

Lastly, the findings reveal that these communication strategies have differential impacts on electoral outcomes. Successful topics send specific information regarding candidate quality and that combat the preference for individualism which may underlay racial resentment and modern sexism scales. This confirms that additional information about candidate quality and policy approaches may remedy bias in voter perceptions (Mo, 2014). Descriptions of endorsements and discussions of individualism were found to be positively associated with general election victory. Given this, I find that candidates not only engage in strategic communication, but that they *rationally* engage in this behavior as it increases the odds of electoral success. It is this conclusion that resolves the paradox in the litrature between evidence of voter bias and evidence that voter bias does not affect the electoral outcomes of women and racial minorities.

While this research sheds light on the significance of candidate race and gender in strategic campaign communication, it does not address the intersection of the two. Future work might better address this using similar methods, but focusing on a subset of candidates who span different demographic groups. Moreover, this research does not address the significance of the opponents

race and gender on the strategy selected by the candidate. More work must be done in this area to further elucidate the dynamics of strategic messaging.

Not only ought we investigate variation in communication strategies across candidates, but also we should evaluate how voters respond to these strategies. Experimental manipulation of proactive (strategic-communication driven) and reactive (compensatory action) candidate communication could reveal whether—or under what conditions—voters alter support for, or assessments of, candidates. Additionally, analysis ought to address the effects of these identified candidate frames on voter turnout, registration, and mobilization may also elucidate voter responses. Rigorous text analysis and expanded data from online communication can greatly benefit the future study of ownership in congressional campaigns.

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