The Election of Women to the U.S. House of Representatives: 
Is Demography Destiny?

Dennis Simon  
Southern Methodist University  
Political Science Department  
dsimon@mail.smu.edu

Barbara Palmer  
Baldwin Wallace University  
Political Science Department  
bpalmer@bw.edu

The Election of Women to the U.S. House of Representatives: Is Demography Destiny?

Even a quick glance at the geographic distribution of the women in Congress suggests that there is a distinct political geography to the districts they represent: twenty-six of the eighty-four female US House members serving in 2015, or nearly one-third, were from California and New York. Eight more were from Florida. In other words, 40 percent of the women in the House came from only three states. Texas, with thirty-six districts, has only three women in its House delegation.\(^1\) Female Representatives are not randomly distributed across the country.

Congressional districts in the United States vary widely in their demographic characteristics. Candidates rely heavily on demographic data to create their campaign strategies, and they often hire consulting firms to provide them with detailed profiles and suggestions for targeting voters in their districts. However, we know very little about the demographic characteristics of the districts where women have been successful candidates. Female candidates tend to cluster in particular districts, but what explains this? Can we identify the districts that are more likely to elect women? Do women run and win elections in districts that are different than those that elect men?

This paper is a continuation of our exploration of the relationship between demographics and the electoral success of female US House candidates and the concept of “women-friendly” districts (see, for example, Palmer and Simon 2012).\(^2\) While the strategies pursued by both parties and the demographic coalitions that have supported them have changed over time, there are particular demographic characteristics that make a House district predictably Democratic or Republican; demographics play an important role in predicting the partisan outcome of House elections. We then use the same logic to explore the particular demographic characteristics that make a House district more or less likely to elect a woman.

Our statistical analysis employs a data set that merges all elections to the U.S. House of Representatives from 1972 to 2014 with data from the U.S. Census Bureau. After examining the bivariate relationship between 13 demographic measures and election outcomes, we conduct a principle component analysis. This analysis shows that 13 commonly used demographic characteristics of congressional districts cluster into four distinct components. We then use these components to specify “party-friendly” and “women-friendly” models of House elections. The results demonstrate that these components exert a systematic influence on the probability of electing a Democrat as well as the probability of electing a woman. We then use the results of the women-friendly model to examine how the prospects of women winning election have changed over time.

---

1 Calculated by the authors.
2 We would like to acknowledge Barbara Burrell’s first use of the terminology “women-friendly” in her 1996 book, *A Woman’s Place is in the House.*
The Importance of Demographics in Electoral Success

Demographic characteristics play an integral part in predicting electoral success and understanding representation. Demographics are often used by both academics and practitioners to explain and forecast the outcome of presidential and congressional elections (see for example Ardoin and Garand 2003; Bishop 2008; Black and Black 2002; Bond 1983; Chinni and Gimpel 2010; Erikson, Wright and McIver 1993; Fiorina 1974; Judis and Teixeira 2002; Key 1949; Page et al 1984; Teixeira 2008). The conventional wisdom among academics, political consultants, and candidates is that there are particular configurations of demographic characteristics associated with typical Democratic and Republican districts (see for example Flanigan and Zingale 1994; Koetzle 1998). House districts that elect Democrats are more urban, are lower income, and have a sizable minority population; House districts that elect Republicans are wealthier and more professional and, geographically, more rural. As those in the business of politics say, “demographics is destiny.”

Given that we can identify “party-friendly” districts, there are two possibilities with respect to the impact of these factors on the success of female candidates. First, those women elected to the House may find success in districts that conform to the conventional party profile of districts. In this instance, there would be nothing unique about districts that elect women to the House. Party would trump gender, in that female and male Democratic members would be elected from demographically similar districts, as would female and male Republican members. Alternatively, women may be elected from districts where one or more characteristics do not conform to the standard partisan profile; female and male Democratic members would be elected from demographically distinct districts, as would female and male Republican members. If this is the case, then “women-friendly” and “party-friendly” denote different kinds of districts.

In spite of the centrality of demographics to understanding electoral politics, there are surprisingly few analyses of their impact on women’s success, particularly at the congressional level (Burrell 1996; Jones and Nelson 1981; Nechemias 1985, 1987; Norrander and Wilcox 2005; Rule 1981, 1990). As a result, while we know that when women run, women win (see for example, Burrell 2014), we know very little about the House districts where women win.

Shifting Demographics and Party Strategy. During the time period of our study, both parties have had to deal with tremendous demographic changes, including the decline in manufacturing and blue-collar jobs, the development of suburbs and exurbs, increasing education levels, increasing immigration, increasing numbers of women entering the workforce, a declining birth rate following the “baby boom” of the 1950s and early 1960s, and even changing attitudes about marriage (see for example Teixeira 2008). This has led to significant change in both the constituency coalitions that form the base of each party and the strategies used by Democratic and Republican party leaders.

Since President Franklin Roosevelt’s New Deal coalition, a vital part of the Democratic Party’s support was ethnic, working-class voters residing in large cities such as Boston, New York,
Philadelphia, Pittsburgh, Cleveland, Detroit, Milwaukee, and Chicago (Flanigan and Zingale 1994). During the 1960s, support for the Democrats among African Americans, Hispanics, and women increased, in part a response to the party’s advocacy of civil rights. But as President Lyndon Johnson predicted after he signed the Civil Rights Act of 1964, the Democratic Party would lose its hold over the “Solid South” (Peters and Rosenthal 2010, 5). Similarly, the Republican Party base, which used to be made up of “WASPs,” white-Anglo-Saxon Protestants in the Northeast, has shifted toward Southern, rural Evangelicals (Bishop 2008; Chinni and Gimpel 2010; Dionne 2006; Frank 2004; Gelman 2009; Lublin 2004; McTague and Layman 2009; Teixeira 2008).

Perhaps the most noteworthy shift in electoral strategy was pioneered by Karl Rove, long-time political and campaign advisor to George W. Bush. Eschewing the conventional wisdom of targeting the “median voter” and tacking to the center, Rove instead sought to expand and to mobilize the more conservative “party base” (Balz and Allen 2004). Because of its success, this strategy of “running to the base” was adopted in the campaigns of Barack Obama in both 2008 and 2012 (Halperin and Heileman 2009, 2013). At issue then is whether and how these changes in demography and party strategy influence elections for the U.S. House.

**Party-Friendly and Women-Friendly Congressional Districts:**
**Exploring Bivariate Relationships**

Our analysis of electoral outcomes and the demographics of congressional districts is based upon all elections to the U.S. House of Representatives from 1972 through 2014. Our data thus include five rounds of reapportionment and redistricting, 22 election cycles, and 9,570 general election contests for a House seat. To explore the association between demographics and the election of Democrats and Republicans to the House, we examine 13 commonly used demographic factors. Our unit of analysis is the congressional district. Table 1 provides a summary which provides a definition for our dependent variables and for each of the measures of the demographic factors we use in the analysis.

**Table 1 about here**

To introduce and describe these 13 demographics, we first examine the bivariate relationships between these measures and two electoral outcomes: the partisanship of the general election winner and the sex of the general election winner. For each comparison (e.g., Democrat v. Republican; men v. women), we calculated an appropriate measure of central tendency (mean or median) for each of the thirteen variables. These bivariate relationships are displayed in Table 2.

**Table 2 about here**

**Presidential Vote.** Party is the most important cue in the voting booth. Democratic voters overwhelmingly vote for Democratic candidates, and Republican voters overwhelmingly vote for Republican candidates (Campbell et al 1960; Flanigan and Zingale 1994, 2002; Lau and Redlawsk 2001; Lau and Sears, eds. 1986; Rahn 1993). In 2012, 92 percent of Democrats voted for Obama, and 93 percent of Republicans voted for Mitt Romney (“President: Full Results”
As a measure of district partisanship, we use the proportion of the two-party vote won by the Republican candidate in presidential elections; higher percentages indicate that the district is more Republican, while lower percentages indicate that the district is more Democratic. Not surprisingly, as Table 2 shows, House districts electing Republicans have a higher average Republican share of the presidential vote, 58.8 percent versus 44.4 percent. The table also shows that women represent districts that vote more Democratic than their male counterparts. On average, the Republican share of the two-party vote in districts that elect men is 51.9 percent. However, in districts that elect women, the average Republican share of the vote is only 41.9 percent. This is quite striking, given that this includes districts that elect women of both parties, suggesting that Republican women do better in districts that lean Democratic.

**District Size and Urbanization.** Population density has been found to be an increasingly important factor in predicting elections, with Democrats doing extremely well in core urban areas, and Republicans dominating outer-ring suburban, exurban and rural areas (see for example Lang, Sanchez and Berube 2008). In our analysis, we use two measures to explore the impact of population density. The first is district size, measured in square miles. Our second measure, urbanization, is the proportion of district residents living in urban areas as defined by the U.S Census. Table 2 demonstrates that Democratic candidates are elected from districts that are substantially smaller than districts that elect Republicans; Democratic House members represent districts whose median is 885 square miles, while Republican House members represent districts whose median is 3602 square miles, more than four times larger. Not surprisingly, districts represented by Democrats are also more urban (90.3 percent versus 71.4 percent for Republicans). Research on the impact of population density on the success of female candidates suggests that women are more successful in smaller, more urban districts (Burrell 1992; Darcy and Schramm 1977; Diamond 1977; Nechemias 1985; Rule 1981; Welch 1985; Welch et al. 1985; but see Kirkpatrick 1974; Werner 1966). Our preliminary analysis confirms this; Table 2 shows that women are elected in districts with a median of 485 square miles, while men are elected in districts with a median of 2473 square miles, over five times larger. In addition, women represent districts that are more urban. The median value of districts electing women is 96.3 percent urban compared to 77.6 percent for districts electing men.

**Elected from the South.** Perhaps the most significant change in American electoral politics involves the South (Black and Black 2002; Lublin 2004). Over the period of our study, the South has changed from a Democratic region to one dominated by the Republicans. Table 2 displays the proportions of the Democrats and Republicans in Congress that were elected from the South from 1972 to 2014. While the proportion of Democrats (27.0 percent) is not significantly lower than the Republicans (30.0 percent), our data signal a substantial change. In 1972, the first election cycle in our data set, the Democrats won 68.5 percent of southern seats in the House; by 2014, this victory rate dropped to just 26.8 percent (37/138). Regional and cultural differences do play a role in the determining the prevalence and success of female candidates. While

---

4 For each redistricting period in the data, there will be three values of the presidential vote for each district. To use 1972-1980 as an example, the presidential vote in 1968 is used for 1972, the 1972 vote is used for 1974 and 1976, and the 1976 vote is used for 1978 and 1980. Since the congressional district is the unit of analysis, the mean reported in the table is based upon the value of the Republican presidential vote for each election cycle in the analysis.
traditional attitudes towards women’s roles have clearly changed over the last one hundred years, cultural barriers that discourage women from running for office still remain, particularly in the American South (see for example Burrell 1996; Elazar 1966; Nuwer 2000; Reed 1986; Spruill and Wheeler; Twenge 1997; Wolbrecht 2000). Table 2 reveals that of all the female members of Congress elected since 1972, only 18.8 percent were from the South, compared to 29.4 percent of male House members.

**African American, Hispanic, and Foreign-born Residents.** In the Twenty-First Century, shifts in the racial and ethnic make-up of the American population will be one of the most significant changes in our demographics (see for example Barreto 2007; Frey 2008; Herron and Sekhon 2005; Leal et al. 2005; Wong 2005). According to the 2010 Census, the “number of Hispanics and Asians is soaring, the number of blacks is growing slowly and whites are almost at a standstill” (Morello 2011). Given that the number of Hispanics is growing and their turnout rates are increasing, candidates, particularly Democrats, are paying them increasing attention (Stanley and Niemi 1993; Stanley and Niemi 2013, 116). As measures of district diversity, we use the percentage of residents who identified themselves in the US Census as African American, Hispanic or Latino, and foreign-born. Table 2 shows that districts electing Democrats are more racially and ethnically diverse than districts electing Republicans. The districts that elect women are also more racially diverse than those electing men, with slightly higher proportions of African Americans, 14.2 percent compared to 11.5 percent, and substantially higher proportions of Hispanics (15.2 percent versus 8.3 percent) and foreign-born populations (14.5 percent versus 7.3 percent).

**Relative Median Household Income.** Just as the regional bases of the parties have changed in elections, so has the role of wealth and social class. As a fundamental part of President Roosevelt’s New Deal Coalition, further secured in the 1960s by President Johnson’s War on Poverty and Great Society, people with lower incomes supported Democratic candidates. However, over the last thirty years, the relationship between income and party support has become more complex. Now Democrats do quite well among the wealthy, particularly outside of the South (Frank 2004; Gelman 2009). As a measure of income, we use the relative median income of the congressional district, expressed as a percentage of the national median. Values

---

5 For example, Texas did not remove “marital rape exemptions” from its sexual assault laws until 1994 (“Rape in Marriage”). Until 2003, Florida had a “Scarlet Letter” law that required single women who were putting their babies up for adoption to “publish their sexual histories in a newspaper if they did not know the identity of the father” (Canedy 2003).

6 There are a few studies of the relationship between the diversity of a district and its likelihood of electing a woman, but they analyze women elected in the 1970s and 1980s and provide conflicting results (see Welch 1985).

7 For example, in Mississippi, the poorest state in the nation, wealthy voters overwhelmingly supported Republican presidential candidate John McCain in 2008. However, voters in Connecticut, one of the richest states in the nation, uniformly supported Democrat Barack Obama across all income levels (Gelman 2009; see also Brooks 2004; Chinni and Gimpel 2010; Frank 2004). In the aggregate, the differences in voting patterns based on wealth are declining. In 2012, Republican Mitt Romney did better among voters with annual incomes above $50,000, beating Obama 53 to 45 percent, but Obama still won Connecticut and Romney won Mississippi (“President: Full Results” 2012).

8 More specifically, simply using the median income in each district could be problematic given the upward trend in the measure over the decades of our analysis. For example, the median income across all congressional districts was $9,555 from 1972–1980; this increased to $19,701 from 1982–1990, and increased again to $34,114 for the 1992–2000 districting period. To control for this drift, we used these national median values from each redistricting period.
greater than 100 percent represent districts above the national median, and values less than 100 percent are those below the national median. The magnitude of the measure conveys the degree to which a district is rich or poor compared to all congressional districts in a given redistricting period. Table 2 shows that the median income in districts electing Republicans is 101.8 percent of the national median compared to 98.0 percent in districts electing Democrats. Prior research provides some evidence that women in Congress tend to be elected in wealthier districts (Burrell 1996; Nechemias 1987; Rule 1981; Welch 1985), and Table 2 shows that the relative median income in districts electing women is 106.9 percent of the national median compared to 99.7 percent in districts electing men.

**Employed in Finance, Insurance and Real Estate and Employed in Manufacturing.** Related to income is occupation and social class. As suggested earlier, the white working class historically voted Democratic, and, given the prominence and importance of unions, was the heart of the original New Deal coalition. This demographic, however, has been shrinking. In spite of this decline, the white working class still plays an important role in electoral politics (Abramowitz and Teixeira 2008) and over the past twenty years, Republicans have made major inroads among this demographic (Frank 2004). In 2012, Romney won 40 percent of the vote among union members (“President: Full Results” 2012). We use two occupational indicators as our measures of social class: workers employed in manufacturing and workers employed in finance, insurance and real estate. Table 2 suggests that partisan-based occupational distinctions are insignificant. Similarly, male and female members of the House come from districts with relatively equal proportions of constituents employed in finance, insurance and real estate. However, confirming previous findings (Nechemias 1987; Welch and Studlar 1996), Table 2 shows that women are likely to be less successful in working class districts; women are elected from districts that have smaller proportions of those employed in manufacturing (14.8 percent versus 18.5 percent for men). The traditionalist and less-than-accepting attitudes toward female candidates among labor leaders and white ethnic groups influential in Democratic political machines have served as a substantial barrier (Rule 1981, 64; Welch and Studlar 1996, 869; see also Sanbonmatsu 2002; Starr 2007).

and then divided each district’s median by the national median. Thus, the measure expresses median income in the district as a proportion of the median across all districts for each redistricting period.

9 After World War II, the number of blue-collar workers outnumbered white-collar workers. Today, there are three times as many white-collar workers as blue-collar workers (Abramowitz and Teixeira 2008, 110).

10 During the 2008 campaign, Obama was accused of being “elitist” by the leader of one of the largest unions in the nation. R. Thomas Buffenbarger, president of the International Association of Machinists and Aerospace Workers, called Obama supporters “latte-drinking, Prius-driving, Birkenstock-wearing, trust-fund babies” (MacGillis 2008). As it turned out, there was a positive correlation between a state’s support for Obama and per-capita Starbucks stores (Gelman 2009; see also “Do Latte Drinkers” 2008). But Buffenbarger’s criticism fed into perceptions of Obama and other Democrats as out of touch with “working-class America.” As one bumper sticker at a Kansas City gun show put it, “A working person that supports Democrats is like a chicken that supports Col. Sanders!” (Frank 2004, 2).

11 For example, politics in New Jersey and Massachusetts is controlled by party bosses and county chairmen. In a 2010 column that appeared in the Daily Beast, James Carroll, a columnist for the Boston Globe, explained that Massachusetts, “the most liberal state in the nation … practices the politics of misogyny… no women need apply…Democrats don’t tap women for the top jobs, and neither do Republicans” (Carroll 2010). In his recent memoir, former governor of New Jersey James McGreevey explained that strip clubs are the “fraternal lodges” of New Jersey politics; “We used to order beer after beer at Cheeques, watching the dancers twirl on their poles while debating everything from local policy initiatives and tax ratables to the merits of silicone breast enhancements”
College Degrees. One of the reasons that the blue-collar sector has declined is because education levels have increased. To measure education, we use the proportion of residents age 25 or older who completed four or more years of college. Education has a somewhat unusual relationship with party identification among voters. Those with the least education along with those with the most education tend to support Democratic candidates. For example, in 2012, Obama won among those with no high school diploma with 64 percent of the vote, and those with a post-graduate degree with 55 percent, with support again nearly evenly split among those with a college degree (“President: Full Results” 2012). Table 2 shows that the districts electing Democrats have fewer residents with college degrees (17.6 percent compared to 20.0 percent for Republicans). We have reasons to believe that women in Congress would be elected in districts that have more people with college degrees: women with more education are more likely to run for office, and consequently, districts with higher levels of education should be more fertile recruiting grounds (Burrell 1996). As Table 2 shows, districts electing women have more constituents with college degrees, 23.7 percent, versus 18.2 percent for districts electing men.

Married Women and School-age Population. While family structures have been transformed in the last fifty years, the centrality of the family with regard to its influence on politics has not (Smith 2008). Marital status has become an important predictor of vote choice, with Republicans doing well among those who are married, and Democrats doing well among those who are not (see for example Lake, Conway, and Whitney 2005; Smith 2008; “Unmarried Women” 2008). In 2012, Romney won 56 percent of the vote among those that were married, while Obama held on to 65 percent of those who were unmarried (“President: Full Results” 2012). Birthrates have also declined. At the height of the Baby Boom in 1957, the birthrate peaked at 3.65 children per woman. In the Twenty-First Century, the average American family has no minor children living in it (Smith 2008). This too has political ramifications. Those without children are more likely to vote for Democrats, while those with children, particularly those with more than two children, are more likely to vote for Republicans (Smith 2008). In our analysis, we use two measures of family arrangements. The first is proportion of women age sixteen or older who are married with their husband living in the household. The second measure is the proportion of residents in a House district enrolled in public elementary and high schools. Table 2 shows, as expected, that districts electing Republicans have higher proportions of married women than districts electing Democrats, but the differences for proportions of school-age children are negligible. However, there are notable differences between the proportions of married women in districts electing men (58.9 percent) verses those electing women (51.4 percent). Women are also elected in districts with slightly smaller proportions of school-age children, 16.4 percent, compared to 18.3 percent in districts electing men.

Preliminary Conclusions. This portion of the analysis leads to two preliminary conclusions. First, not surprisingly, we have found there are differences in the political geography of congressional districts that elect Democrats and Republicans. Second, Table 2 also provides

---

(Starr 2007, 10). McGreevey (2006) resigned as governor in 2004 and made national headlines when he announced he was gay.

12 In 1940, 75 percent of adults were high school drop-outs, and only 5 percent of Americans had a college degree (Abramowitz and Teixeira 2008). In 2008, only 14 percent of adults had not finished high school, and nearly 30 percent had a college degree ("Percentage of Persons").
evidence that districts electing women to the House are distinct from districts that elect men. This implies that there is a configuration of characteristics—a demographic profile—that make congressional districts “women-friendly.” Such districts are more Democratic in presidential voting, more urban and geographically smaller, outside the South as well as more racially and ethnically diverse. In addition, districts electing women are wealthier with more residents employed in finance and fewer in manufacturing. Finally, these districts have a less “traditional” social profile that can arguably be considered an indicator of more progressive attitudes about the roles of women. These characteristics include more college graduates, fewer married women and a smaller school-age population.

The Underlying Structure of the Political Geography of Women’s Success

As we noted earlier, while Table 2 is instructive, the results are based upon a series of bivariate relationships. Our interest ultimately lies in assessing these demographic factors in a multivariate model. However, specifying appropriate models is a rather complex task because of the correlations among the demographic variables. An examination of the correlation matrix for the 13 demographic factors in our data reveals that there are 23 correlations of 0.40 or greater. There are numerous egregious examples: five of these exceed 0.60. The correlation between district size and the urban population is -0.77, the proportion of Latino and foreign-born populations is 0.72; between relative income in the district and those with college degrees, 0.65; the percent of residents in urban areas and those employed in finance, insurance, and real estate is 0.61; between married women and the Republican vote 0.60 and between married women and school-age population 0.59.

This implies that inclusion of all 13 measures in a model will produce results that are substantially contaminated by multicollinearity. The pathology of multicollinearity is that it will inflate the estimated standard errors of the coefficients in a regression, probit, or logistic model and therefore lead to faulty inferences about the impact of an independent variable on the dependent variable. This, in turn, will result in erroneous conclusions about the statistical significance of an independent variable.

Our strategy is dealing with this problem is to conduct a principal components analysis (PCA), a well-known version of factor analysis. In effect, PCA is a data reduction technique designed to identify the underlying structure among a set of measures. The components “can be understood as condensed statements of the relationship among a larger set of variables” and “captures the extent of the overlap” in these variables “by mathematically identifying their interrelationship or common correlation” (Chinni and Gimpel 2010, 224).

The results indicate that the conventional diagnostics used to evaluate a PCA model are satisfied. For the individual variables, the measures of sampling adequacy range from 0.59 to 0.76 and fall within the acceptable range as does at the overall measure, the Kaiser-Meyer-Olkin statistic, at 0.69. The commonalities—the proportion of variance in the original variables accounted for by the factor solution—range from 0.69 to 0.93. Finally, the test of sphericity is statistically significant. The one aspect of the solution in need of further exploration pertains to the loadings for the measure of married women (0.650 on the Working Class dimension and 0.632 on the Republican Stronghold dimension). We will examine this as we refine the analysis.
In our application, this technique produces a matrix that shows how our demographic measures cluster into a smaller number of underlying components or dimensions. It also generates a set of scores which assign a value to each congressional district on each component. Importantly, the problem of multicollinearity is avoided because these component scores are calculated so that the correlation among the components is zero (i.e. orthogonal).

We estimated the PCA, beginning with a data set that includes all elections to the U.S. House from 1972 through 2014. We eliminated those states with only one congressional district and then estimated the PCA model using the 12 interval demographic measures on the resulting 9,424 elections in our time span. Next, following the conventional practice in the use of the principal components method, we use a varimax rotation and extract only those dimensions with an eigenvalue greater than 1.0 (see Chinni and Gimpel 2010, 223-225).

Table 3 about here

The results presented in Table 3 show that the set of demographic measures reduce to four underlying components. We have labeled the first component “Upscale Urban.” This cluster includes geographically small districts that are highly urbanized. Collectively, residents in these districts earn higher incomes and have a greater proportion of workers employed in occupations associated with finance. The second dimension, “Traditional Working Class,” identifies those districts characterized by larger proportions of residents employed in manufacturing and smaller proportions of those who have earned a college degree. These districts are labeled as “traditional,” in that they have higher marriage rates and larger proportions of school-age children. The third dimension is identified by the combination of the two-party Republican vote for president and the proportion of African-American residents in the district. The component loadings have different signs (-0.880 for blacks and 0.732 for the presidential vote), given the relationship between race and presidential voting: districts that rank high on this component are characterized by larger proportions of Republican voters and smaller proportions of African Americans. It is for this reason that we label such districts as “White Republican Strongholds.” The fourth dimension, “Immigrant Enclaves,” highlights those districts with larger proportions of Hispanic and foreign-born residents. Note that while these measures overlap, they are distinct.

14 We eliminate these states because congressional districts are essentially political constructs. They are the product of a complex and partisan process in states where the parties compete to maximize their share of the state delegation. This process does not occur in the states that are apportioned only one seat.

15 We exclude the dummy variable for the south in the PCA analysis because there is disagreement as to whether dummy variables should be included in such models (see, for example, Rummel 1970; Yong and Pierce, 2013). Instead, we follow the more “cautious” approach and estimate the impact of the south separately in the party-friendly models. It should be noted that except for the two-party presidential vote, all of the continuous measures used in the PCA model are constant within each congressional district during a given redistricting period (e.g., 1972-1980). As noted earlier, there will be three values of the presidential vote for each district. To use 1972-1980 as an example, the presidential vote in 1968 is used for 1972, the 1972 vote is used for 1974 and 1976, and the 1976 vote is used for 1978 and 1980.

16 In conducting this analysis, we used the natural logarithm of district size (in square miles). There is great variation in district size. For example, the smallest district in the 114th Congress is the 13th District of New York and the largest is the 2nd District of Oregon at 69,443 square miles. With such a broad range of values, small differences are inconsequential and may produce misleading statistical results. In such a circumstance, transforming the measure to its natural log better captures the larger and more significant differences in district size.
The Hispanic population includes both residents born within and outside of the United States while the country of origin for foreign-born residents is not limited to those falling within the Hispanic categories.

Table 4 about here

It is important to emphasize that the PCA methodology assigns component or factor scores to each congressional district in each election year. This, in turn, implies that congressional districts can be rank ordered, either over the entire time span of our analysis or for a given election cycle, according to these component scores. We composed Table 4 to illustrate this point. Using the data from the 2014 election cycle, the table compares examples districts that are ranked “high” and “low” on each dimension and reports both the factor scores on the specific dimension along with the value of the demographic measures from the 2010 census that cluster on each dimension. It is designed to illustrate how variations in the factor scores capture rather marked differences in the character of district constituencies. The table also the members elected to serve in the 114th Congress (First Session) and the locale of the district.

The differences in the composition of districts are quite distinct and, at times, dramatic. The districts represented by Carolyn Maloney (D, NY 12) and Harold Rogers (R, KY 5) well illustrate the variation in geographic size (15 vs. 11,234 square miles), urban population (99.9 percent vs. 23.5 percent), and the relative wealth of districts (164.4 percent vs. 59.2 percent). Those working in the financial industry are much more of a “presence” for Maloney (16.1 percent) than for Rogers (3.0 percent). Representative Maloney’s district is well described as “tony,” while Rogers represents a constituency that is nearly the “mirror image” of his Democratic colleague.

Turning to the second component, Table 4 reveals that the constituency represented by Nancy Pelosi (D, CA 12) is far from traditional. The school-age population is small (6.1 percent), the marriage rate falls below the national average, and over half of her constituents have earned college degrees. In contrast, the constituency of David Valadao (R, CA 21) is traditional with a marriage rate of 45.2 percent and a school-age population of 23.7 percent. Less than 10 percent of his constituents have earned college degrees.

That there is a substantial electoral and racial divide in American politics is illustrated by the entries for the third and fourth components in the table. Jason Chaffetz (R, UT 3) represents a constituency where the voters cast 80.1 percent of their presidential ballots for the Republican nominee, Mitt Romney, in 2012. Just over 1,900 miles to the east, residents of the 2nd District of Pennsylvania, located in Philadelphia and represented by Democrat Chaka Fattah, cast just under 90 percent of their ballots for President Barack Obama in 2012. The constituency of Fattah is majority black at 59.8 percent, while African-Americans constitute less than 1 percent of the residents represented by Chaffetz, with his district providing a vivid example of a White Republican Stronghold. There is a similar gulf associated with Immigrant Enclaves, our fourth component. The district in East Los Angeles represented by Lucille Roybal-Allard (D) is 86.5 percent Hispanic with 41.8 percent of the residents born outside of the United States. In stark
contrast, the composition of the mixed suburban and rural district in Mississippi represented by Republican Greg Harper is only 2.3 percent Hispanic and 1.8 percent foreign-born.

**Party-Friendly and Women-Friendly Models**

We next use these components to estimate models of the probability of electing a Democrat and the probability of electing a woman. In the party-friendly model, the dependent variable is binary \( (1 = \text{Democrat elected}, 0 = \text{Republican elected}) \) as it is in the women-friendly model \( (1 = \text{female elected}, 0 = \text{male elected}) \). The independent variables are the scores of each district on the five components shown in Table 3.\(^{17}\) We then estimated the party-friendly and women-friendly models on all elections to the US House from 1972 to 2014 using probit, a maximum likelihood technique appropriate for models with binary dependent variables.

*Table 5 about here*

Table 5 displays the coefficient estimates, the standard errors of these estimates, and the Wald statistic, which is the analog of the F-ratio in conventional regression applications. For the most part, the estimates for the party-friendly model essentially align with our conventional understanding of constituencies that lean Democratic. The probability of electing a Democrat increases as the component scores of the Upscale Urban and Immigrant Enclaves increase. This implies that Democrats are more likely to win election to the House as districts become more traditional and working class and as the proportion of Hispanic and foreign-born residents increase. This probability declines as the component score for White Republican Strongholds grows larger as it does in southern congressional districts. Democratic chances also increase in Upscale Urban districts. Although this result does not exactly conform to the conventional wisdom, it is important to note that the process of redistricting typically “packs” urban districts with Democrats so as to create safe Republican districts in the ring of suburbs and exurbs surrounding urban centers. In sum, these estimates conform to the initial conclusions drawn from Table 2 and indicate that there are particular combinations of demographic measures that make congressional districts friendly to Democrat and Republican candidates.

The estimates for the women-friendly model indicate that the political geography of congressional districts exerts a systematic influence on the probability of electing a woman. This probability significantly increases as the scores associated with the Upscale Urban and Immigrant Enclaves increase. The probability declines in the south and as the component score associated with White Republican Strongholds increases.

Importantly, Table 5 reveals that the probability of electing a woman also declines as the score on the Traditional Working Class component increases. This is a key finding. Unlike the party-friendly model, women experience more electoral success in districts whose characteristics are less traditional and less tied to the historical, New Deal base of the Democratic Party. For women, the probability of election to the US House declines as the size of the workforce in manufacturing in a district increases, as the proportion of college graduates declines, and as

\(^{17}\) Following the example of Chinni and Gimpel (2010, 225), we rescale the component scores so that each range from zero (lowest factor score) to 100 (highest).
family arrangements grow more traditional with higher proportions of married women and school-age children. It is on this component or dimension that party-friendly and women-friendly districts are most distinct. The formula for electoral success as a party nominee is not the same formula for a woman competing for a seat in the U.S. House.  

An additional diagnostic question pertaining to the results in Table 5 is whether the influence of the components on the election of Democrats and women are constant over the time period of our analysis. This is akin to asking whether there was a structural shift – evidenced by changes in the signs and/or magnitudes – in the estimated coefficients for the variables in the party-friendly and women-friendly models.

The most obvious election cycle for such a shift is 1992. A number of events contributed to an inordinately large number of open seats. There were both changes and violations of “congressional rules.” The change was in the “retirement rules” which made 1992 the last year that members, upon retiring, could convert campaign funds to their personal accounts; the violations involved what became known as the “House Banking Scandal” in which numerous members faced scrutiny and public criticism for what was commonly known as “check kiting” (see Palmer and Simon 2012, 34; 75-76). In addition, 1992 was the first election cycle following the 1990 census, the resulting reapportionment of seats among the states, and the process of redistricting within the states. Redistricting typically induces some incumbents to retire in the face of a district with a substantial proportion of new constituents. These events led to a substantial spike in the number of open seats, increasing from 30 in the 1990 cycle to 96 in 1992.

For aspiring female candidates, the inordinate number open seats created an unprecedented opportunity. The 1991 controversy over the Supreme Court nomination of Clarence Thomas and the subsequent Hill-Thomas hearings conducted by the Senate Judiciary Committee added additional motivation to capitalize on the opportunity (Palmer and Simon 2012, 33-34). This confluence of events – a perfect electoral storm – led to a substantial change in the number of women who entered the electoral arena for the U.S. House. Comparing the 1990 and 1992 election cycles, the number of women seeking the nomination increased from 104 to 209, the number winning the nomination increased from 67 to 104, and the number elected rose from 28 to 47. These changes in women seeking and winning House seats were permanent in the sense that the presence of women in this electoral arena did not revert to its pre-1992 level (see Palmer and Simon 2012, 30 especially Figure 2.1).

The importance of the redistricting process for the 1992 cycle goes beyond its contribution to the “Year of the Woman.” Racial gerrymandering and the creation of majority-minority districts

---

18 Given the finding that women fare less well in more traditional districts, we examined three alternative specifications of the women-friendly model by (1) including dummy variables for male and female incumbents respectively, (2) including the appropriate dummy variables denoting the redistricting period (i.e. 1982-1990, 1992-2000, 2002-2010 and 2012-2014), and (3) including the appropriate dummy variables for each election cycle (i.e., 1974 through 2014). The third specification is akin to a fixed effects model in state-level research where the analyst includes dummy variables for each state in the data set. In all three cases, the sign and statistical significance of the estimated coefficients for the four components did not change. Neither did it change when we estimated the model on data that included only open seats.
represent another significant change in the politics of House elections. In 1982, Congress amended the Voting Rights Act of 1965, mandating that minorities be able to “elect representatives of their choice” (Canon 1999, 1). The theory was that increasing the number of minorities in a district would increase the number of minorities elected to the House, because minority voters are much more likely than white voters to vote for minority candidates (Canon 1999; Grofman and Handley 1989; Handley and Grofman 1994; Lublin 1997).

In 1992, the first election cycle under this new mandate, numerous districts were created or redrawn—particularly in states across the South—to maximize the number of African-American and Hispanic constituents. Eight of these districts were newly created, with an average black population of 58 percent. In addition, five existing districts were substantially redrawn, increasing their average black population from 34 percent to 57 percent. Overall, the number of House districts with a black population of 40 percent or greater increased from 24 in 1990 to 38 in 1992. As a result, thirteen new African-American House members were elected, the largest increase in history.

It is important to note that the creation of these black districts created an “unholy alliance—between black Democrats and white Republicans”—in many legislatures (Toobin 2003, 7). Essentially, Republicans were willing to concede a number of districts to black Democrats in return for their support of redistricting plans that “bleached” a larger number of surrounding districts by making them more white and more Republican. In terms of our analysis, this process created more House districts that ranked especially high and low on the component we call White Republican Strongholds. While racial gerrymandering has been challenged in the courts, the practice has not been reversed and has contributed to the changing face of Southern politics. In 1994, Republicans, for the first time since 1872, captured a majority of seats in the south. The gains made by Republicans continued thereafter and, as a result of the midterm elections in 2014, Republicans control 73.2 percent (101/138) of southern seats. The change is even more dramatic in the six states of the deep South. At present, Republicans hold 30 of the 38 seats, 78.9 percent, of these seats. None of the eight Democrats are white; all are African-American.

This 1992 round of redistricting also influenced Hispanic representation. The number of districts with an Hispanic population of 40 percent or greater increased from 10 in 1990 to 26 in 1992 with 19 having Hispanic majorities. The process created four new Hispanic majority districts, along with two districts redrawn to substantially increase their Hispanic populations. All six of these districts were won by Hispanic candidates, increasing their overall number in the House to seventeen, a record high (Lublin 1997, 22-23; see also Cameron, Epstein, and O’Halloran 1996; Fleisher and Bond 2000; Swain 1993; Whitby 1997). At present, 34 Hispanics serve in the House.

---

19 It is important to emphasize that the process of redistricting, in general, has become more sophisticated and easier. As Toobin (2003, 4) explains, “[b]efore 1990, most state legislators did their redistricting by taking off their shoes and tiptoeing with Magic Markers around large maps on the floor, marking the boundaries on overlaid acetate sheets. Use of computers in redistricting began in the nineties and … has now become a science. [S]oftware permits mapmakers to analyze an enormous amount of data—party registration, voting patterns, ethnic makeup from census data, property-tax records, roads, railways, old district lines.”

20 Alabama, Georgia, Louisiana, Mississippi and South Carolina.
There were, to summarize, significant changes that made 1992 a watershed election year: the beginning of a larger presence for women, blacks and Hispanics in the electoral arena, and greater opportunities for both racial and partisan gerrymandering with incentives to concentrate Democratic voters in urban districts, and create white Republican strongholds, black majority districts and urban enclaves. Further, as we noted earlier, the traditional, Democratic New Deal coalition was eroding. At issue then is whether such changes altered the impact of the independent variables in the party-friendly and women-friendly models.

To address this question, we modified the model presented in Table 5 in the following manner. First, we created two dummy variables; the first assumes a value of 1 for the period from 1972 - 1990 and is zero otherwise and the second assumes a value of one for the years 1992-2014 and is zero otherwise. Second, we then multiplied each of the five independent variables in the Party-Friendly and Women-Friendly models by each of the dummy variables; this produces two versions of each variable in the original model (Upscale Urban, 1972-1990 & Upscale Urban 1992-2014, for example). Third, we estimated the modified model using probit. Finally, we tested the null hypothesis that the two coefficients associated with each of the original independent variables are equal. Essentially, this uses the conventional F-statistic and tests for a shift or structural break in the estimated coefficients (Greene 2012, 208-210).

The results are presented in Table 6. The estimates reveal three changes in the party-friendly model. First, the sign of the Upscale Urban measure changes from negative to positive and second, the sign of the Traditional Working Class coefficient changes from positive to negative. Both shifts are statistically significant and support the claim that the traditional New Deal coalition has eroded. Prior to 1992, Democrats fared best in working class districts and worse in higher income districts with more of a business orientation. Since 1990, this set of relationships is reversed – Democrats now fare less well in the traditional districts and have made headway in the upscale districts of urban America. The third structural shift shows that even when controlling for the demographics of districts, the fortunes of the Democrats have declined in the South. The estimated coefficient for the 1992-2014 period is significantly more negative (-0.663) than the estimate for the 1972-1990 period (-0.231).

The estimated coefficients in the women-friendly model display more continuity. The coefficients for both the Upscale Urban and Traditional Working Class components do not change. Across the entire time span of our analysis, women have fared better in the Upscale Urban districts and faced impediments in the Traditional Working Class districts. There is, however, a significant change associated with Immigrant Enclaves. Prior to 1992, the probability of electing a woman declined as the Hispanic and foreign-born population of a district increased. After 1990, the relationship becomes positive indicating that the probability of electing a woman increases as component score on Immigrant Enclaves grow larger.

Overall, the results of this analysis show that the election of women to the U.S. House is systematically influenced by the demography of congressional districts and by changes in that
demography. The results also reveal a structural shift in the politics of House elections generally. This include evidence of a shift in the base of Democratic Party generally and the rise of Immigrant Enclaves as an increasingly hospitable electoral arena for women.

**The Evolution of Women-Friendly Districts**

Over the time span of our analysis, the election rate for women is only 10.1 percent (968/9510). In the period from 1972 to 1990, this rate was 4.7 percent (204/4350) and increased to 14.6 percent (764/5220) from 1992 to 2014. Despite this gain, the election of a woman to the House remains a rare event (King and Zeng 2001).

One method of evaluating a model involving rare events is to ask whether the women-friendly model discriminates between those districts that elect women and those that do not. To address this concern, we use the coefficients from the model presented in Table 6 to calculate, for each congressional district from 1972 to 2014, the probability of electing a woman. In effect, these probabilities reflect the relative “friendliness” of a district toward female candidates. The mean estimated probability for districts not electing women is 0.079 while the corresponding probability for districts that elect women is 0.179. The difference in these probabilities is statistically significant and shows that the model discriminates quite well between the districts not electing and electing a woman.

The probabilities generated by the model presented in Table 6 provide an easily interpretable measure of the woman-friendliness of House districts: the higher the probability, the more a district can be considered to be women-friendly. Given this interpretation, we can also explore how the probability of electing a woman and the distribution of women-friendly and unfriendly districts have changed over time. For each congressional district in each of the five redistricting periods, we calculated the probability of electing a woman. In order to get a sense of how many women-friendly and unfriendly districts there were in each time period, we grouped the district probabilities in to categories that range from less than 0.05 to greater than 0.40.

*Figure 1 about here*

Figure 1 presents the distributions for each redistricting period. The change depicted in the figure is quite dramatic. In the period from 1972-1980, the average probability of electing a woman was 0.041 and distribution is substantially skewed. The likelihood that a female candidate would win was less than 0.05 in 305 of the 435 House districts. In other words, over 70 percent of all House districts had demographic profiles that made them extremely unlikely to support a female candidate.

In the most recent redistricting cycle that began with the election of 2012, the average probability increased to 0.183. This is still rather low, but it is a substantial increase from the 1970s and continues the trend of an increasing mean probability. In addition, there are 60 districts with a probability of 0.30 or higher; the number of districts with a probability less than 0.05 dropped to zero. Figure 1 thus shows that the prospects of electing a woman to the US House have increased over time. We can see this not only in the higher average and maximum probabilities, but also in how the shape of the distributions has become less skewed over time.
Conclusions

Our point of departure in this discussion focused upon the idea of party-friendly versus women-friendly districts in elections to the US House of Representatives. Our analysis of these ideas produces three key results. First, we show that, using demographic measures, there are particular configurations of characteristics that make districts party-friendly and women-friendly. Second, we show that the party-friendly and women-friendly districts have different demographic profiles. Third, we develop a general model of female electoral success that is useful for categorizing future redistricting regimes and for tracking the progress, albeit slow, of women as winners of House elections.

One implication of our analysis is that the progress made by female candidates will continue and may even accelerate. The engine that drives our analysis is demography. While there are still far more districts that are highly unlikely to elect a female candidate than those that are women-friendly, changes in American demography over the past fifty years – and those that are projected to continue in the Twenty-First Century – bode well for female candidates. Changes in racial and ethnic diversity, education, and the work force suggest a continued growth in the number of women-friendly congressional districts.
REFERENCES


Table 1
Independent Variables and Demographic Measures

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
</tr>
<tr>
<td>Democrat Elected</td>
<td>Binary variable set equal to 1 if the House district elected a Democrat, 0 otherwise.</td>
</tr>
<tr>
<td>Woman Elected</td>
<td>Binary variable set equal to 1 if the House district elected a woman, 0 otherwise.</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
</tr>
<tr>
<td>Presidential Vote</td>
<td>Percent of the two-party vote won by the Republican presidential candidate in the district.</td>
</tr>
<tr>
<td>District Size</td>
<td>Land in square miles.</td>
</tr>
<tr>
<td>Urban Residents</td>
<td>Percent of the district residents living in urban areas defined by the US Census.</td>
</tr>
<tr>
<td>South</td>
<td>The 11 states of the former Confederacy.</td>
</tr>
<tr>
<td>African-American Residents</td>
<td>Percent of the district residents who identified themselves as African-American in the US Census.</td>
</tr>
<tr>
<td>Hispanic Residents</td>
<td>Percent of the district residents who identified themselves as Hispanic in the US Census.</td>
</tr>
<tr>
<td>Foreign-born Residents</td>
<td>Percent of the district residents who identified themselves as foreign-born in the US Census.</td>
</tr>
<tr>
<td>Relative Median Income</td>
<td>Median family income of district as a percent of median across all districts. Values greater than 100 percent represent districts above the national median, and values less than 100 percent are those below the national median. (calculated by the authors).</td>
</tr>
<tr>
<td>Employed in Finance, Insurance &amp; Real Estate</td>
<td>Percent of district residents employed in finance, insurance and real estate.</td>
</tr>
<tr>
<td>Employed in Manufacturing</td>
<td>Percent of district residents employed in manufacturing.</td>
</tr>
<tr>
<td>College Degrees</td>
<td>Percent of district residents, age 25 and over, with 4 or more years of college.</td>
</tr>
<tr>
<td>Married Women</td>
<td>Percent of women age 16 or older in the district who are married with their husband living in the household.</td>
</tr>
<tr>
<td>School-Age Population</td>
<td>Percent of district residents enrolled in public elementary and high schools.</td>
</tr>
</tbody>
</table>

**DATA SOURCES**
Scott Adler, “Congressional District Data Set,” at https://sites.google.com/a/colorado.edu/adler-scott/data/congressional-district-data
Various issues of *America Votes* and the *Almanac of American Politics*
Table 2
The Demographic Characteristics of U.S. House Districts Electing Democrats and Republicans and Men and Women, 1972 – 2014
(States with a single congressional district are excluded)

<table>
<thead>
<tr>
<th></th>
<th>Districts Electing Democrats (n=5174)</th>
<th>Districts Electing Republicans (n=4250)</th>
<th>Districts Electing Men (n=8473)</th>
<th>Districts Electing Women (n=951)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presidential Vote</td>
<td>44.4%</td>
<td>58.8%</td>
<td>51.9%</td>
<td>41.9%*</td>
</tr>
<tr>
<td>District Size&lt;sup&gt;a&lt;/sup&gt;</td>
<td>885.0</td>
<td>3601.5</td>
<td>2473.0</td>
<td>485.0</td>
</tr>
<tr>
<td>Urban Residents&lt;sup&gt;a&lt;/sup&gt;</td>
<td>90.3%</td>
<td>71.4%</td>
<td>77.6%</td>
<td>96.3%</td>
</tr>
<tr>
<td>Elected from the South</td>
<td>27.0%</td>
<td>30.0%</td>
<td>29.4%</td>
<td>18.8%</td>
</tr>
<tr>
<td>African-American Residents</td>
<td>15.7%</td>
<td>7.0%</td>
<td>11.5%</td>
<td>14.2%</td>
</tr>
<tr>
<td>Hispanic Residents</td>
<td>10.9%</td>
<td>6.7%</td>
<td>8.3%</td>
<td>15.2%</td>
</tr>
<tr>
<td>Foreign-Born Residents</td>
<td>9.8%</td>
<td>5.6%&lt;sup&gt;*&lt;/sup&gt;</td>
<td>7.3%</td>
<td>14.5%</td>
</tr>
<tr>
<td>Relative Median Household Income&lt;sup&gt;a&lt;/sup&gt;</td>
<td>98.0%</td>
<td>101.8%</td>
<td>99.7%</td>
<td>106.9%</td>
</tr>
<tr>
<td>Employed in Finance</td>
<td>6.5%</td>
<td>6.4%</td>
<td>6.4%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Employed in Manufacturing</td>
<td>18.2%</td>
<td>18.0%</td>
<td>18.5%</td>
<td>14.8%</td>
</tr>
<tr>
<td>College Degrees</td>
<td>17.6%</td>
<td>20.0%</td>
<td>18.2%</td>
<td>23.7%</td>
</tr>
<tr>
<td>Married Women</td>
<td>56.1%</td>
<td>60.7%</td>
<td>58.9%</td>
<td>51.4%</td>
</tr>
<tr>
<td>School-Age Population</td>
<td>18.2%</td>
<td>18.0%</td>
<td>18.3%</td>
<td>16.4%</td>
</tr>
</tbody>
</table>

<sup>a</sup> Denotes the median of the distribution; all other entries are the mean values
Table 3
The Demography of U.S. House Districts:
A Principle Components Analysis, 1972-2012
(States with a single congressional district are excluded)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Components (Eigenvalue and Variance Explained)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (3.81; 34.6%)</td>
</tr>
<tr>
<td></td>
<td>2 (2.05; 18.2%)</td>
</tr>
<tr>
<td></td>
<td>3 (2.48; 13.5%)</td>
</tr>
<tr>
<td></td>
<td>4 (1.42; 12.9%)</td>
</tr>
<tr>
<td>Upscale Urban</td>
<td></td>
</tr>
<tr>
<td>Resident Employed in Finance</td>
<td>0.813</td>
</tr>
<tr>
<td>Relative Median Income</td>
<td>0.776</td>
</tr>
<tr>
<td>District Size (log of square miles)</td>
<td>-0.776</td>
</tr>
<tr>
<td>Urban Residents</td>
<td>0.756</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional Working Class</td>
<td></td>
</tr>
<tr>
<td>School-Age Population</td>
<td>-0.113</td>
</tr>
<tr>
<td>College Degrees</td>
<td>-0.461</td>
</tr>
<tr>
<td>Employed in Manufacturing</td>
<td>0.050</td>
</tr>
<tr>
<td>Married Women</td>
<td>-0.007</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>White Republican Strongholds</td>
<td></td>
</tr>
<tr>
<td>African-American Residents</td>
<td>-0.032</td>
</tr>
<tr>
<td>Republican Presidential Vote</td>
<td>0.177</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Immigrant Enclaves</td>
<td></td>
</tr>
<tr>
<td>Hispanic Residents</td>
<td>-0.014</td>
</tr>
<tr>
<td>Foreign-born Residents</td>
<td>0.386</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The proportion of the variance in the data explained by the four components is 79.2 percent.
Table 4
Variations in U.S. House Constituencies: Examples from the 114th Congress
(based upon the Principal Components analysis reported in Table 3)

<table>
<thead>
<tr>
<th>Component &amp; Measures (mean or median for 2014)</th>
<th>Example of High Score</th>
<th>Example of Low Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urban Upscale</strong></td>
<td>New York, 12 Carolyn Maloney (D) Upper East Side of Manhattan</td>
<td>Kentucky, 5 Harold Rogers (R) Eastern &amp; Southeastern</td>
</tr>
<tr>
<td>Component Score (35.6)</td>
<td>91.90</td>
<td>0.07</td>
</tr>
<tr>
<td>Employed in Finance (5.9%)</td>
<td>16.08%</td>
<td>3.04%</td>
</tr>
<tr>
<td>Relative Median Income (100%)*</td>
<td>164.45%</td>
<td>59.27%</td>
</tr>
<tr>
<td>District Size (2154)*</td>
<td>15 Square Miles</td>
<td>11,234 Square Miles</td>
</tr>
<tr>
<td>Urban Residents (86.7%)*</td>
<td>99.9%</td>
<td>23.5%</td>
</tr>
<tr>
<td><strong>Traditional Working Class</strong></td>
<td>California, 21 David Valadao (R) Central Valley: Fresno &amp; Kings County</td>
<td>California, 12 Nancy Pelosi (D) Most of city &amp; county of San Francisco</td>
</tr>
<tr>
<td>Component Score (38.5)</td>
<td>59.91</td>
<td>27.01</td>
</tr>
<tr>
<td>School-Age Population (15.5%)</td>
<td>22.67%</td>
<td>6.10%</td>
</tr>
<tr>
<td>College Degrees (28.8%)</td>
<td>7.70%</td>
<td>55.10%</td>
</tr>
<tr>
<td>Employed in Manufacturing (9.6%)</td>
<td>6.18%</td>
<td>5.20%</td>
</tr>
<tr>
<td>Married Women (48.5%)</td>
<td>45.20%</td>
<td>36.50%</td>
</tr>
<tr>
<td><strong>White Republican Strongholds</strong></td>
<td>Utah, 3 Jason Chaffetz (R) Provo; Central &amp; Eastern Utah</td>
<td>Pennsylvania, 2 Chaka Fattah (D) North &amp; West Philadelphia</td>
</tr>
<tr>
<td>Component Score (71.6)</td>
<td>98.36</td>
<td>19.59</td>
</tr>
<tr>
<td>African-American Residents (12.5%)</td>
<td>0.60%</td>
<td>59.80%</td>
</tr>
<tr>
<td>Republican Presidential Vote (47.8%)</td>
<td>80.06%</td>
<td>9.05%</td>
</tr>
<tr>
<td><strong>Immigrant Enclaves</strong></td>
<td>California, 40 Lucille Roybal-Allard (D) East Los Angeles</td>
<td>Mississippi, 3 Greg Harper (R) Jackson Suburbs &amp; South Central Region</td>
</tr>
<tr>
<td>Component Score (26.4)</td>
<td>92.81</td>
<td>7.59</td>
</tr>
<tr>
<td>Hispanic Residents (16.4%)</td>
<td>86.5%</td>
<td>2.30%</td>
</tr>
<tr>
<td>Foreign-Born Residents (13.0%)</td>
<td>41.80%</td>
<td>1.80%</td>
</tr>
</tbody>
</table>

*denotes the median of the distribution; all other entries for central tendency in this column use the mean.
Table 5
Party-Friendly and Women-Friendly Models:

<table>
<thead>
<tr>
<th>Component</th>
<th>Party-Friendly Estimated Coefficient (Standard Error)</th>
<th>Women-Friendly Estimated Coefficients (Standard Error)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upscale Urban</td>
<td>0.005 (0.001) *</td>
<td>0.009 (0.001) *</td>
</tr>
<tr>
<td>Traditional Working Class</td>
<td>0.014 (0.001) *</td>
<td>-0.020 (0.001) *</td>
</tr>
<tr>
<td>White Republican Stronghold</td>
<td>-0.084 (0.002) *</td>
<td>-0.012 (0.001) *</td>
</tr>
<tr>
<td>Immigrant Enclaves</td>
<td>0.030 (0.001) *</td>
<td>0.016 (0.001) *</td>
</tr>
<tr>
<td>South (dummy variable)</td>
<td>-0.453 (0.036) *</td>
<td>-0.235 (0.046) *</td>
</tr>
<tr>
<td>Constant</td>
<td>4.967 (0.165) *</td>
<td>-0.029 (0.125)</td>
</tr>
<tr>
<td>Wald Chi-Square Statistic (5 Degrees of freedom)</td>
<td>3358.20 p &lt; .001</td>
<td>648.41 p &lt; .001</td>
</tr>
<tr>
<td>N</td>
<td>9424</td>
<td>9424</td>
</tr>
</tbody>
</table>

*** p < .05   ** p < .01 * p < .001
Table 6
Party-Friendly and Women-Friendly Models:
Estimating the Impact of Demographic Components on the Outcomes of Elections to the

<table>
<thead>
<tr>
<th>Component</th>
<th>Party-Friendly Estimated Coefficient (Standard Error)</th>
<th>Women-Friendly Estimated Coefficients (Standard Error)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upscale Urban</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972-1990</td>
<td>-0.003 (0.001) ***</td>
<td>0.009 (0.002) *</td>
</tr>
<tr>
<td>1992-2014</td>
<td>0.008 (0.001) * @</td>
<td>0.010 (0.001) *</td>
</tr>
<tr>
<td>Traditional Working Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972-1990</td>
<td>0.006 (0.002) **</td>
<td>-0.014 (0.002) *</td>
</tr>
<tr>
<td>1992-2014</td>
<td>-0.009 (0.002) * @</td>
<td>-0.015 (0.002) *</td>
</tr>
<tr>
<td>White Republican Strongholds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972-1990</td>
<td>-0.090 (0.003) *</td>
<td>-0.010 (0.002) *</td>
</tr>
<tr>
<td>1992-2014</td>
<td>-0.089 (0.0030*)</td>
<td>-0.012 (0.001) *</td>
</tr>
<tr>
<td>Immigrant Enclaves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972-1990</td>
<td>0.044 (0.004) *</td>
<td>-0.009 (0.004) ***</td>
</tr>
<tr>
<td>1992-2014</td>
<td>0.032 (0.002) *</td>
<td>0.017 (0.001) * *</td>
</tr>
<tr>
<td>South (dummy variable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972-1990</td>
<td>-0.231 (0.057) *</td>
<td>-0.396 (0.096) *</td>
</tr>
<tr>
<td>1992-2014</td>
<td>-0.663 (0.048) * @</td>
<td>-0.200 (0.053) *</td>
</tr>
<tr>
<td>Constant</td>
<td>6.211 (0.211) *</td>
<td>-0.230 (0.147)</td>
</tr>
<tr>
<td>Wald Chi-Square Statistic (N)</td>
<td>1758.21 (9424) p&lt; .001</td>
<td>655.92 (9424) p&lt; .001</td>
</tr>
<tr>
<td>(10 Degrees of freedom)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>9424</td>
<td>9424</td>
</tr>
</tbody>
</table>

*** p < .05   ** p < .01 * p < .001

@ denotes that the F-test for change in the estimated coefficients (1972-1990 vs. 1992-2014) is statistically significant.
Figure 1
Probability Distributions of Electing a Woman to the U.S. House
By Redistricting Period, 1972-2014

1972-1980
Mean: 0.041
Median: 0.032
Skewness: 2.721

1982-1990
Mean: 0.055
Median: 0.044
Skewness: 2.721

1992-2000
Mean: 0.125
Median: 0.101
Skewness: 1.568

2002-2010
Mean: 0.150
Median: 0.125
Skewness: 1.297

2012-2014
Mean: 0.183
Median: 0.154
Skewness: 1.040

Number of House Districts

Less than 5
5 to less than 10
10 to less than 15
15 to less than 20
20 to less than 25
25 to less than 30
30 to greater