

## **Distribution Agreement**

In presenting this thesis as a partial fulfillment of the requirements for a degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis in whole or in part in all forms of media, now or hereafter known, including display on the World Wide Web. I understand that I may select some access restrictions as part of the online submission of this thesis. I retain all ownership rights to the copyright of the thesis. I also retain the right to use in future works (such as articles or books) all or part of this thesis.

Rylee Sommers-Flanagan

April 18, 2011

Do Rural Women Run? Factors Determining Where Women Represent

by

Rylee K. Sommers-Flanagan

Beth A. Reingold  
Adviser

Department of Political Science

Beth A. Reingold  
Adviser

Tracy Scott  
Committee Member

Thomas Walker  
Committee Member

April 18, 2011

Do Rural Women Run? Factors Determining Where Women Represent

By

Rylee K. Sommers-Flanagan

Beth A. Reingold

Adviser

An abstract of  
a thesis submitted to the Faculty of Emory College of Arts and Sciences  
of Emory University in partial fulfillment  
of the requirements of the degree of  
Bachelor of Arts with Honors

Department of Political Science

2011

## Abstract

### Do Rural Women Run? Factors Determining Where Women Represent By Rylee K. Sommers-Flanagan

Although current political science literature finds that women in the United States are more likely to run and attain political office in state legislatures – and other political offices – when they run in areas with particular demographic characteristics, most of that literature has maintained a research focus in primarily urban areas. Most researchers have simply concluded that rural areas have lower levels of these demographic features, such as high levels of diversity and high proportions of college graduates, and therefore elect fewer women to varying levels of office. However, this inquiry demonstrates that a focus on rural areas themselves is actually merited and necessary because not all of the important demographic features at play in urban areas are equally important to proportions of female representation in rural areas. By including all 49 bicameral state legislature’s districts in this analysis, we are able to isolate differences between urban and rural settings, as well as differences that arise regionally, to support the notion that the conclusions of the existing literature are not generalizable to all areas of the United States. Although interpretation is sometimes difficult due to a lack of cultural and political ideology data at the district level, there is substantial evidence to suggest that differences arise in relation to population density and region, and that these differences have been too long overlooked.

Do Rural Women Run? Factors Determining Where Women Represent

By

Rylee K. Sommers-Flanagan

Beth A. Reingold

Adviser

A thesis submitted to the Faculty of Emory College of Arts and Sciences  
of Emory University in partial fulfillment  
of the requirements of the degree of  
Bachelor of Arts with Honors  
Department of Political Science

2011

## Table of Contents

SIGNIFICANCE OF WOMEN IN OFFICE.....	1
QUESTIONS.....	3
REVIEW OF THE LITERATURE; WHERE WOMEN RUN.....	5
DEMOGRAPHICS.....	5
GENDER AS A ROLE .....	11
RECRUITMENT, ELIGIBILITY AND THE WORKFORCE.....	14
INTERNATIONAL ECONOMICS.....	17
HYPOTHESES AND RESEARCH DESIGN.....	21
HYPOTHESES.....	21
RESEARCH DESIGN.....	26
DATA.....	26
URBANIZATION.....	28
ANALYSIS.....	30
RESULTS AND INTERPRETATION.....	33
CONCLUSIONS AND REFLECTIONS.....	67
WORKS CITED.....	71
APPENDIX A.....	75
APPENDIX B.....	77
APPENDIX C.....	79
APPENDIX D.....	80
TABLES AND GRAPHS	
1. GRAPH 1 (FEMALE BY PERCENT URBAN).....	33
2. TABLE 1, BIVARIATE LOGISTIC REGRESSION WITH VARIABLES EXPECTED TO INFLUENCE THE LIKELIHOOD THAT A WOMAN WILL HOLD A SEAT REPRESENTING A GIVEN DISTRICT.....	34
3. GRAPH 2 (FEMALE BY PERCENT FARM).....	36
4. GRAPH 3 (FEMALE BY PERCENT MINING).....	37
5. GRAPH 4 (FEMALE BY PERCENT FEMALE EMPLOYMENT).....	38
6. GRAPH 5 (FEMALE BY PERCENT FEMALE PROFESSIONALS).....	38
7. GRAPH 6 (FEMALE BY INCOME).....	39
8. GRAPH 7 (FEMALE BY PERCENT COLLEGE-EDUCATED).....	40
9. GRAPH 8 (FEMALE BY IDEOLOGY).....	40
10. TABLE 2A, BIVARIATE ANALYSIS BY CROSSTAB WITH VARIABLES EXPECTED TO INFLUENCE THE LIKELIHOOD THAT A WOMAN WILL HOLD A SEAT REPRESENTING A GIVEN DISTRICT.....	42
11. TABLE 2B, (TABLE 2A CONTINUED).....	43

12. TABLE 3A, PAIR LIST CORRELATION OF ALL VARIABLES.....	45
13. TABLE 3B, (TABLE 3A CONTINUED).....	46
14. TABLE 4, MULTIVARIATE LOGISTIC REGRESSION WITH VARIABLES EXPECTED TO INFLUENCE THE LIKELIHOOD THAT A WOMAN WILL HOLD A SEAT REPRESENTING A GIVEN DISTRICT.....	48
15. TABLE 5, MULTIVARIATE ANALYSIS IN NORTH ATLANTIC REGION.....	50
16. TABLE 6, MULTIVARIATE ANALYSIS IN NORTH CENTRAL REGION.....	51
17. TABLE 7, MULTIVARIATE ANALYSIS IN SOUTH ATLANTIC REGION.....	52
18. TABLE 8, MULTIVARIATE ANALYSIS IN SOUTH CENTRAL REGION.....	54
19. TABLE 9, MULTIVARIATE ANALYSIS IN WESTERN REGION.....	55
20. TABLE 10, BIVARIATE ANALYSIS BY REGION.....	56
21. TABLE 11, MULTIVARIATE ANALYSIS OF MOST RURAL DISTRICTS.....	58
22. TABLE 12, MULTIVARIATE ANALYSIS OF LEAST RURAL AREAS.....	59
23. TABLE 13, MULTIVARIATE ANALYSIS OF MOST URBAN DISTRICTS.....	61
24. TABLE 14, MULTIVARIATE ANALYSIS OF LEAST URBAN DISTRICTS.....	62
25. TABLE 15, COMPARISON OF ASSOCIATIVE MEASURES AND STATISTICAL MEASURES ACROSS MULTIVARIATE ANALYSES OF THE RURAL-URBAN CONTINUUM.....	63

Even though women and men who run for political office are equally likely to succeed in attaining that office, *ceteris paribus* (Darcy, Welch, and Clark 1994; Carroll and Sanbonmatsu 2009), women continue to run substantially less often than do men. As a result, in both the United States Senate and the House, women make up only 17% of the total senators and representatives. In the fifty state legislatures, women constitute roughly 23% of the representatives, and seven of the fifty governors are women. Over the last fifteen years, women's representation has increased by less than 4% (National Conference of State Legislatures 2011). Interestingly, the percentage of female representatives in any particular state legislature actually ranges widely, dipping as low as 9.4% in South Carolina and rising as high as 39% in Colorado even while the national average percentage of women in state legislatures remains between 22% and 24%, as it has for the last decade (National Conference of State Legislatures 2011).

### **Significance of Women in Office:**

Understanding this underrepresentation of women and variability of female representation across the United States is important for a number of reasons. First and foremost, unless our electoral institutions effectively create a government that accurately represents the diversity of the populace, our elected officials fail to comprise a legitimate representational government (Darcy, Welch, and Clark 1994, 17; Arceneaux 2001; Burns, Schlozman and Verba 2001). Over a century ago, John Stuart Mill noted that allowing and encouraging more segments of the population to run for office leads to increased competition for office, which in turn leads to more capable office-holders and greater societal benefits (Darcy, Welch, and Clark 1994, 17; Mansbridge 1999). Legitimate representational government is useful to the groups represented, and at least in some ways, functions to enhance substantive representation. Mansbridge (1999)



describes these descriptive representatives as “individuals who in their own backgrounds mirror some of the more frequent experiences and outward manifestations of belonging to [a] group” (628). She also demonstrates that Mill’s intuition is at least somewhat on point; that is to say, descriptive representation does in fact tend to promote substantive representation of a disadvantaged group’s particular interests, while also promoting what she describes as “goods unrelated to substantive representation” such as a “social meaning of ‘ability to rule’ for members of a group” whose leadership abilities have been doubted in the past (Mansbridge 1999, 628). In other words, governing bodies that roughly reflect the population they represent will not only have the advantage of many representative points of view; they will also legitimize diversity publicly and demonstrate that leadership abilities are not limited to members of particular groups (Darcy, Welch and Clark 1994, 17).

Literature focusing on American women in politics provides further evidence for the importance of understanding the underrepresentation of women and, relatedly, the need to change the status quo. Women have experience in different spheres than do men, and thus bring separate and important understandings to the political and legislative table (Darcy, Welch, and Clark 1994, 16; Mansbridge 1999). Despite the possibility that this reasoning could lead to the faulty conclusion that men and women are better relegated to separate spheres with rigid and particular roles, it is helpful to acknowledge that the sexes often have different experiences and areas of expertise. Darcy, Welch, and Clark (1994) also acknowledge the ideological advantage argument, originally regarding the idea that voting women would increase the representation of more ‘desirable’ social elements in the electorate. This argument has since evolved to assert that “women are more reliable feminists than men” and that feminist perspectives are a necessary component in new policy innovations (15).

Ultimately, equal representation for women is a question of justice. Within a democracy, all individuals should be allowed and even empowered to make policy and ensure their equal standing in the eyes of government. The gender gap in active political participation is itself important to understand, for it relates to issues of inequality buried deeper within American society (Burns, Schlozman and Verba 2001). Naturally then, academics and activists alike find themselves interested in this puzzling issue of women's descriptive underrepresentation.

### **Questions:**

Many scholars of American politics have made efforts to understand why women are underrepresented and they have described a variety of contributing factors and offered many explanations (Jones and Starr 1979; Jones and Nelson 1981; Darcy, Welch and Clark 1994; Arceneaux 2001; Burns, Schlozman and Verba 2001; Palmer and Simon 2008; Sanbonmatsu 2006c; Fox and Lawless 2010). Primary among the contributing factors is the fact that women run less often than men. However, the question of why women run less often has not been completely answered. There is clearly a need for further inquiry into specific questions about when, where and why women run for and attain political office when they do.

Much of the relevant scholarship suggests that 'place' matters in the election of women. For instance, current literature suggests that urban locations are more amenable to female candidates than rural ones (Jones and Starr 1979; Palmer and Simon 2008; Arceneaux 2001; Hogan 2001; Norrander and Wilcox 1998). However, few studies have focused explicitly on rural women's choice to run for office. Thus, this research project will explore the following questions:

1. Are rural districts in fact less likely to be represented by women or to be less woman-friendly?

A.) If so, is this always the case?

2. Why or why not?

A.) Do rural districts have lower/comparable/higher “levels” of other factors thought to promote women’s election to public office (e.g. few women in the professional labor force, lower levels of education, or more conservative values)?

B.) Do other factors that are thought to promote or inhibit women’s representation – such as relatively high levels of education – have different effects in rural districts (as compared with urban districts)?

Also, there is reason to believe that political economies may have an effect on women’s representation in other parts of the world (Horton 1999; Moon 2002; Baslevent and Onaran 2004; Ross 2008), and women’s proportional presence in the labor force has been discussed by scholars of American politics as well (Burns et al. 2001, 255; Rule 1990; Schlozman, Burns and Verba 1999). This, as well as my own exposure to the study of political economies in developing countries, leads me to ask:

3. In particular, is decreased women’s representation in rural areas correlated with the presence of certain types of labor forces that are less friendly to women (e.g. mining and/or agriculture)?

Very little recent research exists that expressly investigates rural districts. However, scholars have previously considered rurality as a plausibly unique context in which women run for and are elected to political office (E. Werner 1968; Jones and Starr 1979; Jones and Nelson 1981). Exploring the effects of urbanization purposely in modern times with new and more

complete information about the fifty states may reveal interconnections between variables that were previously overlooked, or it may point scholars in new directions for possible further study.

In addition, exploring the relationship between natural resource dependent economies and the presence of female representatives at the district level may facilitate collaboration across fields within political science. It may also shed new light on later trends in the political economy of development, by focusing on economies within the United States.

## **Review of the Literature:**

### **Where Women Run**

The purpose of this review is to identify the explanatory variables to be included in this research. Most importantly, the goal is to increase our understanding as to why the number of women elected to public office is low, why that number has failed to rise notably in recent decades, and why the proportion and number of elected women varies widely across states and districts.

### **Demographics**

Over the years, scholars have identified very specific “demographic, political and physical conditions,” that affect where women run and win (Ondercin and Welch 2009, 597). The current consensus is that women tend to be elected in greater numbers in districts that have small geographic size, greater urbanization, Northern location, and relatively higher levels of education and income (Ondercin and Welch 2009; Welch and Karnig 1979, 481; Jones and Starr 1979; Hogan 2001; Palmer and Simon 2008; Smith, Reingold and Owens forthcoming). This particular configuration of factors has not always been predictive. As E. Werner (1968) points out, in state legislative sessions of 1963 and 1964, higher percentages of female candidates were

present in areas with lesser degrees of urbanization and industrialization (43). In fact, she predicted that the “consequences of reapportionment...while lessening the impact of the rural vote” would likely reduce female representation in at least some state legislatures (E. Werner 1968, 45). That prediction proved accurate in at least some circumstances, namely Vermont and Connecticut (Nechemias 1987, 131). Modern scholars do mention E. Werner (1968) in connection with many of her findings, but generally spend little time or space exploring the change in female representation in rural areas (Jones and Nelson 1981; Nechemias 1987; Darcy, Welch and Clark 1994; B. Werner 1998; Hogan 2001; Carroll 2008).

Scholars have empirically verified that women are able to run for and gain elected political office in different places with varying degrees of ease (Jones and Starr 1979; B. Werner 1998; Norrander and Wilcox 1998; Arceneaux 2001; Hogan 2001; DeLeon and Naff 2003), even finding that if a woman has been elected or appointed to office in the past in a given state, more women are likely to be elected as representatives in that state in the future (Merritt 1977; Rule 1990; Burns 2008), which might suggest that political cultures evolve after the ice has been broken, or at least that women are more likely to run when they have been witness to other women running (Dolan 2008, 125).

Even though fewer studies have been dedicated to isolating urban and rural areas for the purpose of intra and inter comparison, greater urbanization is often cited as a significant variable and many scholars claim that female candidates run more often and more successfully in urban areas than in rural ones (Ondercin and Welch 2009, 597; Welch and Karnig 1979, 481; Jones and Starr 1979; Hogan 2001; Carbet 2003; Palmer and Simon 2008). In some ways, this is not particularly surprising because urbanization is considered a component of high levels of socio-economic development (Jones and Nelson 1981; Nechemias 1987), which has been associated

with high levels of female legislators. Scholars theorize this is due in part to a fundamental relationship between income and education, and the relationship between education, “nontraditional role orientations” and feminism (Nechemias 1987, 134). Even so, Hogan (2001) notes that although “level of education and size of the minority population are clearly important factors,” there are still questions about how “these demographic features actually influence the election of women legislators” (20). Ondercin and Welch (2009) also point out that many of the same socio-economic characteristics that are friendly to women are also friendly to Democrats, which suggests that women-friendly districts are more friendly to Democratic rather than Republican candidates and not to women per se (598).

Scholars frequently include a measure of urbanization when accounting for socio-economic development, or with a sense that the rural-urban divide is itself significant in the election of female representatives (Arceneaux 2001; Hogan 2001), but when levels of urbanization are analyzed separately from the rest of the socio-economic package at varying levels of analysis (e.g. district or state) or according to different definitions of what qualifies as urban, and in direct conjunction with levels of female representation, the resulting relationship is actually mixed (Nechemias 1987; Hogan 2001). In one of the few works that focuses explicitly on the rural-urban question, Jones and Starr (1979) studied Oregon and found that rural areas tended to be more conservative and generally less conducive to female candidates. While this is a good specific case, E. Werner’s (1968) findings are not the only example to refute it as a generalization.

Historically, it was the more rural states of the American West that led the way for women’s suffrage, and Montana sent the first woman ever to the national legislature (Anderson 1997; Palmer and Simon 2008). Even now, in Kansas and New Mexico respectively, women

make up 27.9% and 28.6% of the representatives in the state legislatures, as compared with the national average of female representation at 23.4% (National Conference of State Legislatures 2011). It seems improbable that all rural locations are actually less likely to elect women to public office than all urban locations – and some studies have actually failed to find a correlation between high levels of urbanization and increased numbers of female representatives (Nechemias 1987; Hogan 2001). In other words, urbanization does not always bring together whichever factors are actually causally related to women’s representation. Scholars are not certain why certain demographic variables – “proportion urban, relative median income, percentage of college graduates, proportion of African Americans, proportion of Hispanics, and proportion of foreign-born residents” – are correlated with high levels of women’s representation (Ondercin and Welch 2009, 597; Palmer and Simon 2006). In the case of a variable like ‘proportion urban,’ we have reason to ask whether its relationship with women’s representation is merely spurious, or simply an indicator that some other variable, present in some (or even most) urbanized areas exists and is impacting the likelihood that women will be elected to office.

Just as scholars have found Northern states to be more female candidate friendly than Southern states (E. Werner 1968; Darcy, Welch and Clark 1994), there is evidence that the effects of urbanization and rurality indeed vary among regions. More recently, B. Werner (1998) studied districts in four states (Kentucky, Missouri, Pennsylvania and Washington) and demonstrated that, within those four states, urbanization does indeed have a positive impact on the prevalence of women’s candidacy. It is important to note that part of his definition of urbanization relied on proximity to a capitol, which is somewhat different than a basic standard of population density. He also suggests that data aggregated from local conditions (e.g. urbanization) to the state level may lead to “error through ecological fallacy” (B. Werner 1998,

82). While it may be sensible to examine the relationship between urbanization and geographic location, any analysis must necessarily include as many district level variables as possible, to help isolate and examine the particular impacts of local demographic variants.

Other variables have been shown to correlate with higher levels of female office holders. For instance, education levels – both for the female population in a district and for the general population – have been widely tested and positively correlated with higher levels of female officeholders (Welch and Karnig 1979; Jones and Nelson 1981; Hogan 2001; Fox and Lawless 2010). Nechemias (1987) suggests that this relationship is “a by-product of the women’s movement” and that over time education became “tied to nontraditional role orientations and to feminism” (134).

Similarly, the variable of Northern location is rooted in Elazar’s (1966) fundamental theory about the role of place in politics. According to Elazar (1966) and others, politics has very much to do with geographic location, its given political culture, and how that ultimately relates to the receptivity towards and success of female candidates (B. Werner 1998; Arceneaux 2001; Palmer and Simon 2008). Elazar (1966) coined this concept ‘dominant political culture’ and defined three separate political subcultures within the United States: traditionalistic, moralistic and individualistic.

In the most basic sense, individualistic political culture “emphasizes the centrality of private concerns” and envisions government as minimalist and “strictly utilitarian” (Elazar 1966, 86). Logically, individualistic political culture has little interest in who government representatives are, so long as they are few and implement minimalist policies.

Traditionalistic political culture is rooted in a “paternalistic and elitist conception” that accepts hierarchies as natural, and expects government to be authoritative but limited (Elazar



1966, 93). Diamond (1977) and others suggest that because of this emphasis, traditionalistic political culture is the least friendly toward women (Rule 1990; Arceneaux 2002, 147). In addition, traditional culture is viewed generally as more conservative, and the value it places on “an established elite” makes incumbency all the more powerful (Elazar 1966, 93), and constitutes a disadvantage for women because fewer women than men are incumbents.

Lastly, moralistic political culture structures itself around the idea that political life should promote the public good, and “individualism is tempered by a general commitment to utilizing communal...power” for good (Elazar 1966, 90). Moralistic cultures tend to be more liberal, and therefore more women-friendly (Rule 1990; Arceneaux 2001). Specifically, Rule (1990) points out that although women were “recruited in every political culture...the highest increases [in recruitment] was limited primarily to the moralistic states” (443). At the same time, the relationship between levels of female representation and states with individualistic cultures does not appear to be significant, while traditionalistic cultures appeared to have a negative relationship with female candidacy and office-holding (Rule 1990, 443).

The application of Elazar’s (1966) typology demonstrates that political cultures within regions, states and even districts can contribute to differences in their choice of representation. As Arceneaux (2001) points out, political culture can inform the structure of a political system to welcome or deter women from running for and attaining political office.

### **Gender as a Role**

In addition to this basic idea of political culture, Arceneaux (2001) has introduced a new interpretation that more precisely defines which factors impact the openness toward female candidates within a given area. He breaks it down into “three dimensions of state attitudinal

characteristics—political culture, ideology, and gender-role attitudes” (144). These dimensions can help in determining whether women will be welcomed to run for and gain public office not only in a particular state, but even within particular districts. Many scholars have tested ideology at the state level, finding that an ideological spectrum from more conservative states to more liberal ideologies exists (Erikson, Wright and McIver 1993; Berry et al 1998). Others note that conservative ideologies are less women-friendly while more liberal ideologies are more women-friendly (Darcy, Welch, and Clark 1994; Arceneaux 2001; Palmer and Simon 2008).

Although placing this idea of gender-role associations and the historical role of women in politics outside of political culture and ideology is relatively new, scholars have long tried to identify it as an important and varying reality among states and districts. The literature asserts with force that gender role associations do function to deter women from running for and gaining public office (Clarke, Staeheli, and Brunell 1995, 208; Dolan 2008, 115; Fisher 1947; Fox and Lawless 2004; Burns 2008). While women have been present in politics throughout history, that presence has been expressed primarily in work for and around men. Women have tended to organize special community-based initiatives and volunteer for local political work, and have mostly avoided stations of power (Fisher 1947; Jones and Nelson 1981; Burns 2008; Palmer and Simon 2008). Specifically, women have not been historically active as elected representatives or in highly visible leadership positions (Darcy, Welch, and Clark 1994).

As Burns et al. (2001) note, this “long, cumulative pattern of gender-differentiated experiences in the principal social institutions of every day life,” gives way to gender role associations that have delineated political work as primarily masculine (3; Jones and Nelson 1981). Arceneaux (2001) concurs, but also indicates that political culture and ideology variables have acted as stand-ins for the more focused gender-role attitudes that impact women’s

candidacy. “Ideology,” as it is usually conceived and measured (Erikson, Wright and McIver 1993; Berry et al 1998), is less oriented toward a set of feelings toward women and their roles and more toward general political orientations. “Culture,” as in Elazar (1966), he points out, does not directly inform gender role attitudes but acts instead as the framework within which a political system is created that may be more or less friendly to women (Arceneaux 2001; 147). He acknowledges Diamond (1977) as well, who identified traditionalistic cultures as valuing more hierarchical and elitist structures, within which women tend to run for an attain political office less often (Arceneaux 2001, 147; Welch and Karnig 1979; Jones and Nelson 1981).

Unlike the more structural political culture variable and the more generalized ideology variable, Arceneaux (2001) finds that gender-role associations have to do with widespread beliefs about which jobs women can appropriately do and within that, whether a political career is considered acceptable (147; Jones and Nelson 1981). Given the context and the widespread findings, it is not especially surprising that women running for and attaining political office are considered nontraditional or somehow exceptional.

However, gender-role associations are not the only place-based variable to impact the prevalence of female candidacy. Scholars refer to another set of these variables as “structural barriers” (Fox and Lawless 2010, 311) or “opportunity structures” (Ondercin and Welch 2009, 595). Among these structural explanations are candidate incumbency, electoral structures, and the “partisan context of the race,” all of which have been empirically demonstrated to exert influence over elections and their outcomes (Ondercin and Welch 2009, 595; Darcy, Welch and Clark 1994; B. Werner 1998). Incumbents tend to have an advantage over challengers and more women tend to run and win political office in multi-member districts than in single-member districts (Darcy, Welch, and Clark 1985; Arceneaux 2001; Dolan 2008; Fox and Lawless 2010).

Since there are more male politicians than female politicians in the United States, it follows that there are more male incumbents than female incumbents, and therefore the effects of incumbency advantage men (B. Werner 1998; Palmer and Simon 2008). It may not be immediately obvious how incumbency and district type are place-based variables, yet as Palmer and Simon (2008) point out, open seats “are rare, and...not all open seats are equally as likely to elect a women (sic)” (51). In other words, although incumbency applies advantage across the United States, the disadvantage it presents to women in particular depends on the location of the district and many of its demographic features. Additionally, term limits may increase turnover rates and decrease the prevalence of incumbency, ultimately “reducing the benefits gained from experience,” (Squire 2007, 215), which may constitute an advantage for female candidates.

Some scholars suggest that voters feel more comfortable voting for a man and a woman together, rather than only for a woman. In other words, multimember districts let voters feel more comfortable voting for women (Arceneaux 2001, 145; Welch and Karnig 1979; Darcy, Welch and Clark 1985; Rule 1990; Palmer and Simon 2008; Fox and Lawless 2010). In the United States, single-member districts are much more common than are multi-member districts, and therefore constitute another advantage for male candidates.

Lastly, the degree to which a legislature is professionalized constitutes an important factor in understanding whether women run for and attain political office (Diamond 1977; Squire 2007). Higher legislative salaries may attract more competition for a seat, which can be a detractor for women generally, who tend to have fewer resources (Welch and Karnig 1979; Jones and Nelson 1981; Nechemias 1987; Arceneaux 2001).

### **Recruitment, Eligibility, and the Workforce**

Beyond the variables noted thus far, scholars have also identified the candidate recruitment practices by major political parties as well as the presence of women's organizations within a community as being especially impactful for female candidates (Fox and Lawless 2004; Sanbonmatsu 2006c; Palmer and Simon 2008). These variables are interconnected and also relate to eligibility pools and the percent of women in a community's workforce.

Although political parties tend to discriminate against female candidates in their recruitment processes, women who eventually do run for office are much more likely to have been recruited than not (Clarke, Staeheli, and Brunell 1995; Sanbonmatsu 2002; Carroll and Sanbonmatsu 2009; Fox and Lawless 2010). In fact, even "highly qualified and politically well-connected women from both major political parties are less likely than similarly situated men to be recruited to run for public office by all types of political actors" (Fox and Lawless 2010, 311). Simultaneously and unfortunately, the literature asserts that women are much less likely than men to be "self-starters" (Carroll 2005; Ridge 2009; Carroll and Sanbonmatsu 2009).

Many researchers suggest that women's political groups can strengthen women's descriptive representation, but they also note that the relationship is not always clearly positive (Welch and Karnig 1979; Clarke, Staeheli, and Brunell 1995, 207; Fox and Lawless 2004; Smith, Reingold, and Owens forthcoming). Women's organizations may range in purpose; some may be nonpolitical, or dedicated to service, which might obscure their significance (Clarke, Staeheli and Brunell 1995, 206). Some women's organizations may be political and focus on particular issues, while others may be more generally dedicated to promoting women's candidacy without regard to issues or party affiliation (Fox and Lawless 2010). Rule (1990) makes the point that "an important base of women's organizations has been women in the workforce and professional

women,” which is especially important later in this discussion, but also worth noting at this point (440).

In part because women are less likely than men to be recruited by a “party leader, elected official, or political activist,” all of whom constitute political gatekeepers (Fox and Lawless 2010, 314), women’s organizations are usually supporting candidates who would not otherwise be recruited by parties or generally affiliated organizations. The lack of traditional recruitment may be somewhat explained by a perception that women have less available time due to family responsibilities in addition to workplace responsibilities, or simply by women’s relative absence in the workforce, especially in highly paid leadership positions (Schlozman, Burns and Verba 1999; Fox and Lawless 2010). Fox and Lawless (2010), find that “a woman who has contact with one of these [women’s] organizations is more likely than the average man in the candidate eligibility pool to be recruited” (317). Obviously, this implies that women’s organizations have sizeable and noteworthy impact at least some of the time.

Fox and Lawless (2010) find that solving this candidate recruitment issue is central to “closing the gender gap in political ambition” and they acknowledge, along with many other scholars, that “gender differences in the pipeline professions,” also constitute a barrier to female recruitment (311; Schlozman, Burns and Verba 1999; Fox and Lawless 2004, Sanbonmatsu 2006a). Pipeline professions are those professions that historically have tended to precede political candidacies, possibly providing legitimacy to candidates’ claims of experience. The pipeline includes especially law, business, education and politics – which are the four professions most likely to precede congressional careers (Lawless and Fox 2005, 26). Yet, Lawless and Fox (2005) find that even with proportionate increases of women in pipeline

professions, the effects in the political arena are likely at best to be incremental (28; Fox and Lawless 2004).

The pipeline is conceptually similar to Sanbonmatsu's "social eligibility pool," which is presented as a common and powerful explanation of women's underrepresentation, especially because "gender differences in occupational background are believed to pose a substantial obstacle to increasing the presence of women in public office" (2006a, 387; Fox and Lawless 2010). That is not to say, however, that no progress has been made as women increase their numbers in eligibility pools. Rather, scholars note "the percentage of women in the labor force and the percentage of women lawyers are usually positively correlated with the presence of women state legislators" (Sanbonmatsu 2006a, 388; Norrander and Wilcox 1998; Schlozman, Burns and Verba 1999). Even more generally speaking, where women simply make up a greater proportion of the labor force and professional sphere, they are more likely to run for and attain public office (Smith, Reingold, and Owens forthcoming; Arceneaux 2001; Sanbonmatsu 2002).

Specific occupations may increase the likelihood that women will run for and attain political office, but more research is needed to understand precisely how women qualify themselves for the social eligibility pools that funnel into the political realm (Sanbonmatsu 2006a; Darcy, Welch, and Clark 1994; Niven 1998). To confound the issue even further, research also indicates that even as women increase their presence in occupations that tend to serve as gateways to political office (the pipeline professions), they are still less likely than men to run for and attain political office (Fox and Lawless 2004; Carroll 2005; Sanbonmatsu 2006a). It is also true that professions historically dominated by woman have not served as effective gateways to political office in the same way that "prestigious male occupations" have (Darcy, Welch, and Clark 1994, 112; Sanbonmatsu 2006a). Some of the remaining questions

notwithstanding, it does seem likely that, within any particular district, an increased proportion of women in sectors of the work force traditionally dominated by men may well be associated with an increase in the frequency with which a woman holds that district's seat (Rule 1990; Schlozman, Burns and Verba 1999; Hogan 2001).

### **International Economics**

Moving somewhat outside of American politics and into the realm of international studies and political economy, it is easy to find scholars who have come to similar conclusions about the significance of women's presence in the labor force (Horton 1999; Ross 2008). Some have begun exploring how particular sectors that are more or less inclusive of women tend to have an effect on female political representation (Moon 2002). Although the parallels between countrywide phenomena and phenomena that are limited to sub-national units may seem less obvious, there is indeed room for comparison. Ross (2008) argues that natural resource rents, particularly oil rents, play a significant role in decreasing female participation in the labor force and, as a result, decreasing women's descriptive political representation. This is primarily due to the fact that oil and mineral production, and possibly dependence on other natural resources, tend to encourage a market structure that is less conducive to women's participation in the labor force and representation in the political arena (Ross 2008, 2-5).

Whereas a flexible and complex labor market paired with openness to the world economy tend to facilitate increases in female employment through an emphasis on the manufacturing sector, sectors that are not manufacturing-oriented and do not produce tradable goods tend not to be so amenable to women (Baslevent and Onaran 2004, 1376; Ross 2008). As a result, when an economy in a particular area, whether district, state or country-level, is dominated by natural



resources production, it is plausible that women will find themselves both less involved in the labor force and less empowered to participate directly and actively in the political arena.

The developing world is full of examples of this phenomenon, but it is particularly well-illustrated in South Korea, where the government redirected its economy to become more export-oriented and manufacturing intensive in the 1960s, and actually had the anticipated result of creating a more inviting work environment for women (Horton 1999; Moon 2002; Baslevant and Onaran 2004; Ross 2008). Ross (2008) asserts that their newfound presence in the labor force opened the door for women to reform “patriarchal institutions” in the South Korean government and society, increasing representation of women’s interests and improving rights (14; Moon 2002).

Specifically, Ross (2008) points out that when the number of women in the labor force rose by 50% between 1960 and 1980, it stimulated women to begin actively mobilizing for both labor rights and gender equality in a way that had never been done before (Ross 2008, 3). In 1987, female activists founded the Korean Women’s Associations United, which “took a more confrontational stance towards the government” (Ross 2008, 3; Moon 2002). From the mid-1990s to the early 2000s, women doubled their presence in a number of arenas including the number of representatives in the national assembly, the percentage of membership on “policy-setting government committees,” and the percentage of judgeships nationally (Ross 2008, 3; Moon 2002). For Ross (2008), women’s increased presence in the workforce is directly related to the rise in women’s organizations and that relationship, coupled with the subsequent dramatic increase in women’s representation in government, demonstrates his supposition that a labor force that accepts more women leads to increased female representation. Schlozman, Burns and Verba (1999) mention that women outside the workforce may be “cut off from both the informal

political discussions that cultivate interest in politics and from the networks of communication through which requests for activity are mediated” (30), supposing then that women in the workforce have access to these advantages (Rule 1990; Hogan 2001). This could explain at least in part the rise of women’s organizations in South Korea after the influx of female workers into the labor force, but Schlozman, Burns and Verba (1999) find that there is hardly a consensus with regard to why work outside the home is (or is not) related to political activity (30-31).

If Ross (2008) has made accurate observations regarding natural resources, their impact on women in the labor force and the resulting level of female political involvement, he has built on the arguments of the side that sees work participation and political activity as related (Burns, Schlozman and Verba 1999). He has also likely brought forth evidence of one more instance of the effects of what international political scientists call the ‘resource curse.’ Although the precise cause of the resource curse has yet to be resolved, most scholars agree that in terms of steady economic growth, “states with abundant resource wealth perform less well than their resource-poor counterparts” (Ross 1999, 296; Sachs and Warner 1997). According to some explorations of the resource curse, the specific type of exploitable resource (e.g. oil, natural gas, mineral deposits, land) has less to do with the curse than does the way in which the resource is exploited by the government (Ross 1999, Birdsall et al. 2000). Due to the easy economic success and growth that may result from abundant natural resource revenues, governments experience less direct popular pressure to invest in important infrastructure related to education and manufacturing sectors. Therefore, while manufacturing has been associated with “a more complex division of labor and...a higher standard of living,” a dependence on natural resource industries is associated with nearly the opposite (Sachs and Warner 1997, 5; Ross 1999; Birdsall et al. 2000). Some theorize that in part due to that lack of popular pressure – because the

economy is bringing in revenue and there is some basic distribution of goods – resource cursed countries usually allow the revenues from easy-to-access resources to break the “virtuous cycle” of investment in education, which would have yielded other positive economic returns (Birdsall et al. 2000). Fundamentally, the idea is connective; natural resources are associated with relatively bad economic policies, which are highly correlated with minimal investment in education, high levels of inequality and ultimately decreased macroeconomic and political stability (Birdsall et al. 2000).

Ross (2008) introduces into this context the idea that these bad economic policies are expressly bad for women because they destroy or limit the tradable, non-resource, manufacturing sector (Sachs and Warner 1997) – which is generally the most welcoming to women in developing countries (Baslevent and Onaran 2004). This set of linkages may also impact education levels, which are associated with levels of women’s representation in the sense that higher levels of education in the populace consistently correlate with higher levels of female representation (Welch and Karnig 1979; Jones and Nelson 1981; Palmer and Simon 2008). Given that, the resource curse may also affect women somewhat indirectly by affecting education (Birdsall et al. 2000). Still, the supposed more direct effect on women are lower levels of female employment in an industrial labor force as opposed to proportions of women in service and manufacturing labor forces (Baslevent and Onaran 2004; Ross 2008). Even in the United States, natural resource industries – mining in particular – employ vastly more men than women (US Census 2000). Therefore, it seems plausible that such industries (e.g. mining, agriculture) would be less supportive to female candidacies than are other types of industry, within given districts.

Connecting all of this together is the idea of that as women's presence in the workforce decreases, so too do the opportunities for women to create networks and build resumes that would eventually qualify them for public office (Rule 1990; Schlozman, Burns and Verba 1999; Hogan 2001). In other words, the female eligibility pool shrinks and organizational networks are also subsequently weakened (Sanbonmatsu 2006a; Fox and Lawless 2010). Therefore, if the relationship Ross (2008) observes between natural resources dependence and decreased female participation in the workforce holds true for state- and district-level units of analysis, scholars of American politics will be able to add an additional variable to their analyses as they try to understand why women run less frequently than men in the United States.

Ultimately, there are many variables associated with the lack of female political representation in the United States. Not only are these variables of interest on their own, but also their inter-relationship with one another provides a potential additional layer of analysis.

## **Hypotheses and Research Design:**

### **Hypotheses**

Studies of urbanization as a unique or especially important variable in determining whether women will run for and attain political office are relatively unusual. Similarly, connections between international economics and American studies of women in politics are also somewhat rare. Given that these two ideas constitute the bulk of this inquiry, it is safe to say that my hypotheses are focused on correlation rather than causation, and should be considered primarily exploratory. Based on my own experiences growing up in a rural state, and my sense that not all rural places are the same, I will also propose ideas that may seem counterintuitive to natives of urban locales. The underlying purpose, however, is to establish a foundation for

further research and to add new information to the existing literature about American women in politics. My hypotheses are:

H1: Rural districts will be less women-friendly than urban districts on an aggregate, national level.

H1a: The negative correlation between rurality and women's representation will be weaker in some regions than in others.

H1b: Rural districts will have lower levels of factors thought to promote women's representation.

H1c: The varying strength of relationship between each control and independent variable and the representation of women in rural districts will be different from the relationship between those same variables and the representation of women in urban districts.

H2: In districts where women make up a larger percentage of the labor force, women will be more likely to hold that district's seat in the state legislature than they will in districts where women make up a smaller proportion of the labor force.

H2a: As the percent of the district workforce employed by the mining industry increases, the likelihood that a woman will represent that district will decrease.

H2b: As the percent of the district population living on farm residences increases, the likelihood that a woman will represent that district will decrease.

Reexamining the relationship between population density and female representation with an eye to those variables that correlate highly with both is useful because the results in the literature have been at least somewhat mixed up to this point (E. Werner 1968; Nechemias 1987; Hogan 2001). It does seem that the majority of scholars find rural places to be less amenable to female candidates than urban areas (Jones and Starr 1979; Welch and Karnig 1979; Jones and Nelson 1981; Carbert 2003; DeLeon and Naff 2003; Palmer and Simon 2008), but the consensus still does not provide an understanding of the reasons for the correlation. It seems unlikely that population density itself has a strong, direct relationship with rates of female representation and much more likely that other variables covary with both population density and rates of female representation. There also seems to be an assumption that variables affecting women's decision to run for and attain political office act consistently without regard to levels of urbanization. In other words, scholars believe that the same variables work in the same way to increase or decrease the likelihood that women will run for and attain political office.

However, one of the demographic variables associated with high levels of female representation is Northern location (Palmer and Simon 2006; Ondercin and Welch 2009). Just as the North and the South are culturally distinct, rural and urban areas may be similarly distinctive (Jones and Starr 1979). Given that we have examples of rural states with greater than average percentages of female representation in their legislatures (National Conference of State Legislatures 2011), it could be that rural places are different from urban places in the way that variables affect the frequency and success with which women run for and attain public office. To be precise, it may be that the rural condition of some districts interacts with control variables (e.g. percent of the population that is college educated, percent of the workforce that are women) to increase the likelihood that women will run for political office in a particular rural district, or decrease that likelihood.

Given the extensive research dedicated to the importance of place in politics (Elazar 1966; Arceneaux 2001), it may be that what correlates highly with urbanization varies from state to state and district to district, or even more likely, from region to region. If that is so, variables such as the percent college educated people in a district may play a more important role in rural districts in portions of the North than that same percentage plays in portions of the South. Such a difference might be an indication that state level ideologies (Elazar 1966) or gender role associations in particular states or regions (Arceneaux 2001) have a greater impact on the way that the entire populace does or does not accept female candidacies in general than does the percent of college graduates in a given district. In other words, women may be less likely to run for and attain political office in the South even when they come from a district with a high proportion of college graduates because the Southern region tends toward traditionalistic values and has a different history associated with female roles that tends to act less supportively toward

female representatives in politics (E. Werner 1968; Palmer and Simon 2006; Palmer and Simon 2008; Ondercin and Welch 2009).

The history of women running for and attaining political office in the United States offers substantial support for the idea that regional attitudes towards women in office differ from one another (Anderson 1997; Arceneaux 2001). Three of the first women to hold high levels of elected office were Jeanette Rankin from Montana, Nellie Tayloe Ross in Wyoming and Bertha Knight Landes in Seattle, Washington, all of which are decidedly Western and Northern locations (E. Werner 1968; Anderson 1997). More recently, scholars have found that Northeastern locations are also more woman-friendly and have demonstrably higher levels of women as political representatives (Palmer and Simon 2006; Ondercin and Welch 2009). Based on my own experiences growing up in a rural state, I also am inclined to believe that rural areas are not necessarily less amenable to female candidacy and may, in fact, sometimes be more encouraging and supportive of women running for public office than their urban counterpart locations. These historical and empirical facts in conjunction with my own experience of the Northwestern United States lead me to predict that rural areas in the North Atlantic and Western<sup>1</sup> regions of United States will be markedly more welcoming toward female officeholders than other regions and more importantly, that the difference between female representation in urban and rural areas in these regions will not be as significantly large as they are in the South Atlantic and South Central regions<sup>2</sup>.

---

<sup>1</sup> These regional distinctions come from E. Werner (1968). The North Atlantic region includes Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey and Pennsylvania. The Western region includes Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, California, Hawaii and Alaska (44).

<sup>2</sup> The South Atlantic region includes Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida. The South Central region includes Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Texas, Oklahoma and Arkansas (E. Werner 1968, 44).

Shifting attention to the second set of hypotheses, I propose that assessing the percentage of women present in the labor force in relation to the level of female political representation at the district level is worthwhile because it can either strengthen the literature and link two otherwise often separate fields of study, or can offer divergent evidence that would demonstrate the need for more scholarship.

The sub-hypotheses test the relationship between either the district percentage of mining-related jobs or the district percentage of the population living in farm residences and the likelihood that women will run for and attain political office in that district. These will not only further illuminate the relationship explored by Ross (2008), but will provide an enhanced perspective on possible sector level differences within the United States' work force and it may illuminate at least one reason why rural districts appear to be less amenable to female candidacies. If natural resource rents do contribute to the apparent decrease in women's representation in political offices or hold women's representation at lower levels in some way, it is critical to identify that relationship in other places. The prospect of a similar relationship also yields the possibility of advancing exploration into the causal mechanisms of relationships associated with the resource curse (Ross 2008; Baslevent and Onaran 2004). At the same time, the district level is a much smaller unit of analysis than the country level. By analyzing at this smaller level, I may be able to identify more accurately the strength of the relationship between natural resource endowments and women's political representation.

My hypothesis is that even in the United States, industries dependent on natural resource endowments will have a negative effect on women's political representation because women are less likely to make up a significant proportion of that industry's workforce. For the purposes of this inquiry, I chose to focus my statistical analysis on mining and agriculture particularly



because the 2000 census provides extensive data on both mining-related employment and farming populations and even breaks that data into state legislative district level percentages. Also, mining and agriculture are clear identifiers of at least some degree of reliance on natural resources. In both cases, the information provided by the 2000 census is extensive and identifiable, making them reasonable and obvious choices for foci.

Although the United States' economy is not so predominantly driven by producing natural resources as are some other countries, the history of mining and agriculture in some parts of the country, and the associated community and individual identity lends credence to the idea that these industries could impact local politics. Quite recently, Heffernan (2011) of The New York Times reflected on the culture of coal mining, the books dedicated to it and a new reality television show focused on miners in West Virginia. She talked about “two classic American folktales about coal,” both deeply associated with identity and culture – integral topics in this study (Heffernan 2011). Given that we know there to be no single cause for the low levels of female political representation in the United States, it remains important to consider each and every plausible factor.

## **Research Design**

### **Data**

My data were collected from multiple sources. Reingold, Bratton and Haynie (2009) were responsible for a significant portion of the dataset I assembled. Beginning with the information they collected about the seats in the lower houses of 28 state legislatures in 2005, I added relevant information about the seats in the lower houses of the remaining 21 state legislatures to the dataset myself<sup>3</sup>. I also made additions to the data for districts in their original 28 states. The seat-based approach to analysis is generally well liked by scholars. As Hogan (2001)

---

<sup>3</sup> The completed dataset excludes Nebraska because the state legislature is both unicameral and nonpartisan.

acknowledges, seat-based analysis allows an assessment of “the relative impact of features that are best measured on the district level (such as electoral structure and demographic variables) in addition to variables that are best measured on the state level (such as political culture and legislative professionalism)” (5; see also Reingold, Bratton and Haynie 2009, 3). My dependent variable will therefore be whether or not a woman held that district seat in 2005, the point in time of all my analyses.

I chose to expand the Reingold, Bratton and Haynie (2009) dataset to include 49 states in part simply because more cases yield more accurate results, but also because capturing as much variation in population density as possible was fundamentally important to my research questions. In a preliminary look, I found that their selection of states tended to be slightly more urban on average than the remaining 21 states<sup>4</sup>. Also, significant mining communities are not ubiquitous, which means every district with a high percentage of mining-related employment is important and should be included. Lastly, including as many states as possible ensures that all regions are represented in the dataset, which is valuable given the proposed impact of place in my hypotheses. As a result of the choice to include nearly every state legislative district in my analysis, my data are practically a completely inclusive dataset for the whole United States.

Many of my control variables are based on state legislative district demographics, including percentages of Black, Latino and college-educated populations within each district, as well as average household income, all gathered from the latest edition of CQ’s *Almanac of State Legislative Elections* (Lilley et al. 2008). Data related to the district workforce, women’s earnings and the percent of district women with college degrees were collected from the 2000 census (U.S. Census Bureau 2000).

---

<sup>4</sup> This was a statistically significant difference.

At the state level, I included control variables to measure ideology, state legislative professionalism, and political culture. These variables include the ideology scores from Erikson, Wright and McIver (1993), Squire's (2007) 2003 scores to measure legislative professionalism, and Elazar's (1966) moralistic/traditionalistic/individualistic typology to measure political culture<sup>5</sup>.

For my independent variables, I used the American FactFinder program to generate custom summary files of particular district attributes (U.S. Census Bureau 2000). These files included raw number breakdowns in each state legislative district of populations employed in the total labor force, in mining-related jobs, in professional jobs, as well as the number of women employed in the labor force and in both sub-categories. They also included counts of the population living in various degrees of urbanization as categorized by the census.

### **Urbanization**

Across disciplines, there is wide variation in definitions for what degree of population density constitutes an urban, suburban, or rural area. Champion and Hugo (2004) propose that the rural-urban dichotomy can be broken into five separate categories. While this approach might allow a more precise analysis of the relationship between population density and other variables related to the prevalence of female representation, there is little existing data that employs this breakdown to measure population and urbanization. Still, their definitions of metro core (most urban), metro outlying and non-metro adjacent (semi-urban), and non-metro non-adjacent with and without city (least urban), do correspond relatively well with the four census definitions of population density (Champion and Hugo 2004).

Because the data are readily available and do seem to represent reasonable categories of urban, suburban, rural, and agricultural areas, I am using the definitions provided by the U.S.

---

<sup>5</sup> For a complete list of variables, see Appendix A.

Census Bureau (2000) to demarcate these populations. For my analyses, my independent variables will include the percent of the district population living in areas categorized as urban, suburban, rural, or agricultural by the census. What I call urban is based on what the census calls an “urbanized area,” which is defined as “densely settled territory that contains 50,000 or more people” (U.S. Census Bureau 2000). My suburban is an “urban cluster” in census terms, or a “densely settled territory that has at least 2,500 people but fewer than 50,000 people” (U.S. Census Bureau 2000). What I call rural includes agricultural areas and is categorized by the census as the total population living outside of urbanized areas and urban clusters (U.S. Census Bureau 2000). Finally, agricultural populations are the total population living on a farm residence, which according to the U.S. Census Bureau (2000) is a housing unit “located on a property of 1 acre or more,” which sold in 1999 “at least \$1000 worth of agricultural products.” Using the percentage of the district population living in urban areas, urban clusters, rural areas and farm residences, I can test for associations between population density and whether a woman holds that district’s seat. I can also pinpoint which variables appear to have a strong relationship with the likelihood that a woman will hold a district’s seat and compare between districts where the majority of residents live in either rural or urban areas to ascertain if the variables with the stronger relationship are actually different in districts with different levels of urbanization or rurality.

Scholars of political science have defined urbanization in different ways, and have often included a measure of proximity to a metropolitan area or state capitol to determine a district’s degree of urbanization (Nechemias 1987; Hogan 2001). Even as Cromartie and Swanson (1996) point out that “basic concepts for defining what is rural have not changed greatly over time,” those concepts – including population, density and accessibility – “have not been mapped and

analyzed at a spatial scale detailed enough to fully capture increasingly complex U.S. settlement patterns” (31). This is important to keep in consideration, but should not act as a deterrent to inquiry involving differences in urbanization. They go on to point out that two of the most important delineating factors include “using data at the sub-county level...[and] holding constant the current criteria defining metro areas” (Cromartie and Swanson 1996, 32). In both cases, census data abides by these rules, and can provide a consistent measure across the United States of degrees of urbanization at the state legislative district level.

### **Analysis**

To understand my data initially, I generated frequency tables for all of the variables.<sup>6</sup> This ensures that none of my variables have an unreasonable or unexpected number of missing values. In the case of the percent mining variable, I am also aware that there may be one or two outlying districts with unusually high levels of employment by mining-related industries. Unfortunately, due to time constraints, I was unable to remove these outliers and conduct my analysis without them. Still, because the data include 49 of the 50 states, even outliers may be interesting for analysis purposes – they are part of the population and therefore valid data points.

Next, I conducted a bivariate analysis using my dependent variable in conjunction with each control and independent variable. By analyzing the bivariate relationships, I established whether there was a statistically significant relationship with control variables as expected and with independent variables as predicted. In order to conduct this analysis, I employed two different techniques because a portion of my explanatory variables is continuous while others are categorical.

For the categorical explanatory variables, I utilized a crosstab with percentages for my dependent variable, a chi-squared test of statistical significance and Kendall’s tau-b as a measure

---

<sup>6</sup> See Appendix B for complete list of frequency tables.

of association. For the continuous explanatory variables, I employed a logistic regression, also with a chi-squared test, and in place of tau-b, I used the change in probability that my dependent variable would be female (categorical value 1) when the explanatory variable was increased from its minimum to its maximum value (Long and Freese 2006).

I also conducted a bivariate analysis of the relationships between my independent variables and other explanatory variables to assess the predictions of hypothesis 1b. This test reveals the strength and direction of the relationship between rurality and each variable. I expect that the direction of the relationship will be opposite the direction of the relationship between most of the explanatory variables and my dependent variable, whether or not a woman represents the state legislative district, because my hypothesis proposes that more rural districts have lower levels of variables that make districts more women-friendly. This analysis is also important because population density is more likely a spurious rather than explanatory variable.

Besides running this analysis with the percent rural, I also analyzed the relationship between both the percent mining and the percent agriculture variables and the independent and control variables in order to begin addressing hypotheses 2a and 2b. In order to conduct all of these analyses, I employed a basic regression model with an r-squared test of statistical significance because all of my independent variables are continuous, with the exception of the rural-urban categorical variable that I created for the purposes of visualizing the breakdown of population distribution in state legislative districts. I did not include a test of the categorical rural-urban variable.

When I went on to analyze logistic multivariate regressions, it was with the goal of ascertaining the relative strength in each model of every explanatory variable in predicting whether a woman would hold a district seat or not. This provided a test of hypotheses 1b and 1c.

I did this because I want to demonstrate the unique way variables interact when there are greater or lesser degrees of urbanization in a given district. To do this, I ran a set of multivariate regressions that separated out specific levels of rurality or urbanization. These last regressions split the sample by districts with more than 60% of the population living in rural areas and districts with less than 40% of the population living in rural areas, then again by the same split for urban percentages.

Finally, I use the change in probability statistic to compare across the aggregate national sample with the population density samples of state legislative districts categorized as most rural (more than 60% of the population living in rural areas), least rural (less than 40% of the population living in rural areas), most urban and least urban (same percentage cut-off). Given that the minimum and maximum value varied when the sample was split into the most rural and least rural subunits, I used the probability that my dependent variable would be female when the explanatory variables increased from one half standard deviation below the mean to one half standard deviation above it. While the value of each explanatory variable's mean still varies between samples, that variation is less substantial than the variation between the minimums and maximums of the same explanatory variables.

Similarly, to test hypothesis 1a, I split the sample based on regions as determined by E. Werner (1968), and in those cases, also used the change in probability statistic that analyzes changes in the dependent variable based on a change of one standard deviation in each of the explanatory variables.

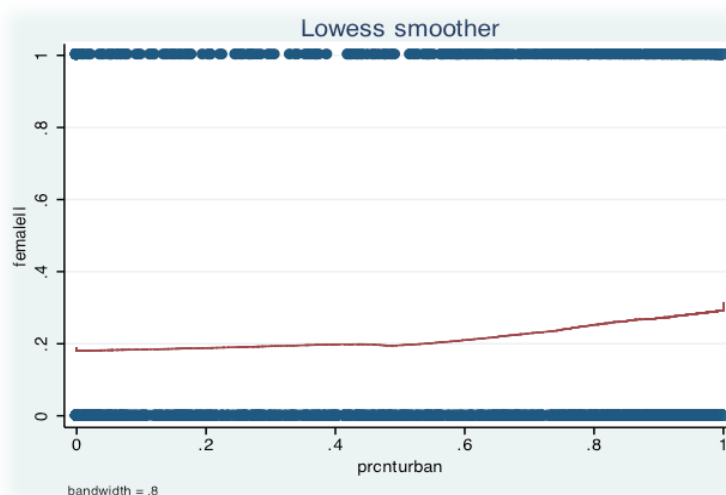
Of course, in the case of most rural, the results align closely with those of least urban. However, each was important to include because in the case of both the rural and urban measures districts in which more than 40% but less than 60% of the population lives in either urban or in

rural areas were excluded. In other words, if there was not a supermajority of urban or rural residents in a particular district, that district was excluded from analysis.

### Results and Interpretation:

Graph 1 represents the bivariate relationship between the dependent variable, “Female,” which refers to whether a woman holds the district seat (1) or a man holds the seat (0), and the independent variable, “Percent Urban,” which refers to the percentage of the district population that live in an urbanized area. It is a visual answer to my first research question and it confirms hypothesis 1. Although a relationship between female representatives and levels of urbanization may be insignificant in later models, the bivariate relationship is significant at the 0.001 level.

**Graph 1: The rate at which women hold seats at the state legislative district level in relation to the proportion of the population living in an urbanized areas (Female by Proportion Urban)**



Graph 1 illustrates the aggregate data in bivariate analysis. Nationally, the rate at which women hold seats at the state legislative district level increases from about 18% to about 30% as the proportion of the population living in an urbanized areas rises from minimum 0 to maximum 0.1. In other words, there is a strong positive relationship between increasing levels of urbanization and the rate of female representation at the state legislative district level.



Table 1 illuminates the numeric bivariate relationship between the dependent variable, femaleII, and each of the continuous independent and control variables. Graphs are also included later to depict some of these relationships visually.

**Table 1: Bivariate Logistic Regression with Variables Expected to Influence the Likelihood that a Woman Will Hold a Seat Representing a Given District**

<i>Variables, Independent</i>	<i>Chi-squared</i>	<i>Chi-squared, statistical significance</i>	<i>Coefficient</i>	<i>Standard Errors</i>	<i>Change in probability (min-&gt;max)</i>
<b>Percent Urban and Suburban Combined</b>	76.11	0	0.905399	0.1072143	0.145
<b>Percent Urban`<sup>7</sup></b>	72.51	0	0.6358826	0.0759691	0.1105
<b>Percent Suburban</b>	17.91	0	-0.6137461	0.1491859	-0.0971
<b>Percent Rural</b>	76.1	0	-0.9052934	0.1072115	-0.1449
<b>Percent Farm`<sup>**8</sup></b>	41.4	0	-8.403402	1.44158	-0.2126
<b>Percent Mining`<sup>**</sup></b>	25.35	0	-12.74099	2.956272	-0.2372
<i>Controls, DISTRICT LEVEL</i>					
<b>Percent Female Employed`<sup>**</sup></b>	69.6	0	10.32499	1.244116	0.5254
<b>Percent Female Professionals`</b>	5.84	0.0157	-1.257592	0.5221721	-0.1453
<b>Income (in thousands)`<sup>**</sup></b>	23.89	0	0.0070633	0.0014244	0.3534
<b>Percent College-Educated`<sup>**</sup></b>	80.54	0	0.0299317	0.0033043	0.3808
<b>Percent Black</b>	19.19	0	0.007663	0.0017155	0.1431
<b>Percent Latino</b>	11.31	0.0008	0.0076231	0.0022188	0.1486
<i>Controls, STATE LEVEL</i>					
<b>Ideology Scores`</b>	45.21	0	0.0240467	0.0035839	0.1668
<b>Legislative Professionalism`</b>	0.4	0.5259	0.1688148	0.2655491	0.0184

<sup>7</sup> The marked variables ( ` ) were selected for graphic representation below.

<sup>8</sup> The variables marked with two stars (\*\*) appear to have the strongest relationship with female representation. Each has a change in probability statistic of more than +/- .2 and a statistical significance at the .001 level.

Although in many cases these strengths of association may seem small, even incremental impacts are worth noting, especially in the study of women in American politics, where we know there are so many factors at play. As with most social sciences, capturing some variation and apparent causation is important in and of itself.

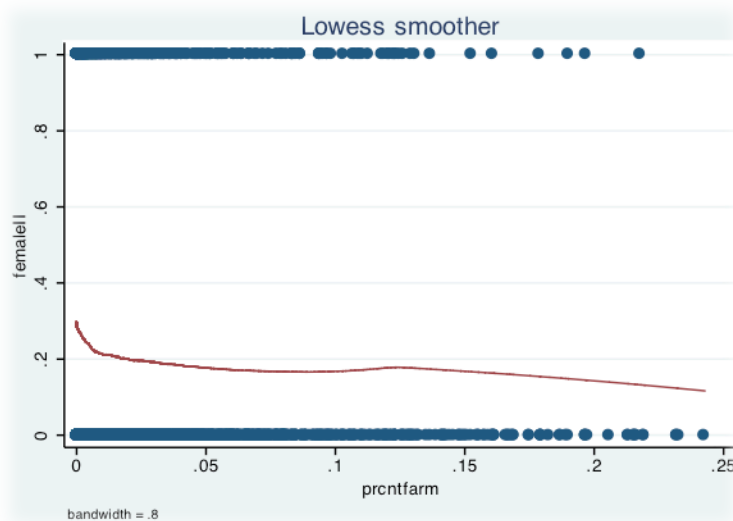
One of the most interesting results in Table 1 is the strength of the bivariate relationship exhibited with Percent Female Employed in a district's workforce. The change in probability value of positive 0.5 means that when the percent of women in a district's workforce increases from its minimum (about 25%) to its maximum (about 61%), the likelihood that a woman will hold that district's seat increases by 50%. This confirms the predictions of hypothesis 2, and begins to answer my third research question.

Also worth acknowledging are those variables with negative coefficients, which include Percent Suburban, Percent Rural, Percent Farm, Percent Mining and Percent Female Professionals measures. It is clear that on an aggregate level, the larger the proportion of the population living in rural areas within a district, the stronger the negative relationship exhibited with female representation. This negative relationship between rurality and female representation provides some answer to my first research question and confirms hypothesis 1. The negative relationships with both Percent Farm and Percent Mining confirm, at least initially, hypotheses 2a and 2b and begin to answer my third research question.

The particularly strong positive relationships – with high levels of college-educated people as well as high income and women as a large part of the workforce – were all predicted by the literature (Palmer and Simon 2006).

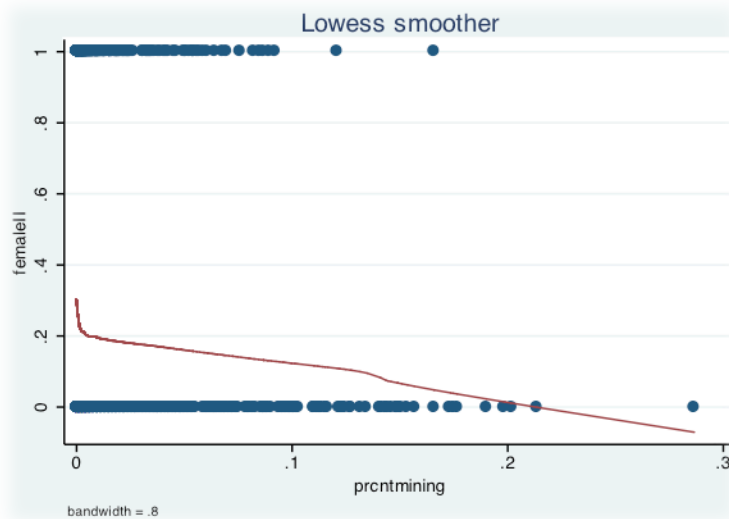
The negative relationship with the Percent Female Professionals is surprising given the research that suggests women in professional vocations – such as law or business – are most likely to run for office (Fox and Lawless 2004).

**Graph 2: The likelihood a woman will represent a district in relation to the proportion of the district population living on farm residences**



Based on Graph 2, we can see that the proportion of female representation decreases from over 0.3 in non-agricultural areas to near 0.1 as the percent of the population living on farm residences rises above 0.15 in the district. This was one of the strongest negative relationships exhibited by any of the independent variables with the level of female representation (second only to mining). Again, this provides visual confirmation of hypothesis 2b.

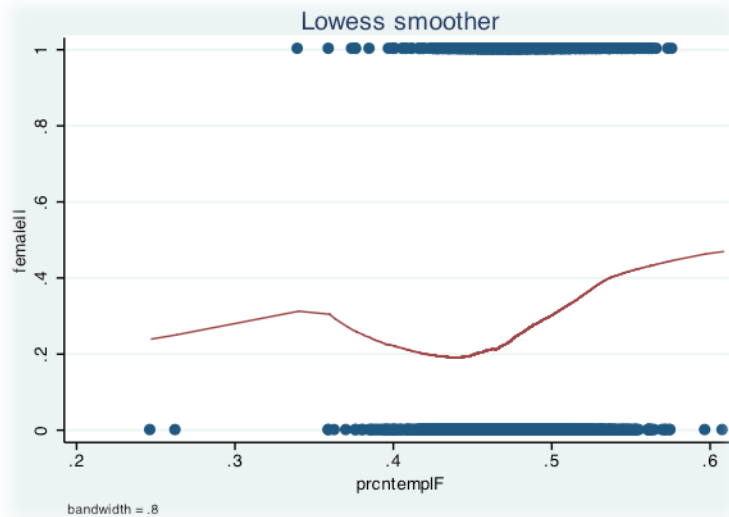
**Graph 3: The proportion of female representatives in relation to the proportion of the district population employed by the mining industry**



Graph 3 also shows a strong negative relationship between mining and the likelihood that a woman will represent a district, visually confirming hypothesis 2a. The initial drop is steep, when as little as 2% of the workforce is employed in mining-related industries. Given how such a small proportion of mining-related employment seems to have an effect, it is plausible that it is not so much mining in and of itself that relates so strongly to women's representation, but a set of conditions that are amenable to mining industries and simultaneously less amenable to women in politics – perhaps other variables that are highly correlated with rurality and mining will provide insight here.

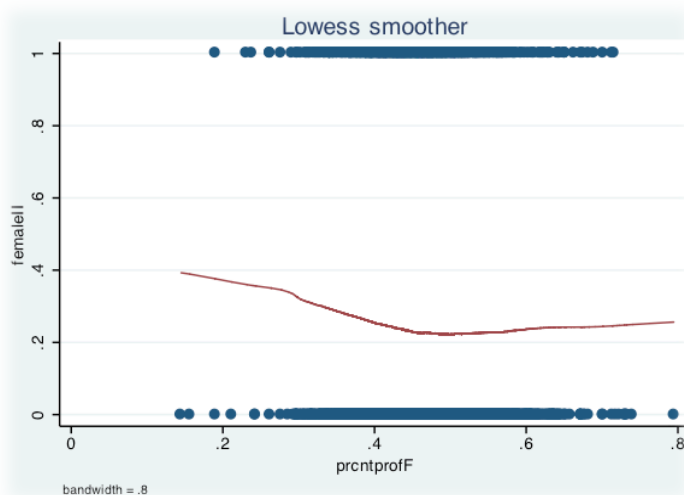
In other words, the relationship between female representation and mining does support the idea that the presence of mining industries could act as an indicator of less women-friendly districts in the United States. It may be that the relationship is mediated by the fact that, as Ross (2008) suggests, when there are fewer women working in a particular industry that has political power or lends itself to political networking, the result is fewer women running for and attaining political office.

**Graph 4: The proportion of female representatives in relation to the proportion of women in the district workforce**



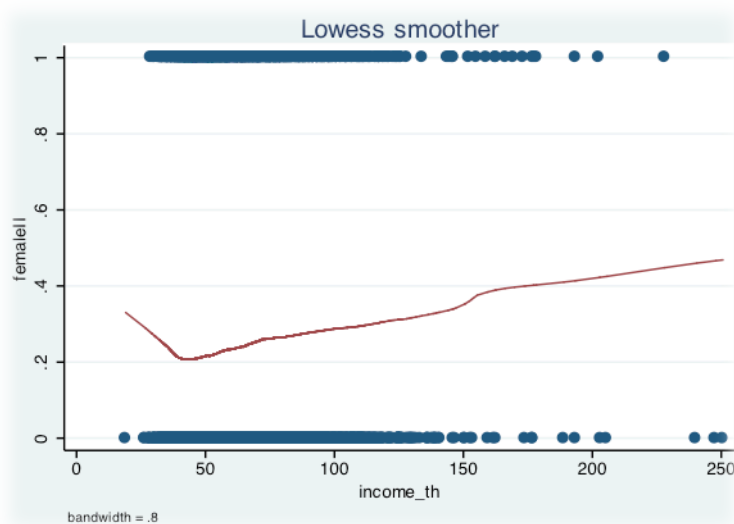
The relationship displayed in Graph 4, between the proportion of women in the workforce and rates of female representation at the district level, is interesting in that when the bulk of the observations begin (at around 37% women in the workforce), the initial relationship with female representation is negative, and as women grow to make up around 43% or more of the workforce, that relationship becomes positive. This is a statistically significant positive relationship and Graph 4 provides visual confirmation of hypothesis h2.

**Graph 5: The proportion of female representatives in relation to the proportion of women who make up the professional workforce**



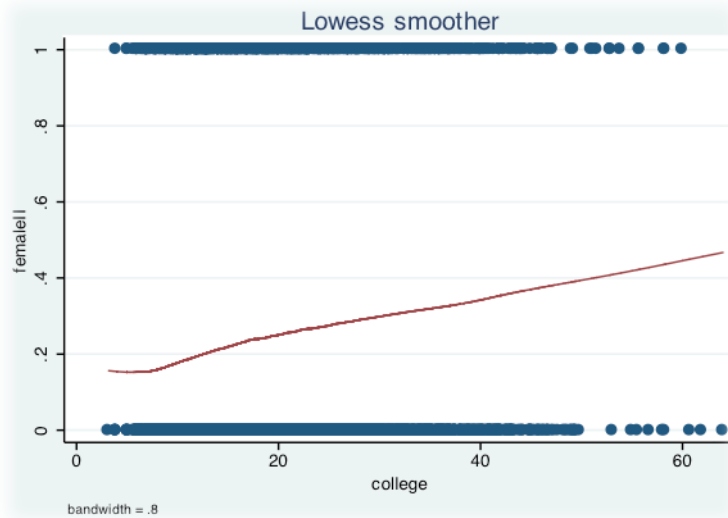
Even more than the previous graph, this visual representation of the proportion of women in the professional workforce in relation to female representation at the district level is somewhat surprising. Based on the belief that women in professional arenas – business, law, and education especially – are the most likely members of eligibility pools for later political office (Fox and Lawless 2010), this relationship is expected to be positive and strong. Greater proportions of professional women working should relate to higher levels of female representation at the local and state level. Yet the relationship is decisively negative, garnering a predicted negative change in the likelihood of female representatives at the district level as the proportion of professional women in the workforce rises that is on par with the negative predicted change for increasing rates of rurality within a given district.

**Graph 6: The proportion of female representatives in relation to the average household income of a given district**



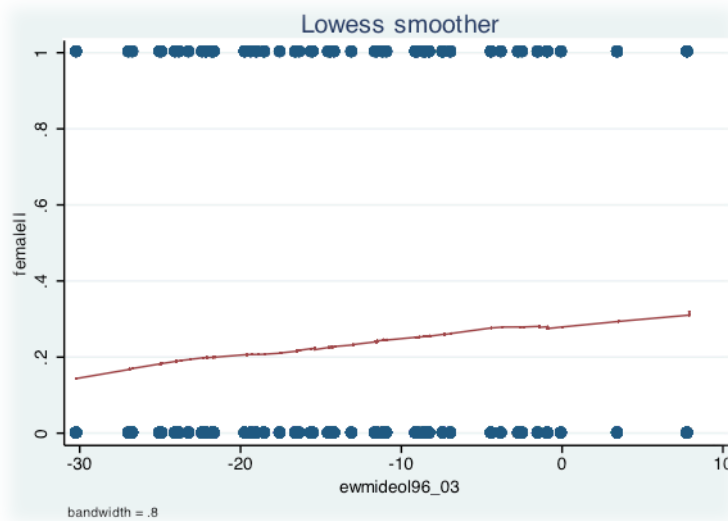
This graph represents, as predicted, that as average household income within a district raises, so does the likelihood that a woman will hold that district's seat.

**Graph 7: The proportion of female representatives in relation to the proportion of the district population that is college-educated (4 year degree)**



This graph represents, as predicted, that as the proportion of populace that is college-educated rises, so too does the likelihood that a woman will hold that district's seat.

**Graph 8: The proportion of female representatives at the state legislative district level in relation to state level ideology scores**



As expected, state level ideology scores are demonstrated to correlate with the proportion of female representatives at the district level. This relationship is expected to be positive because

the ideology scores rate more liberal state ideologies with higher scores and more liberal districts are considered to be more women-friendly (Palmer and Simon 2006).

Table 2 provides more information on the bivariate relationship between the categorical independent and control variables and the likelihood that women will represent a state legislative district. Because of the distinct method of statistical analysis, the coefficient value has been replaced by the proportion of women who represent districts that fall into each variable category.

For example, the first variable listed, is a measure of urbanization called “Rural-Urban” that breaks districts into three categories; districts in which more than 60% of the population lives in urban areas (3), districts in which between 40 and 60% of the population live in urban areas (2), and districts in which less than 40% of the population lives in urban areas (1). In each category, the percentage of women who represent districts of that description is presented alongside the category.

In this case, the chi-squared measure of statistical significance indicates whether the differences in percentages from one category to another are significant. Kendall’s Tau-b provides a measure of the strength of association by rating the relationship on a scale of -1 to 1, which allows for comparison of the relative strength of association between variables. For the Rural-Urban variable, the relationship with the dependent variable is indeed significant. This means that a difference between categories, or levels of urbanization in a district, are significantly related to whether a woman will run for and attain political office in that district. Specifically, women are about 1.5% more likely to run in the moderately urban districts (2) than in the least urban districts (1) and they are again about 1.5% more likely to run in the most urban districts (3) than in the moderately urban districts (2).



**Table 2A: Bivariate Analysis by Crosstab with Variables Expected to Influence the Likelihood that a Woman Will Hold a Seat Representing a Given District**

<i>Variables, Independent</i>	<i>femaleII = 1 (%)</i>	<i>chi-squared</i>	<i>chi-squared, statistical significance</i>	<i>Kendall's Tau-b</i>
<b>Rural-Urban</b>		62.0757	0	0.1022
1 (least urban)	16.79			
2 (moderately urban)	18.27			
3 (most urban)	26.79			
<b>North Atlantic</b>		2.9565	0.086	0.0233
0	22.88			
1	25.08			
<b>South Atlantic</b>				
0	23.72	0.7108	0.399	-0.0114
1	22.44			
<b>South Central</b>				
0	25.07	37.8274	0	-0.0833
1	15.53			
<b>North Central</b>				
0	23.42	0.0716	0.789	0.0036
1	23.79			
<b>West</b>		21.7939	0	0.0633
0	22.33			
1	29.63			

Table 2A includes, besides the Rural-Urban variable, dummy variables for each region of the United States as defined by E. Werner (1968). As predicted, the Western region has a statistically significant association with higher levels of female representation and the South Central region has a statistically significant negative relationship with levels of female representation. The values of Kendall's Tau-b are small, though, indicating relatively weak relationships with women's representation, and maybe less substantive significance. At the same time, the North Atlantic region also has a positive relationship with higher levels of female

representation, and the South Atlantic region has a negative relationship with female representation, but neither of those associations is statistically significant in this bivariate model.

**Table 2B: Bivariate Analysis by Crosstab with Variables Expected to Influence the Likelihood that a Woman Will Hold a Seat Representing a Given District**

<i>Variables, Controls</i>	<i>femaleII = 1 (%)</i>	<i>chi-squared</i>	<i>chi-squared, statistical significance</i>	<i>Kendall's Tau-b</i>
<b>Multi-Member Districts</b>		14.3008	0	0.0512
0	22.48			
1	28.13			
<b>Moralistic Culture</b>		28.4518	0	0.0725
0	21.33			
1	27.84			
<b>Traditionalistic Culture</b>		32.8707	0	-0.078
0	25.89			
1	18.89			

Table 2B presents the measurement of relationships between the likelihood of female representation at the district level and control variables determined important and significant by the literature. In the case of each control variable, the relationship is significant as predicted. Multimember districts and moralistic state cultures have a positive relationship with female representation, while traditionalistic cultures have a negative relationship with female representation. In other words, multimember districts are about 5% more likely to have female representatives at the state legislative district level. States that have been categorized by Elazar (1960) as having primarily a moralistic culture are about 7% more likely to have women representing their state legislative districts and states that have been categorized by Elazar (1960) as having primarily a traditionalistic culture are about 8% less likely to have women representing their districts in the state legislature. Meanwhile, districts in states categorized by Elazar (1960)

as having primarily individualistic cultures are not significantly different from districts in other states.

Tables 3A and 3B present correlation coefficients between each explanatory variable.

**Table 3A: Pair List Correlation of All Variables Included in the Whole Model Multivariate Regression with Female Representative as the Dependent Variable<sup>9</sup>**

	<b>Female Representative</b>	<b>Percent Rural</b>	<b>Percent Farm</b>	<b>Percent Mining</b>	<b>Percent Female Employment</b>	<b>Percent Female Professionals</b>	<b>Income (in thousands)</b>	<b>Percent College-Educated</b>
<b>Percent Rural</b>	-0.1155* <sup>10</sup>	1						
<b>Percent Farm</b>	-0.0807*	0.5960*	1					
<b>Percent Mining</b>	-0.0604*	0.1844*	0.1188*	1				
<b>Percent Female Employment</b>	0.1132*	-0.2402*	-0.1788*	-0.2044*	1			
<b>Percent Female Professionals</b>	-0.0327	0.1521*	0.3132*	0.0682*	0.1925*	1		
<b>Income (in thousands)</b>	0.0679*	-0.2763*	-0.2535*	-0.1473*	-0.1686*	-0.2740*	1	
<b>Percent College-Educated</b>	0.1243*	-0.3677*	-0.3101*	-0.1902*	0.0295	-0.2804*	0.7801*	1
<b>Percent Black</b>	0.0609*	-0.2044*	-0.1818*	-0.0665*	0.5007*	0.0258	-0.2274*	-0.1576*
<b>Percent Latino</b>	0.0468	-0.3104*	-0.1621*	-0.0062	-0.2183*	-0.1304*	-0.0833*	-0.1078*
<b>North Atlantic</b>	0.0233	0.0069	-0.2046*	-0.1640*	0.1293*	-0.0830*	0.2023*	0.2411*
<b>South Atlantic</b>	-0.0114	-0.0101	-0.1133*	-0.0211	0.0636*	-0.0469	0.009	-0.0079
<b>South Central</b>	-0.0833*	0.1017*	0.0219	0.1603*	-0.1116*	-0.0388	-0.2084*	-0.1970*
<b>North Central</b>	0.0036	0.0051	0.3071*	-0.0785*	0.0554*	0.2136*	-0.0436	-0.0715*
<b>Ideology Score</b>	0.0913*	-0.1437*	-0.2322*	-0.1660*	0.1547*	-0.0771*	0.3185*	0.3102*
<b>Legislative Professionalism</b>	0.0086	-0.2620*	-0.1397*	-0.1177*	0.0285	-0.0338	0.1629*	0.0713*
<b>Moralistic Culture</b>	0.0725*	0.1579*	0.1492*	-0.0989*	-0.0134	0.0701*	0.0128	0.0932*
<b>Traditionalistic Culture</b>	-0.0780*	0.0780*	-0.0732*	0.1575*	-0.1046*	-0.1081*	-0.2076*	-0.2098*

<sup>9</sup> Appendix C includes more in-depth bivariate ordinary least squares (OLS) analyses conducted to ascertain the relationship between specific independent variables in the analysis (Percent Rural, Percent Farm, Percent Mining) and other control and independent variables. These are presented in Tables A, B, and C.

<sup>10</sup> The single star (\*) denotes significance at the 0.05 level.

**Table 3B: Pair List Correlation of All Variables Included in the Whole Model Multivariate Regression with Female Representative as the Dependent Variable**

	<b>Percent Black</b>	<b>Percent Latino</b>	<b>North Atlantic</b>	<b>South Atlantic</b>	<b>South Central</b>	<b>North Central</b>	<b>Ideology Score</b>	<b>Legislative Professionalism</b>	<b>Moralistic Culture</b>
<b>Percent Black</b>	1								
<b>Percent Latino</b>	0.0183	1							
<b>North Atlantic</b>	-0.1829*	-0.0886*	1						
<b>South Atlantic</b>	0.3021*	-0.0357	-0.2843*	1					
<b>South Central</b>	0.2380*	0.0229	-0.2767*	-0.2020*	1				
<b>North Central</b>	-0.0995*	-0.1311*	-0.3344*	-0.2441*	-0.2376*	1			
<b>Ideology Score</b>	-0.2008*	0.0806*	0.6515*	-0.0790*	-0.5366*	-0.1715*	1		
<b>Legislative Professionalism</b>	0.0313	0.2475*	0.1034*	-0.0907*	-0.1704*	0.0943*	0.3814*	1	
<b>Moralistic Culture</b>	-0.3393*	-0.1441*	0.1665*	-0.3266*	-0.3179*	0.2079*	0.3814*	-0.1752*	1
<b>Traditionalistic Culture</b>	0.3217*	0.1102*	-0.4480*	0.4485*	0.6237*	-0.3844*	-0.5166*	-0.2056*	-0.5097*

Tables 3A and 3B show the interrelationships between all of the explanatory variables in the model. While it is clear that many of the variables are inter-correlated, the most important foci are the Percent Rural, Percent Farm, Percent Mining, and Percent Female Employment variables, about which hypothesis 1b, as well as hypotheses 2, 2a, and 2b were proposed. The first two columns of Table 3A demonstrate that in almost every case, when a variable correlates positively with female representation, it correlates negatively with the percent rural population within a district. In other words, this provides an answer to research question 2a and confirms hypothesis 1b by demonstrating that in more rural districts that there are indeed lower levels of almost every characteristic positively associated with female representation. Simultaneously, rural areas appear to have higher levels of almost every variable that

is negatively associated with female representation. The only statistically significant exception to this is in the Moralistic Culture variable, which has a positive association with both rural areas and female representation. This is an interesting finding, but not the focus of this inquiry.

The Percent Rural variable also correlates highly with the Percent Farm and Percent Mining variables, probably indicating that farming and mining activities are more likely to occur in rural areas. Even so, the correlation coefficient is not so high as to indicate complete collinearity in either case. Also important is the fact that farming and mining indicators appear to have a similar relationship with the Female Representative variable (and most of the other control and independent variables) as the Percent Rural variable does, again with the only consistently statistically significant difference appearing in the culture variables. Moralistic Culture is actually negatively associated only with Percent Mining. Meanwhile, Traditionalistic Culture is negatively associated with both Female Representative and Percent Farm. This may be an indication of some cultural differences between farming communities and mining communities in rural areas, but again, it is difficult to say conclusively without additional research and that is not the primary focus here.

Directing attention to the fourth row and fourth column of Table 3A, both of which represent the Percent Female Employment variable, we can also notice that high proportionate levels of women in the workforce are positively associated with female representation and negatively associated with rurality, farming, and mining – although the correlation appears to be weaker with farming. This may confirm all of hypothesis 2 (including 2a and 2b) and answer research question 3, by indicating that workforces in rural areas are less welcoming to women. Most importantly, this relates to Ross' (2008) argument, supporting the idea that the presence of

industries associated with low levels of female employment (mining and agriculture) in rural areas may explain why some rural areas are less friendly to women.

Table 4 represents the complete multivariate analysis that includes all of the explanatory variables and places no conditions or limits on the analysis. This should provide an understanding of the whole model at an aggregate level, which is important to answering research question 1 and confirming hypothesis 1. Beyond that, the whole model results provide a point for comparison when limits and conditions are placed on the model.

For all of the multivariate analyses to follow, I ran logistic regressions and again employed the chi-squared test of statistical significance in combination with the change in probability statistic as a measure of association that can be compared between variables.

**Table 4: Multivariate Logistic Regression with Variables Expected to Influence the Likelihood that a Woman Will Hold a Seat Representing a Given District**

<b>n = 5,447</b>						
<i>Independent Variables</i>	<i>LR chi2</i>	<i>Statistical Significance</i>	<i>Coefficient</i>	<i>Standard Error</i>	<i>Change in Probability (min-&gt;max)</i>	<i>Change in Probability (mean minus .5 SD to mean plus .5 SD)</i>
Whole Model	281.59	0				
Constant		0	-4.3949	0.9510819		
Percent Rural		0.357	-0.1490478	0.1617306	-0.0252	-0.0083
Percent Farm		0.636	-0.8468178	1.790639	-0.0336	-0.0042
Percent Mining		0.477	-1.873766	2.634092	-0.0792	-0.0053
Percent Female Employed** <sup>11</sup>		0	7.194639**	1.865022	0.3785**	0.0319
Percent Female Professionals		0.413	-0.5021028	0.6130323	-0.0559	-0.0053
Income (in thousands)		0.985	-4.93E-05	0.0025939	-0.002	-0.0002
Percent College-Educated **		0	0.0291502**	0.0059165	0.3632**	0.0464
Percent Black**		0	0.0121725**	0.0026351	0.2329**	0.0366

<sup>11</sup> Variables marked with a double star (\*\*) are significant at the .001 level.

Percent Latino**		0	0.0128223**	0.0029736	0.2589**	0.0297
North Atlantic**		0	-0.551455**	0.1221274	-0.0886**	-0.0427
South Atlantic* <sup>12</sup>		0.004	-0.4435808*	0.1523766	-0.0702*	-0.0289
South Central*		0.005	-0.5034182*	0.1812869	-0.0785*	-0.0322
North Central		0.091	-0.1982293	0.1171999	-0.0331	-0.0142
Ideology Scores*		0.001	0.0214196*	0.0064647	0.1431*	0.033
Legislative Professionalism*		0.001	-1.138593*	0.331339	-0.1066*	-0.0235
Moralistic Culture**		0	0.356131**	0.0909982	0.0632**	0.029
Traditionalistic Culture		0.814	-0.0335614	0.1428252	-0.0058	-0.0027

As would be expected, some of the strong relationships discovered in the bivariate analysis appear to be less strong or stronger in this model. The two variables that exhibited a strong relationship in bivariate analysis and maintain it here are the Percent Female Employed and Percent College-Educated variables. In no case did the direction of relationship change, but we can see that population density measures exhibit a less strong relationship with female representation than they did before. More importantly, the relationships between Percent Rural, Percent Farm and Percent Mining with female representation are no longer statistically significant. In other words, when other variables are controlled for, rurality, farming and mining are not necessarily associated with lower levels of female representation at the aggregate, national level. This is a slightly different answer to research question 1 than the answer provided through bivariate analysis. It does not entirely disconfirm hypothesis 1 – because rural areas are still associated with less women-friendly attributes – but it casts doubt on the idea that rural areas are inherently unfriendly to women running for and attaining political office. In other words, it is not population density per se that lowers the likelihood that women hold political office, but the fact that rural areas have lower levels of women-friendly variables than urban areas.

---

<sup>12</sup> Variables marked with a single star (\*) are significant at the .05 level.



On the other hand, the fact that the strong positive relationship remains between high proportions of women in the workforce (Percent Female Employed) and female representation at the state legislative district level confirms hypothesis 2, wholeheartedly.

Tables 5 through 10 represent the data split into regional breakdowns and analyzed separately.

**Table 5: Multivariate Logistic Analysis of Variables Expected to Influence Female Representation Limited to the North Atlantic Region**

<b>In the North Atlantic Region (n=1,527)</b>					
Independent Variables	LR chi2	Statistical Significance	Coefficient	Standard Error	Change in Probability (mean minus .5 SD to mean plus .5 SD)
Whole Model	74.1	0			
Constant		0	-7.523951	1.874225	
Percent Rural		0.417	0.2096123	0.2583637	0.0135
Percent Farm		0.824	-2.012092	9.047815	-0.0036
Percent Mining		0.273	-51.74945	47.25345	-0.0237
Percent Female Employed*		0.001	11.66497*	3.624937*	0.0483*
Percent Female Professionals		0.181	-1.298523	0.9708727	-0.0155
Income (in thousands)*		0.01	1.10E-02*	0.0042246*	0.0499*
Percent College-Educated		0.438	0.0085129	0.0109745	0.0141
Percent Black		0.284	0.0074286	0.0069325	0.0161
Percent Latino		0.066	0.012553	0.0068286	0.0257
Ideology Scores*		0.024	0.0275939*	0.0122243*	0.0291*
Legislative Professionalism		0.799	0.1963728	0.7705454	0.0055
Moralistic Culture*		0.001	0.8424488*	0.2525847*	0.0759*

Traditionalistic Culture	omitted				
--------------------------	---------	--	--	--	--

Table 5 shows the North Atlantic region. There are three statistically significant variables related to female representation in this region, including the ever-consistent Percent Female Employed, as well as Income, Moralistic Culture, and Ideology Scores. The differences between this model and the aggregate model suggest that something is indeed unique about female representation by region, although explanations as to why that may be are not immediately obvious with these results. If that initial conclusion is correct, it partially confirms hypothesis 1a. Unfortunately, the statistical significance of rurality in relation to female representation is nonexistent both at the aggregate and regional levels.

Perhaps surprisingly, of the three statistically significant variables, whether or not a state has a moralistic political culture actually has the strongest relationship with the likelihood that women will represent the state legislative districts within that state. Moralistic Culture is associated with nearly an 8% increase in probability of female representation, as opposed to increases in average household income and Percent Female Employment, both of which are associated with about a 5% increase in the probability of district-level female representation.

**Table 6: Multivariate Logistic Analysis of Variables Expected to Influence Female Representation Limited to the North Central Region**

In the North Central Region (n=1,215)					
Independent Variables	LR chi2	Statistical Significance	Coefficient	Standard Error	Change in Probability (mean minus .5 SD to mean plus .5 SD)
Whole Model	86.82	0			
Constant		0.001	-8.010636	2.405698	
Percent Rural		0.645	-0.2432817	0.5278106	-0.0133

Percent Farm		0.827	0.7407364	3.379407	0.006
Percent Mining		0.223	-14.85306	12.20049	-0.0228
Percent Female Employed*		0.028	10.14235*	4.6174*	0.0406*
Percent Female Professionals		0.252	1.681951	1.469709	0.0172
Income (in thousands)		0.983	-1.36E-04	0.0063263	-0.0004
Percent College-Educated*		0.001	0.0481522*	0.0140533*	0.0701*
Percent Black*		0.031	0.0133261*	0.0061654*	0.0341*
Percent Latino*		0.002	0.0298365*	0.0096948*	0.0432*
Ideology Scores		0.624	-0.0079515	0.0162439	-0.0082
Legislative Professionalism		0.726	-0.2989808	0.8541089	-0.0057
Moralistic Culture		0.297	0.158811	0.15219	0.0136
Traditionalistic Culture	omitted				

Table 6 shows the North Central region. In this region, the statistically significant variables, Percent Female Employed, Percent College-Educated, Percent Latino and Percent Black, are somewhat distinct from the statistically significant variables in the North Atlantic region. This means that while the percent of college graduates in a district is not significantly impactful in the North Atlantic region, in the North Central United States, one standard deviation increase in the proportion of college graduates in a district is associated with a 7% increase in the likelihood that women will run for an attain public office in that district.

**Table 7: Multivariate Logistic Analysis of Variables Expected to Influence Female Representation Limited to the South Atlantic Region**

<b>In the South Atlantic Region (n=936)</b>					
Independent Variables	LR chi2	Statistical Significance	Coefficient	Standard Error	Change in Probability

					(mean minus .5 SD to mean plus .5 SD)
Whole Model	73.04	0			
Constant		-0.12	-0.3120782	2.62597	
Percent Rural		0.129	-1.258127	0.8290009	-0.0616
Percent Farm		0.869	-3.558158	21.52358	-0.0059
Percent Mining		0.385	6.097946	7.013434	0.0163
Percent Female Employed		0.408	-4.568698	5.517138	-0.0198
Percent Female Professionals		0.483	1.381174	1.967548	0.0115
Income (in thousands)		0.158	-1.09E-02	0.0077121	-0.0373
Percent College-Educated*		0.038	0.035789*	0.017253*	0.0579*
Percent Black*		0.014	0.015181*	0.006193*	0.0506*
Percent Latino		0.14	-0.0149292	0.0101064	-0.0253
Ideology Scores		0.859	0.0057342	0.0322611	0.0057
Legislative Professionalism*		0.016	6.185744*	2.562677*	0.0407*
Moralistic Culture	omitted				
Traditionalistic Culture		0.455	-0.3243898	0.4337513	-0.021

In the South Atlantic region, presented in Table 7, Percent College-Educated appears for a second time, and Percent Black surfaces with state-level measures of Legislative Professionalism as statistically significant in their relationship with female representation. The positive relationship between Percent College-Educated and female representation is similar to the same relationship in the North Central region, but there are other inconsistencies between other variables and their associations with female representation.

The fact that the proportion of women in the workforce is not significant in the South Atlantic region is important because it suggests that at least one variable that consistently appears to be highly correlated with female representation is actually as variable as the others. The only

change made to any of these regressions was the selection of districts analyzed based on region.

Such a striking difference in relationships certainly suggests that what relates to female

representation varies according to location.

**Table 8: Multivariate Logistic Analysis of Variables Expected to Influence Female Representation Limited to the South Central Region**

<b>In the South Central Region (n=895)</b>					
Independent Variables	LR chi2	Statistical Significance	Coefficient	Standard Error	Change in Probability (mean minus .5 SD to mean plus .5 SD)
Whole Model	47.09	0			
Constant		0	-2.184803	2.470304	
Percent Rural		0.21	-0.8320243	0.6636081	-0.0319
Percent Farm		0.878	-1.488487	9.716883	-0.0037
Percent Mining		0.915	-0.6109922	5.708305	-0.0015
Percent Female Employed		0.841	-0.9259855	4.612419	-0.0033
Percent Female Professionals		0.977	0.0546531	1.906967	0.0004
Income (in thousands)		0.949	7.19E-04	0.0112018	0.0013
Percent College-Educated		0.355	0.0212185	0.022947	0.0197
Percent Black*		0.001	0.0204876*	0.006354*	0.054*
Percent Latino		0.305	0.0077627	0.0075694	0.0153
Ideology Scores		0.846	0.0061039	0.0314038	0.0025
Legislative Professionalism		0.355	3.039208	3.285799	0.0151
Moralistic Culture	omitted				
Traditionalistic Culture	omitted				

Table 8 presents the South Central region and echoes many of the same ideas proposed up to this point. The only statistically significant variable correlated with female representation is Percent Black, which indicates that an increase of about one standard deviation in the proportion of the Black population within a district is associated with a 5% increase in the likelihood that a woman will represent the district. No other variable has a statistically significant relationship with female representation.

One other factor to consider in Tables 7, 8, and 9 is the fact that the number of observations is somewhat reduced from 1,527 in the North Atlantic, and 1,215 in the North Central to 936 in the South Atlantic, 895 in the South Central and 874 in the Western region. These reduced numbers of observations may be part of the cause for the decreased statistical significance.

**Table 9: Multivariate Logistic Analysis of Variables Expected to Influence Female Representation Limited to the Western Region**

<b>In the Western Region (n=874)</b>					
<b>Independent Variables</b>	<b>LR chi2</b>	<b>Statistical Significance</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>Change in Probability (mean minus .5 SD to mean plus .5 SD)</b>
Whole Model	21.42	0.0649			
Constant		0.043	-4.431213	2.192499	
Percent Rural		0.382	-0.4100789	0.4692017	-0.0233
Percent Farm		0.306	4.201103	4.102565	0.0258
Percent Mining		0.224	-5.10516	4.196303	-0.0301
Percent Female Employed*		0.037	8.944418*	4.290167*	0.0437*
Percent Female Professionals		0.272	-1.60494	1.46242	-0.0218
Income (in thousands)		0.148	-9.96E-03	0.0068907	-0.0372
Percent		0.097	0.0218483	0.0131665	0.039

College-Educated					
Percent Black		0.621	0.0100495	0.020329	0.0088
Percent Latino		0.571	0.0038432	0.0067751	0.0141
Ideology Scores		0.291	-0.0192786	0.0182761	-0.0285
Legislative Professionalism		0.308	0.9046308	0.8872907	0.0291
Moralistic Culture		0.559	-0.1459716	0.2495443	-0.015
Traditionalistic Culture		0.609	0.1376731	0.2687921	

Table 9 shows the analysis of when the region is limited to the Western United States. The only statistically significant relationship in this model is the relationship between female representation and the Percent Female Employed variable.

Table 10 is a more simplistic representation of the differences between regions, illustrating the bivariate relationship between female representation and rurality by region.

**Table 10: Bivariate Analysis of Female Representation and Percent Rural by Regional Variables**

Regional Variable (n=)	LR chi2	Statistical Significance	Coefficient	Standard Error	Change in Probability y (min->max)	Change in Probability (mean minus .5 SD to mean plus .5 SD)
North Central** <sup>13</sup>						
(1,215)	43	0	-1.5081**	0.243612	-0.2232	-0.0843**
North Atlantic						
(1,527)	0.72	0.3948	0.14028	0.1642897	0.0267	0.0094
South Central**						
(895)	30.71	0	-1.711**	0.3272991	-0.1851	-0.0677**

<sup>13</sup> Variables marked with a double star (\*\*) are significant at the .001 level.

South Atlantic** (936)	44.68	0	-1.9363**	0.3133973	-0.2537	-0.0968**
West* <sup>14</sup> (847)	5.85	0.0156	-0.6679*	0.2824553	-0.1272	-0.0387*

Again, as noted in relation to Tables 7 through 9, statistical significance in each region may vary depending on the sample size available from each region (e.g. the Western region is quite small compared to the others). On the other hand, the statistical significance may also indicate that some regions with especially negative relationships between rurality and female representation, such as the South Atlantic and South Central regions, are actually less welcoming to women running for and attaining political office than regions where the relationship is not statistically significant (the North Atlantic) or where the relationship between female representation and rurality is weaker (the Western region.)

As I mentioned before, the insignificance of the relationship between rurality and female representation is somewhat disappointing from an interpretation standpoint. Even so, these analyses are not a lost cause. The variation of relationships between regions – even when the number of observations is quite similar (as with the South Central and Western regions) – makes the strong suggestion that place plays a significant role in determining what is important in relation to whether women will run for and attain political office. Similarly, most of the variables in this model have been demonstrated to correlate significantly with Percent Rural, Percent Farm and Percent Mining (sees Table 3A and 3B), and by that association, it is plausible that not all rural places, farming communities or mining communities are related to women’s representation in the same way in every region, which would be a confirmation of hypothesis 1a and provides an answer to research question 1a.

---

<sup>14</sup> Variables marked with a single star (\*) are significant at the .05 level.



Tables 11 through 14 present another set of samples broken out of the aggregate model for separate analysis. In this case, an analysis is conducted of nearly the same set of variables as the whole model and regional-level analyses, but this time the samples are dictated by the percent of the population living in rural or urban settings, in order to address research question 2b and test hypothesis 1c.

**Table 10: Multivariate Logistic Regression of State Legislative Districts with Greater Than 60% of the Population Living in Rural Areas**

When greater than 60% of the District Population Lives in Rural Areas (n=1,204)					
Independent Variables	LR chi2	Statistical Significance	Coefficient	Standard Error	Change in Probability (mean minus .5 SD to mean plus .5 SD)
Whole Model	82.92	0			
Constant		0.002	-8.232211	2.713909	
Percent Farm		0.273	2.89692	2.640714	0.0164
Percent Mining		0.547	2.462095	4.084847	0.0072
Percent Female Employed*		0.018	12.50564*	5.279323*	0.0292*
Percent Female Professionals		0.631	0.5895441	1.227104	0.0053
Income (in thousands)*		0.011	2.61E-02*	0.0102764*	0.0407*
Percent College-Educated		0.178	-0.0283787	0.0210931	-0.0242
Percent Black		0.181	0.0128188	0.009584	0.0216
Percent Latino*		0.023	0.0471969*	0.020687*	0.0258*
North Atlantic		0.511	-0.2675618	0.4066925	-0.0153
South Atlantic		0.298	-0.6970375	0.6703892	-0.0328
South Central		0.717	-0.2576302	0.7104047	-0.0137
North Central		0.146	-0.5248458	0.3609499	-0.0137
Ideology		0.011	0.0370204*	0.0146192*	0.0446*

Scores*					
Legislative Professionalism		0.892	0.1448805	1.067453	0.0015
Moralistic Culture		0.165	0.3630242	0.2611658	0.0226
Traditionalistic Culture		0.557	-0.363712	0.6188836	-0.0223

Table 11 presents results from a sample of districts populated primarily by people living in rural areas. To be precise, this model includes only districts where more than 60% of the population is living in a rural area. Therefore, these 1,197 districts are the most rural districts in the United States.

It is worth noting that in these rural districts, Percent Female Employed, Income, Percent Latino, and, to a lesser degree, ideology seem to play a prevalent and statistically significant role in whether or not a woman will hold a given district's seat. The fact that Percent Farming and Percent Mining are not significantly related to female representation may also be evidence against hypotheses 2a and 2b, given that rural areas have the greatest prevalence of mining and farming communities and we would expect for a relationship, if there is one, to appear in this sample. On the other hand, the insignificance of their relationship may be due to the presence of other rural labor forces that are even less friendly to women than mining or farming.

**Table 12: Multivariate Logistic Regression of State Legislative Districts with Less Than 40% of the Population Living in Rural Areas**

When less than 40% of the District Population Lives in Rural Areas (n=3,564)					
Independent Variables	LR chi2	Statistical Significance	Coefficient	Standard Error	Change in Probability (mean minus .5 SD to

					mean plus .5 SD)
Whole Model	145.29	0			
Constant		0.004	-3.066927	1.068047	
Percent Farm		0.829	-1.264395	5.870844	-0.0018
Percent Mining*		0.031	-11.21873*	5.19524*	-0.0268*
Percent Female Employed*		0.014	5.26264*	2.144435*	0.0281*
Percent Female Professionals		0.194	-1.025532	0.7901186	-0.0112
Income (in thousands)		0.482	-1.98E-03	0.0028242	-0.0089
Percent College- Educated**		0	0.0297443**	0.0065668**	0.0542**
Percent Black**		0	0.0132409**	0.0029572**	0.0479**
Percent Latino**		0.001	0.010403**	0.0031858**	0.0307**
North Atlantic**		0	-0.6671018**	0.1375003**	-0.0585**
South Atlantic*		0.012	-0.4208831*	0.1668674*	-0.0304*
South Central*		0.006	-0.5657248*	0.207516*	-0.0375*
North Central		0.176	-0.181408	0.134113	-0.0144
Ideology Scores*		0.029	0.0170881*	0.0078474*	0.0285*
Legislative Professionalism*		0.002	-1.158624*	0.3707887*	-0.0286*
Moralistic Culture*		0.016	0.2536457*	0.1049928*	0.0224*
Traditionalistic Culture		0.719	-0.0556314	0.1548322	-0.0049

In Table 12, we can see that when less of the population lives in rural areas, there are more variables that seem to have a strong positive association with the likelihood that a woman will hold that district's seat. Percent Mining actually has a significant and negative relationship in this model, providing evidence of confirmation for hypothesis 2a. It may be that in the most rural districts, whatever attributes are particular to mining communities have already been accounted for by other variables in the model, including possibly the Percent Female Employment, which has repeatedly demonstrated a strong and significant positive relationship with female representation. If that is the case, it makes some sense that in a model where mining

communities have fewer demographic characteristics in common with other districts in the sample, a variable that represents the Percent Mining would have more statistical significance.

Other significant variables in this model include Percent Female Employed, Percent College-Educated, Percents Black and Latino, as well as many of the regional dummy variables and all of the state-level variables except Traditionalistic Culture.

**Table 13: Multivariate Logistic Regression of State Legislative Districts with Greater Than 60% of the Population Living in Urban Areas**

When greater than 60% of the District Population Lives in Urban Areas (n=3,021)					
Independent Variables	LR chi2	Statistical Significance	Coefficient	Standard Error	Change in Probability (mean minus .5 SD to mean plus .5 SD)
Whole Model	120.62	0			
Constant		0.022	-2.654606	1.158265	
Percent Farm		0.645	5.415085	11.75629	0.004
Percent Mining		0.126	-12.63863	8.262539	-0.02
Percent Female Employed*		0.077	4.103659*	2.322517*	0.0227*
Percent Female Professionals		0.427	-0.7073463	0.8908791	-0.0076
Income (in thou)		0.18	-0.0040165	0.002996	-0.0189
Percent College-Educated**		0	0.0353946**	0.0070722**	0.0666**
Percent Black**		0	0.0138852**	0.0031326**	0.0526**
Percent Latino*		0.008	0.0091487*	0.0034605*	0.0278*
North Atlantic**		0	-0.6843782**	0.1503449**	-0.0616**
South Atlantic*		0.027	-0.4029706*	0.1826739*	-0.0306*
South Central		0.052	-0.440875	0.22653	-0.0293
North Central		0.182	-0.1950273	0.146173	-0.0156
Ideology Scores		0.149	0.0125941	0.0087279	0.0211
Legislative Professionalism*		0.004	-1.16062*	0.3998969*	-0.0294*

Moralistic Culture		0.066	0.2109258	0.1146467	0.0185
Traditionalistic Culture		0.246	-0.1966227	0.1695892	-0.0177

Table 13 presents the most urban populations, including all districts where over 60% of the population lives in urban areas. The strongest variables at play here are the Percent Female Employed, Percent College-Educated, Percents Black and Latino populations, as well as some of the regional dummy variables and ratings of Legislative Professionalism. Percent Mining has lost its statistical significance, likely in part due to the fact that now there are hardly any rural populations included in the sample, whereas in Table 12, there were indeed more peripheral districts included in the sample. Here, in the most urban districts, there are simply fewer mining communities, and there are greater concentrations of college graduates and Black populations, both of which are strongly and positively associated with female representation and very statistically significant in this model.

Just as with the regional models, these differences in statistical significance and strength of association indicate a possible confirmation of at least one hypothesis, in this case, hypothesis 1c. For closer comparisons, I will later examine the strength of association side-by-side, but as of now, we are beginning to see differences in districts with populations concentrated at different densities.

**Table 14: Multivariate Logistic Regression of State Legislative Districts with Less Than 40% of the Population Living in Urban Areas**

When less than 40% of the District Population Lives in Urban Areas (n=2,141)					
Independent	LR chi2	Statistical	Coefficient	Standard	Change in

Variables		Significance		Error	Probability (mean minus .5 SD to mean plus .5 SD)
Whole Model	131.22	0			
Constant		0	-9.565143	1.860259	
Percent Farm		0.14	2.964695	2.007508	0.0154
Percent Mining		0.7	1.158331	3.004596	0.0037
Percent Female Employed**		0	14.67616**	3.587604**	0.0419**
Percent Female Professionals		0.62	0.4535259	0.9139047	0.0042
Income (in thousands)*		0.003	0.0203199*	0.0068759*	0.0333*
Percent College- Educated		0.684	-0.0056845	0.0139638	-0.005
Percent Black*		0.044	0.0126268*	0.00627*	0.0241*
Percent Latino*		0.009	0.0200639*	0.0076733*	0.0226*
North Atlantic		0.346	-0.225126	0.2389173	-0.0131
South Atlantic*		0.012	-0.8622533*	0.3417413*	-0.0416*
South Central*		0.008	-0.9727755*	0.3669747*	-0.0534*
North Central*		0.006	-0.6232214*	0.2282872*	-0.0361*
Ideology Scores		0.078	0.0185302	0.0105297	0.0231
Legislative Professionalism		0.382	0.6371605	0.7287864	0.0079
Moralistic Culture*		0.007	0.4873687*	0.1815641*	0.0323*
Traditionalistic Culture		0.316	0.3181479	0.3174417	0.0207

Table 14, finally, represents the districts in which less than 40% of the population lives in urban areas. This output should look similar to the output from the most rural districts' sample presented in Table 11. In this case, the statistically significant variables include Percent Female Employed, Percent Black, Percent Latino, Moralistic Culture, and many of the regional dummy variables, although not the same ones.

**Table 15: Comparison of Change in Probability (Measure of Association) and Statistical Significance Across Multivariate Analyses of Districts Split by Percent Rural-Urban**

MULTI-VARIATE ANALYSIS:	Whole Model	Greater than 60% of the District Population Lives in Rural Areas	Less than 40% of the District Population Lives in Rural Areas	Greater than 60% of the District Population Lives in Urban Areas	When less than 40% of the District Population Lives in Urban Areas
<i>Independent Variables</i>	<i>Every District</i> (n=5,447)	<i>Most Rural</i> (n=1,204)	<i>Least Rural</i> (n=3,564)	<i>Most Urban</i> (n=3,021)	<i>Least Urban</i> (n=2,141)
Percent Farm	-0.0042	0.0164	-0.0018	0.004	0.0154
<b>Percent Mining</b> <sup>15</sup>	-0.0053	0.0072	-0.0268*	-0.02	0.0037
Percent Female Employed	0.0319**	0.0292*	0.0281*	0.0227*	0.0419**
Percent Female Professionals	-0.0053	0.0053	-0.0112	-0.0076	0.0042
<b>Income (in thousands)</b>	-0.0002	0.0407*	-0.0089	-0.0189	0.0333*
<b>Percent College-Educated</b>	0.0464**	-0.0242	0.0542**	0.0666**	-0.005
<b>Percent Black</b>	0.0366**	0.0216	0.0479**	0.0526**	0.0241*
Percent Latino	0.0297**	0.0258*	0.0307**	0.0278*	0.0226*
<i>North Atlantic</i> <sup>16</sup>	-0.0427**	-0.0153	-0.0585**	-0.0616**	-0.0131
<i>South Atlantic</i>	-0.0289*	-0.0328	-0.0304*	-0.0306*	-0.0416*
<i>South Central</i>	-0.0322*	-0.0137	-0.0375*	-0.0293	-0.0534*
<i>North Central</i>	-0.0142	-0.0137	-0.0144	-0.0156	-0.0361*
<b>Ideology Scores</b>	0.0330*	0.0446*	0.0285*	0.0211	0.0231
<b>Legislative Professionalism</b>	-0.0235*	0.0015	-0.0286*	-0.0294*	0.0079
<b>Moralistic Culture</b>	0.0290**	0.0226	0.0224*	0.0185	0.0323*
Traditionalistic Culture	-0.0027	-0.0223	-0.0049	-0.0177	0.0207

Table 15 presents the change in probability statistic for all of the tested populations alongside one another, as well as the aggregate national multivariate regression. Percent Mining,

<sup>15</sup> Variables in **bold** were statistically significant in some samples of districts and not statistically significant in others.

<sup>16</sup> Regional dummy variables are in *italics* to indicate that they were also statistically significant in some samples of districts and not statistically significant in others.

Income, Percent College-Educated, Percent Black, Ideology, Legislative Professionalism and Moralistic Culture all differed in their relationship to women's descriptive representation depending on the districts included in the model. In some cases (Percent Mining, Income, and Percent College-Educated in particular), the relationship changed with respect to both the direction and the strength of the relationship exhibited with women's representation on the state legislative district level.

The only variable that maintained a consistently strong and positive relationship with female representation was Percent Female Employed, measuring the proportion of women in the workforce. That particular strength echoes the findings of researchers both internationally and domestically, indicating that women's presence in the workforce is linked to women's simultaneous presence in politics. This is a final strong confirmation of hypothesis 2.

The difference in results with regard to the Percent Mining variable is especially noteworthy given that it relates integrally to the purpose of this inquiry. Although its inconsistency makes it difficult to interpret, the fact that it is finally significant in at least one (relatively large) sample, does seem to support the idea that dominant mining-related employment is not amenable to women running for and attaining public office. Given that the strength of the relationship is small (a predicted change of -2.7% in the likelihood that a woman will hold that district's seat), this is also a measure of a relatively small change in the percent of mining within a district as it measures only a change of one half standard deviation below the mean to one half standard deviation above the mean. Ultimately, the results are not so substantial as to indicate anything conclusive, but there is a sense that something is right about the connections proposed. I will return to this in the conclusions and interpretations section of this paper.



A similarly interesting result appears in the row dedicated to Percent College-Educated within a district. It is striking that college graduates appear to have an impact only in the more urban districts – and then the statistical significance of the relationship is strong. In both the Most Rural and Least Urban columns, though, we can see that there is no significant relationship with the proportion of college graduates, suggesting that some other factor is more important or more prevalent in rural districts so as to displace the importance of the college-educated. This finding provides a relatively strong confirmation of hypothesis 1c and addresses research question 2b, in that it demonstrates a clear difference in the strength of the relationship between a control variable that is widely considered by scholars of American politics to be a central explanation of why women run for and attain political office where they do (Darcy, Welch and Clark 1994; Arceneaux 2001; Palmer and Simon 2006).

The measure of average household income represents a mirror image of the relationship exhibited between the Percent College-Educated and female representation. In other words, in both the Most Rural and the Least Urban districts, income appears to be positively and significantly associated with women running for and attaining political office. While the strength of the relationship is slightly less strong (3-4% changes in the probability of a female representative as opposed to 5-7% changes related to Percent College-Educated in the more urban districts), and the statistical significance is at the .05 level rather than the .001 level, it is still interesting that Income is significant where Percent College-Educated is not and vice versa. Given how highly correlated these two variables are between themselves, it is possible that they are measuring something similar, but there is still a clear and consistent difference across these models. Again, this provides confirmation for hypothesis 1c, in that it demonstrates which

variables seem to have a distinct relationship with female representation in urban versus in rural districts.

Both the proportions of Latino and Black populations within a district are consistently associated positively with women's representation. They vary widely, though, which makes logical sense given that racial diversity tends to be more prevalent in urban areas, although certainly not always. It is interesting to note that Latino populations seem to be more important than Black populations in more rural districts, although again, this may be related more to the distribution of populations than a substantive difference in the relationship each population has with the likelihood that a woman will run for and attain political office within in a particular district.

Legislative professionalism seems to have an inconsistent and relatively weak relationship with female representation, while moralistic cultures are, for the most part as predicted, although not always significant. Another state level variable, ideology, is significant in only the Most Rural and Least Rural columns, which may indicate that Most Urban districts and Least Urban districts are more ideologically homogeneous, but the findings are inconclusive.

The regional dummy variables can be considered to measure against the West as a reference category. In the aggregate model, the regions all demonstrate a negative relationship with female representation, meaning that the Western region is most likely the more amenable location to female candidacy, at least preliminarily.

### **Conclusions and Reflections:**

At least in part, my analyses confirm much of what has been determined by scholars of American politics, demonstrating that many of the findings regarding the demographics of women-friendly districts are indeed highly associated with levels of female representation. On an

aggregate level, women are more likely to run for and attain political office in urban rather than in rural areas, and they are more likely to run in districts with relatively higher average household incomes, higher percentages of college graduates and racial diversity, as well as in states that are more liberal and/or moralistic. Women are also more likely to run when they make up a larger proportion of the district workforce.

On the other hand, preliminary looks at differences in the strength of the relationship between control and independent variables in primarily urban and primarily rural districts suggest to me that a closer look into the rural urban continuum would not be fruitless. Rather, there are definitively distinct variables at play when districts within the United States are split up according to population density – mining is one example, but percentages of college graduates and income demonstrated an equally interesting change in relationship with female representation when they were tested in primarily urban or primarily rural districts. While it seems unlikely that this is due solely to the essence of population density, it does seem likely that there is more at play in this relationship than scholars have previously noticed.

Certainly part of this relationship has to do with the fact that some variables, including for example high proportions of Black and Latino populations, are simply less prevalent in rural areas. In fact, the correlation matrix revealed the relationships between Percent Rural, Percent Mining, and Percent Farm with the rest of the explanatory variables to be consistently opposite the relationship Female Representative exhibited with those same explanatory variables. This lends credence to the idea that rural areas simply do not have as many college-educated people, as diverse a population, or as liberal an ideology as many urban places do. Even so, the impact of these control variables, when the more urban districts are left out of the equation, consistently changes. Even though there are lower levels of female employment and average household

income in rural districts, these variables matter especially with regard to whether women pursue and attain political office. It leaves many questions, but particularly; why does a college-educated populace seem to be less important in rural settings than in urban ones? And if not farming and mining, which professions are prevalent in rural areas and also less welcoming to women?

Although it may be true that rural areas are generally less conducive to female candidacy and representation than are urban areas (Jones and Starr 1979), a few of the final analyses in this inquiry indicate that such a conclusion is not necessarily a clean cut, universal truth. Rather, there is complexity to urbanization and rurality in the United States that bears significance in the way that women run for and attain political office.

Because women do run for office in rural areas, and in some rural districts more than others, it is worthwhile to explore the factors that may play a role in encouraging that choice. It is especially important to consider that if these factors weigh differently than we may have expected, there could be opportunities for understanding how place-based politics inform much of women's political activity. For women from rural places – places that the literature has generally declared less amenable to female candidacies – it becomes especially important to understand where and how they will be most successful if they do choose to run for office.

Unfortunately, although there does appear to be a consistently negative relationship between percentages of mining-related employment within a district and the likelihood that a woman will hold that district's seat, the relationship is not entirely clear. Mining and agricultural populations correlate highly with rural areas, and while the presence of mining and agriculture may in part explain the negative relationship of generic rural areas with female representation, it does not explain why mining and agriculture have that affect. Of course, we have the theory from

Ross (2008) to lean on for support, which does contribute to the idea that fewer women in a given dominant workforce translates into fewer women in political office, but neither farming nor mining seems to capture the dominant workforce in rural areas. Nonetheless, nearly every statistical model in this inquiry reveals a strong relationship between the presence of women in political office and their proportionate presence in the workforce. While the specific connection between industry type and women's political participation may be as yet unanswered, the connection between women working and running for office is clearly strong and significant.

In a future study, I would recommend including measures of other workforce sectors to analyze the differences in relationships between natural resource dependent industries and others, such as the service industry. This might be especially helpful because it would allow for increased data regarding political economies and a greater focus on differences in the ability of workers to associate in varying industries. One of my attempts to measure a women's presence in other sectors was through the percent female professional employment measure, which I expected to have a more obviously positive and strong relationship with female representation. The lack of an obvious relationship was likely due to a measurement problem, and a refined measurement would be beneficial in future inquiries. It may also be helpful to widen the scope of work sectors and include an analysis that takes into account the population density surrounding certain types of work, all of which could yield more solid and clear conclusions.

## Works Cited

- Anderson, Kathryn. 1997. "Steps to Political Equality: Woman Suffrage and Electoral Politics in the Lives of Emily Newell Blair, Anne Henrietta Martin, and Jeanette Rankin." *Frontiers* 18(1): 101-122.
- Arceneaux, Kevin. 2001. "The 'Gender Gap' in State Legislative Representation: New Data to Tackle and Old Question." *Political Research Quarterly* 54(1): 143-160.
- Baslevant, Cem, and Ozlem Onaran. 2004. "The Effect of Export-Oriented Growth on Female Labor Market Outcomes in Turkey." *World Development* 32(8): 1375-1393.
- Berry, William D., Evan J. Ringquist, Richard C. Fording, and Russell L. Hanson. 1998. "Measuring Citizen and Government Ideology in the American States, 1960-93." *American Journal of Political Science* 42(1): 327-348.
- Birdsall, Nancy, Thomas Pinckney and Richard Sabot. 2000. "Natural Resources, Human Capital, and Growth." Carnegie Endowment for International Peace, Global Policy Program Working Papers, No. 9.
- Burns, Nancy, Kay Lehman Scholzman, and Sidney Verba, et al. 2001. *The Private Roots of Public Action: Gender, Equality, and Political Participation*. Cambridge, MA: Harvard University Press.
- Burns, Nancy. 2008. "Gender in the Aggregate, Gender in the Individual, Gender and Political Action." In *Political Women and American Democracy*, eds. Christina Wolbrecht, Karen Beckwith, and Lisa Baldez. New York: Cambridge University Press.
- Carbert, Louise. 2003. "Above the Fray: Rural Women Leaders on Regional Development and Electoral Democracy in Atlantic Canada." *Canadian Journal of Political Science* 36(1): 159-183.
- Carroll, Susan. 2005. "2004 Elections and Women: An Analysis of Statewide and State Legislative Election Results." *Spectrum: Journal of State Government* 78(1): 23-25.
- Carroll, Susan. 2008. "Commentary on Emmy E. Werner's 1968 Article, 'Women in the State Legislatures.'" *Political Research Quarterly* 61(1): 25-28.
- Carroll, Susan, and Sanbonmatsu, Kira. 2009. "Gender and the Decision to Run for the State Legislature." Presented at the Annual Meeting of the Midwestern Political Science Association, Chicago.
- Champion, Tony, and Graeme Hugo. 2004. *New Forms of Urbanization: Beyond the Urban-Rural Dichotomy*. Burlington, VT: Ashgate Publishing.
- Clarke, Susan E., Lynn A. Staeheli, and Laura Brunell. 1995. "Women Redefining Local Politics." In *Theories of Urban Politics*, eds. David Judge, Gerry Stoker, and Harold Wolman. Thousand Oaks, CA: Sage Publications.
- Cromartie, John B. and Linda L. Swanson. 1996. "Census Tracts More Precisely Define Rural Populations and Areas." *Rural Development Perspectives* 11(3): 31-39.
- Darcy, R., Susan Welch, and Janet Clark. 1985. "Women Candidates in Single- and Multi-Member Districts: American State Legislative Races." *Social Science Quarterly* 66(4): 945-954.
- Darcy, R., Susan Welch, and Janet Clark. 1994. "Women, Elections, and Representation." USA: University of Nebraska Press.
- DeLeon, Richard, and Katherine Naff. 2003. "Identity Politics and Local Political Culture: The Politics of Gender, Race, Class and Religion in Comparative Perspective." Presented at the Annual Meeting of the American Political Science Association, Philadelphia.

- Diamond, Irene. 1977. *Sex Roles in the State House*. New Haven, CT: Yale University Press.
- Dolan, Kathleen. 2008. "Women as Candidates in American Politics: The Continuing Impact of Sex and Gender." In *Political Women and American Democracy*, eds. Christina Wolbrecht, Karen Beckwith, and Lisa Baldez. New York: Cambridge University Press.
- Duerst-Lahti, Georgia. 1998. "Institutional Gendering: Theoretical Insights into the Environment of Women Officeholders." In *Women and Elective Office*, eds. Susan Thomas and Clyde Wilcox. New York: Oxford University Press.
- Elazar, Daniel J. 1966. *American Federalism; a View from the States*. New York: Crowell.
- Erikson, Robert, Gerald Wright and John McIver. 1993. *Statehouse Democracy*. New York: Cambridge University Press.
- Fisher, Marguerite J. 1947. "Women in the Political Parties." *Annals of the American Academy of Political and Social Science* 251: 87-93.
- Flanders, Laura. 2007. "Bottom Up Power." *Nation* 284(16): 11-16.
- Fox, Richard, and Jennifer Lawless. 2004. "Entering the Arena? Gender and the Decision to Run for Office." *American Journal of Political Science* 48(2): 264-280.
- Fox, Richard, and Jennifer Lawless. 2010. "If Only They'd Ask: Gender, Recruitment, and Political Ambition." *Journal of Politics* 72(2): 310-326.
- Heffernan, Virginia. 2011. "Mining Reality." *New York Times*, 4 April. <http://opinionator.blogs.nytimes.com/2011/04/03/mining-reality/> (April 4, 2011).
- Hogan, Robert E. 2001. "The Influence of State and District Conditions on the Representation of Women in U.S. State Legislatures." *American Politics Research* 29(1): 4-24.
- Horton, Susan. 1999. "Marginalization Revisited: Women's Market Work and Pay, and Economic Development." *World Development*. 27(3): 571-82.
- Jones, Woodrow, and Albert J. Nelson. 1981. "Correlates of Women's Representation in Lower State Legislative Chambers." *Social Behavior and Personality*, 1:9-15.
- Jones, Woodrow, and Rachel Starr. 1979. "The Discriminating Power of Ecological Variables in the Recruitment of Men and Women in Rural Politicians." *Social Behavior and Personality* 7(2): 169-172.
- Lawless, Jennifer, and Richard Fox. 2005. "It Takes a Candidate." New York: Cambridge University Press.
- Lilley III, William, Laurence J. DeFranco, Mark F. Bernstein, and Kari L. Ramsby. 2008. *The Almanac of State Legislative Elections: Voting and Demographics 2000-2006*, 3<sup>rd</sup> edition. Washington, DC: CQ Press.
- Little, Thomas H., Dana Dunn, and Rebecca E. Deen. 2001. "A View from the Top: Gender Differences in Legislative Priorities Among State Legislative Leaders." *Women & Politics* 22(4): 29-50.
- Mansbridge, Jane. 1999. "Should Blacks Represent Blacks and Women Represent Women? A Contingent 'Yes.'" *The Journal of Politics* 61(3): 628-657.
- Merritt, Sharyne. 1977. "Winners and Losers: Sex Differences in Municipal Elections." *American Journal of Political Science* 21(4): 731-743.
- Montana Legislature. Facts and Statistics. 2009. *Women Legislators*.
- Montana's Official State Website. 2007. "Members of the 2007 Montana House of Representatives." <http://nris.mt.gov/gis/legislat/2007/list.asp?Type=House> (November 1, 2010).
- Moon, Seungsook. 2002. "Women and Democratization in the Republic of Korea." *The Good Society* 11(3): 36-42.

- National Conference of State Legislatures. 2011. "Women in State Legislatures: 2011." July 30, 2010. <http://www.ncsl.org/default.aspx?tabid=15398> (December 12, 2010).
- Nechemias, Carol. 1987. "Changes in the Election of Women to U.S. State Legislative Seats." *Legislative Studies Quarterly* 12 (1): 125-42.
- Niven, David. 1998. *The Missing Majority: The Recruitment of Women as State Legislative Candidates*. Westport, CT: Greenwood Publishing Group.
- Norrander, Barbara, and Clyde Wilcox. 1998. "The Geography of Gender Power: Women in State Legislatures." In Sue Thomas and Clyde Wilcox, eds., *Women and Elective Office: Past, Present, and Future*. Oxford, UK: Oxford University Press.
- Ondercin, Heather L., and Susan Welch. 2009. "Comparing Predictors of Women's Congressional Election Success." *American Politics Research* 37(4): 593-613.
- Palmer, Barbara, and Dennis Simon. 2006. *Breaking the political glass ceiling*. New York: Routledge.
- Palmer, Barbara, and Dennis Simon. 2008. "Breaking the Political Glass Ceiling: Incumbency, Redistricting, and the Success of Women Candidates." *Thomas Jefferson Law Review* 31(1): 29-52.
- Reingold, Beth. 2000. *Representing Women: Sex, Gender, and Legislative Behavior in Arizona and California*. Chapel Hill: The University of North Carolina Press.
- Reingold, Beth, Kathleen A. Bratton, and Kerry L. Haynie. 2009. "Descriptive Representation in State Legislatures and Intersections of Race, Ethnicity, and Gender." Presented at the American Empirical Series, Palo Alto.
- Ridge, Charlotte. 2009. "Gender, Community Involvement and Small Town Politics." Presented at the Midwest Political Science Association Meetings, Chicago.
- Ritter, Gretchen. 2008. "Gender as a Category of Political Analysis." In *Political Women and American Democracy*, eds. Christina Wolbrecht, Karen Beckwith, and Lisa Baldez. New York: Cambridge University Press.
- Ross, Michael. 1999. "The Political Economy of the Resource Curse." *World Politics* 51(2): 296-322.
- Ross, Michael L. 2008. "Oil, Islam, and Women." *American Political Science Review* 102(1): 107-123.
- Rule, Wilma. 1990. "Why More Women Are State Legislators." *Western Political Quarterly* 43(2): 437-448.
- Sachs, Jeffrey, and Andrew M. Warner. 1997. *Natural Resource Abundance and Economic Growth*. Center for International Development and Harvard Institute for International Development Working Paper Harvard University 02/5398, November. Cambridge, MA: Harvard University. Available at [http://www.cid.harvard.edu/ciddata/warner\\_files/natresf5.pdf](http://www.cid.harvard.edu/ciddata/warner_files/natresf5.pdf).
- Sanbonmatsu, Kira. 2002. "Political Parties and the Recruitment of Women to State Legislatures." *Journal of Politics* 64(3): 791-809.
- Sanbonmatsu, Kira. 2006a. "Gender Pools and Puzzles: Charting 'Women's Path' to the Legislature." *Politics & Gender* 2(3): 387-400.
- Sanbonmatsu, Kira. 2006b. "The Legislative Party and Candidate Recruitment in the American States." *Party Politics* 12(2): 233-256.
- Sanbonmatsu, Kira. 2006c. *Where Women Run: Gender and Party in the American States*. Ann Arbor: The University of Michigan Press.



- Scholzman, Kay Lehman, Nancy Burns, and Sidney Verba. 1999. "“What Happened at Work Today?": A Multistage Model of Gender, Employment, and Political Participation." *The Journal of Politics* 61(1): 29-53.
- Smith, Adrienne R., Beth Reingold, and Michael Leo Owens. Forthcoming. "The Political Determinants of Women's Descriptive Representation in Cities." *Political Research Quarterly* 1-36.
- Squire, Peverill. 2007. "Measuring State Legislative Professionalism: The Squire Index Revisited." *State Politics & Policy Quarterly* 72(2): 211-227.
- U.S. Census Bureau. 2000. "State Legislative District Summary File (Sample)." Generated by Rylee Sommers-Flanagan using *American FactFinder*: <http://factfinder.census.gov> (January-February, 2011).
- Welch, Susan, and Albert K. Karnig. 1979. "Correlates of Female Office Holding in City Politics." *Journal of Politics* 41(2): 478-492.
- Werner, Brian L. 1998. "Urbanization, Proximity, and the Intra-State Context of Women's Representation." *Women & Politics* 19(2): 81-93.
- Werner, Emmy E. 1968. "Women in the State Legislatures." *Western Political Quarterly* 21(1): 40-50.

## Appendix A: List of Variables

<b>Independent and Control Variables (Description)</b>	<b>Purpose and type of variable</b>	<b>Variable Name (in dataset)</b>
Female Representative in Legislative District Seat	Dependent, dichotomous	femaleII
Population Density of District (Rural vs. Urban indicator, coded)	Independent, categorical	ruralurban
% of the Population Living in Rural Areas	Independent, continuous	prcnrural
% of the Population Living in Urban Areas	Independent, continuous	prcnturban
% of the Population Living in Suburban Areas	Independent, continuous	prcntsuburban
% of Mining-Related Labor	Independent, continuous	prcntmining
Farm Residences as % of the District Population	Independent, continuous	prcntfarm
Women as % of District Labor Force	Independent, continuous	prcntemplF
Women Professionals as % of District Labor Force	Control (demographic district level), continuous	prcntprofF
Mean Household Income for District in Thousands	Control (demographic district level), continuous	income_th
% College Educated in District	Control (demographic district level), continuous	college
% Black Population in District	Control (demographic district level), continuous	perblack
% Latino Population in District	Control (demographic district level), continuous	perl原因
North Atlantic Region	Control (regional), dichotomous	northa
South Atlantic Region	Control (regional), dichotomous	southa
South Central Region	Control (regional), dichotomous	southc

North Central Region	Control (regional), dichotomous	northc
Multi-Member District	Control (structural district level), dichotomous	mmdfree
Squire Professionalism Index	Control (structural state level), continuous	professional
Erikson, Wright and McIver (1993) Ideology Scores (high scores = liberal)	Control (ideology state level), continuous	ewmideol96_03
Moralistic Political Culture	Control (ideology state level), dichotomous	moralistic
Traditionalistic Political Culture	Control (ideology state level), dichotomous	traditionalistic

## Appendix B: Frequency Tables

<b>Categorical Variables</b>	<b>Frequency</b>	<b>Percent</b>
<b>Female</b>	<b>5,447</b>	<i>Percent</i>
0	4,167	76.5
1	1,280	23.5
<b>Rural-Urban</b>	<b>5,445</b>	<i>Percent</i>
1	1,197	21.98
2	706	12.97
3	3,542	65.05
<b>Multi-Member District</b>	<b>5,447</b>	<i>Percent</i>
0	4,466	81.99
1	981	18.01
<b>Moralistic Culture</b>	<b>5,407</b>	<i>Percent</i>
0	3,582	66.25
1	1,825	33.75
<b>Traditionalistic Culture</b>	<b>5,407</b>	<i>Percent</i>
0	3,581	66.23
1	1,826	33.77
<b>Individualistic Culture</b>	<b>5,407</b>	<i>Percent</i>
0	3,651	67.52
1	1,756	32.48
<b>North Atlantic</b>	<b>5,447</b>	<i>Percent</i>
0	3,920	71.97
1	1,527	28.03
<b>South Atlantic</b>	<b>5,447</b>	<i>Percent</i>
0	4,511	82.82
1	936	17.18
<b>South Central</b>	<b>5,447</b>	<i>Percent</i>
0	4,552	83.57
1	895	16.43
<b>North Central</b>	<b>5,447</b>	<i>Percent</i>
0	4,232	77.69
1	1,215	22.31
<b>West</b>	<b>5,447</b>	<i>Percent</i>
0	4,573	83.95
1	874	16.05

<b>Continuous Variables</b>	<b>Number of Observations</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
Percent Urban and Suburban Added	5446	0.7032542	0.3244502	0	1
Percent Urban	5446	0.5636523	0.4386147	0	1
Percent Suburban	5446	0.1390448	0.231812	0	1
Percent Rural	5446	0.2967405	0.3244548	0	1
Percent Farm	5446	0.0147995	0.0290674	0	0.2427641
Percent Mining	5447	0.0054092	0.0166859	0	0.2865081
Percent Female Employed	5447	0.471021	0.0258303	0.2473753	0.6082836
Percent Female Professional	5447	0.4587191	0.0617878	0.1451613	0.7943925
Income (in Thousands)	5447	60.64822	21.17269	19.085	250.617
Percent College-Educated	5447	18.37109	9.231309	3.2	64
Percent Black	5447	11.06591	17.44062	0	92
Percent Latino	5447	8.428842	13.40244	0	94.8
Ideology Scores	5447	-12.92488	8.917017	-30.2	7.9
Legislative Professionalism	5447	0.181365	0.1194826	0.027	0.626

## Appendix C: OLS Analyses of Independent Variables in relation to other explanatory variables

Table A: Bivariate Ordinary Least Squares (OLS) Analysis of the Relationship between the **Percent Rural** Population and the Independent and Control Variables Expected to Influence the Likelihood that a Woman Will Hold a Seat Representing a Given District

<b>Independent Variables (dependent: District Percent Rural)</b>	<b>R-squared</b>	<b>Statistical Significance</b>	<b>Coefficient</b>	<b>Standard Error</b>
Percent Farm	0.3552	0	6.652848	0.1214758
Percent Mining	0.034	0	3.585477	0.258998
Percent Female Employed	0.0577	0	-3.017304	0.1652492
Percent Female Professionals	0.0231	0	0.7990003	0.0703465
Income (in thousands)	0.0763	0	-0.0042336	0.0001996
Percent College-Educated	0.1352	0	-0.0129275	0.0004431
Percent Black	0.0418	0	-0.0038013	0.0002468
Percent Latino	0.0963	0	-0.0075127	0.0003119
Ideology Score	0.0206	0	-0.0052281	0.000488
Legislative Professionalism	0.0687	0	-0.7114978	0.0355151

Table B: Bivariate OLS Analysis of the Relationship between the **Percent Farm** Population and the Independent and Control Variables Expected to Influence the Likelihood that a Woman Will Hold a Seat Representing a Given District

<b>Independent Variables (dependent: District Farm Percent)</b>	<b>R-squared</b>	<b>Statistical Significance</b>	<b>Coefficient</b>	<b>Standard Error</b>
Percent Rural	0.3552	0	0.0533962	0.000975
Percent Mining	0.0141	0	0.2069278	0.0234409
Percent Female Employed	0.032	0	-0.2011609	0.0150053
Percent Female Professionals	0.0981	0	0.1473591	0.0060556
Income (in thousands)	0.0643	0	-0.0003481	0.000018
Percent College-Educated	0.0961	0	-0.0009765	0.0000406
Percent Black	0.0331	0	-0.000303	0.0000222
Percent Latino	0.0263	0	-0.0003515	0.000029
Ideology Score	0.0539	0	-0.0007569	0.000043
Legislative Professionalism	0.0195	0	-0.0339864	0.0032646

Table C: Bivariate OLS Analysis of the Relationship between the **Percent Mining** Population and the Independent and Control Variables Expected to Influence the Likelihood that a Woman Will Hold a Seat Representing a Given District

<b>Independent Variables (dependent: District Mining Percent)</b>	<b>R-squared</b>	<b>Statistical Significance</b>	<b>Coefficient</b>	<b>Standard Error</b>
Percent Rural	0.034	0	0.0094844	0.0006851
Percent Farm	0.0141	0	0.0681993	0.0077257
Percent Female Employed	0.0418	0	-0.1320359	0.0085695
Percent Female Professionals	0.0047	0	0.0184163	0.0036512
Income (in thousands)	0.0217	0	-0.0001161	0.0000106
Percent College-Educated	0.0362	0	-0.0003439	0.000024
Percent Black	0.0044	0	-0.0000636	0.0000129
Percent Latino	0	0.6499	-7.66E-06	0.0000169
Ideology Score	0.0275	0	-0.0003106	0.000025
Legislative Professionalism	0.0139	0	-0.0164402	0.0018794

## Appendix D - Codebook

**stabb**

From U.S. Census/American Factfinder: two-letter abbreviation for state

**stname**

Complete state name

**geography**

From U.S. Census/American Factfinder: description of legislative district ('State' upper/lower chamber 'District' #, state) e.g., 'State House District 22, Arkansas'

**district**

District number

**identifier**

From U.S. Census/American Factfinder; identifies district with unique number (primarily for states with complicated district numbers).

**year**

Four digit number (2005) for year of service to which record refers

**name** (Last, First Middle)

Occasionally has alternate spelling in parentheses

**party** (of legislator)

D: Democrat  
 R: Republican  
 I: Independent, Third party  
 blank: Missing

**female** (legislator)

0: Male  
 1: Female

NOTE: Unless otherwise noted, the following district-level measures are from the U.S. Census 2000 State Legislative District Summary File 4 (Sample): downloaded at [http://factfinder.census.gov/servlet/DatasetMainPageServlet?\\_lang=en](http://factfinder.census.gov/servlet/DatasetMainPageServlet?_lang=en) (January 1-March 1, 2011).

**totalpop**

Total population of the district

**urbanpop**

Total urban population of the district as defined by the census – this includes both urbanized areas and urban clusters



**prcntallurban**

The total urban population divided by the total population of the district

**ruralurban**

- 1: Least urban/most rural, with less than 40% of the population living in urban areas
- 2: “Suburban,” with 40-60% of the population living in urban areas
- 3: Most urban/least rural, with more than 60% of the population living in urban areas

**uapop**

The total population living in urbanized areas, defined by the Census (2000) as “densely settled territory that contains 50,000 or more people<sup>17</sup>”

**prcnturban**

The urbanized area population divided by the total population of the district

**uclstrpop**

The total population living in urban clusters, defined by the Census (2000) as “densely settled territory that has at least 2,500 people but fewer than 50,000 people<sup>18</sup>”

**prcntsuburban**

The urban cluster population divided by the total population of the district

**ruralpop**

The total population living outside of urbanized areas and urban clusters (Census 2000).

**prcntrural**

The total rural population divided by the total population of the district

**ruralfarm**

The total population living on a farm residence, defined by the Census (2000) as a housing unit “located on a property of 1 acre or more,” which sold in 1999 “at least \$1000 worth of agricultural products<sup>19</sup>”

**prcntfarm**

The total farm population divided by the total population of the district

**totalempl**

The total number of people in the district’s labor force

**emplM**

The total number of Men in the district’s labor force

---

<sup>17</sup> From the “What’s This?” tab in reference to the Urban/Rural link (US Census 2000).

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

**emplF**

The total number of Women in the district's labor force

**prcntemplF**

The number of Women in the labor force divided by the total labor force

**perD\_Wlabor**

Percent District Population 16+ who are Women in labor force

**totalmining**

Total number of people in the district employed by mining-related industries

**prcntmining**

Totalmining divided by totalempl

**miningM**

Number of Men in the district employed by mining-related industries

**miningF**

Number of Women in the district employed by mining-related industries

**totalprof**

Total professional workers in the district, as defined by the Census (2000)

**profM**

Total Men working as professionals in the district

**profF**

Total Women working as professionals in the district

**prcntprofF**

profF divided by totalprof

**disttype**

SMD: Single member district

MMD Post: Multimember district with designated posts (Legislators serve different constituencies)

MMD Free: "Free for all" multimember district (Legislators serve the same constituency)

**mmdfree**

0: Single member district OR Multimember district with designated posts (disttype=SMD or MMD Post)

1: "Free for all" multimember district (disttype = MMD Free)

**income**

Average Household Income in District (in dollars)  
(Data collected from the *Almanac of State Legislatures*.)

**income\_th**  
income/1000

**Dearnings\_W**  
District Population 16 years and over with earnings in 1999: Median earnings in 1999; Worked full-time; year-round in 1999; Female

**Dearnings\_Wth**  
Dearnings\_W/1000

**college**  
Percentage 4-year + College Educated in District  
(Data collected from the *Almanac of State Legislatures*.)

**perD\_Wcollege**  
Percent District Pop 25+ who are Women with Bachelor's degree or more

**perblack**  
Percentage Black in District  
(Data collected from the *Almanac of State Legislatures*.)

**perlatin**  
Percentage Hispanic in District  
(Data collected from the *Almanac of State Legislatures*.)

**south** (state)  
One of the 11 Confederate states

0: Not southern  
1: Southern

**northa** (state, as delineated by E. Werner [1968])  
Located in the North Atlantic United States

0: Outside the North Atlantic  
1: Inside the North Atlantic

**southa** (state, as delineated by E. Werner [1968])  
Located in the South Atlantic United States

0: Outside the South Atlantic  
1: Inside the South Atlantic

**southc** (state, as delineated by E. Werner [1968])

Located in the South Central United States

0: Outside the South Central

1: Inside the South Central

**northc** (state, as delineated by E. Werner [1968])

Located in the North Central United States

0: Outside the North Central

1: Inside the North Central

**west** (state, as delineated by E. Werner [1968])

Located in the Western United States

0: Outside the West

1: Inside the West

**ewmideol96\_03** (state)

Erickson, Wright, and McIver's updated state ideology scores (%liberal - %conservative)

**citideol** (of state)

Berry et al score for state's citizen ideology, during year of service

**professional**

Squire (2007) score of legislative professionalism in 2003

**moralistic** (state)

Elazar's typology, dominant category

0: Not moralistic

1: Coded primarily moralistic (moralistic first)

**traditionalistic** (state)

Elazar's typology, dominant category

0: Not traditionalistic

1: Coded primarily traditionalistic (traditionalistic first)

**individualistic** (state)

Elazar's typology, dominant category

0: Not individualistic

1: Coded primarily individualistic (individualistic first)