

The Effect of Female Politicians on Policy Outcomes

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Over the past few decades, voters in the United States have been more accepting of female candidates. However, the debate concerning whether the increase of women in politics affects policy outcomes is unclear. Scholars have attempted to answer whether women serve as a trustee and enact significant changes—a model proposed by Edmund Burke in his speech to the Electors of Bristol. On the other hand, many believe policy outcomes will remain unchanged because politicians regardless of gender serve as delegates and directly reflect the wishes of their constituents. To answer this question, the study compares whether the percentages of women in legislatures—specifically in US state legislatures—impact government spending. Early results suggest that the election of female candidates will influence spending priorities in certain areas.

It wasn't that men were against these changes. They just hadn't considered the issue before because they hadn't experienced the problem in their own lives. As women have become a part of the system, that's changing. – Sen. Kay Bailey Hutchison (R-TX)

During the past few decades, voters in the United States have been more accepting of female candidates. On the eve of World War II, a Gallup poll found two-thirds of Americans would not consider voting for a female president. Gallup asked the same question recently, and found over 90 percent would be willing to vote for a female president (Winik, 2006). This statistic has great importance for the 2016 presidential election. Former Secretary of State Hillary Clinton currently sits as the frontrunner for the Democratic presidential nomination by a wide margin. Additionally, many Republican female officeholders are speculated as potential vice presidential candidate selections.

The progress displayed in the presidential election is complemented across the political landscape. Currently there are 20 females in the US Senate and 84 females in the House of Representatives—the highest number to serve in either chamber. Six women serve as governors, and women comprise nearly 25 percent of the seats in the state legislatures. The Colorado General Assembly has the most female legislators, with 42 percent of the officials being women.

As women become more prominent in the political arena, it begs the question whether the priorities of a more diverse government will shift. In this paper, I will determine if the election of female candidates impacts government decisions. Multiple studies have found a difference in priorities for male and female politicians. Research conducted by Dr. Susan Carroll of the Center for American Women and Politics has found that women serving in state legislatures gave priority to legislation focused on women's rights, health care, education and the welfare of families and children more often than men (Carroll, 2013). Other studies have supplemented this research and determined that female representatives have distinct views compared to male representatives.

In order to identify the effects of female politicians on government expenditures, this paper will examine spending on the state level. Appropriating funds is one of the primary functions of state legislatures in the United States. If the increased number of females in legislatures affected government priorities, such effects should be reflected in changes in state expenditures. Guided by Dr. Carroll's research, this paper will examine how the percentage of female legislators affects three specific spending areas: education, welfare, and transportation. An initial hypothesis would assume that female legislators would be likely to increase spending for education and welfare, and the effect on transportation spending would be minimal. While the effect of female state legislators is important, this paper will also examine the effect of female governors on expenditures. Additionally, this paper will determine if there is a joint effect when there is both a female governor and females in the state legislatures.

In general, this paper finds that female politicians significantly impact government spending. Using various models and different controls, the increasing percentage of female state legislators correlates with an increase of spending in education and welfare. A ten-percentage increase in female state legislators increases educational per capita spending by \$44.7, while welfare per capita spending increases by approximately \$59.5. Surprisingly, female governors presented the opposite outcome. The presence of a female governor was likely to decrease the amount of spending in all three spending areas. When a female serves as a state's governor, education per capita spending decreases by \$103 and welfare spending per capita decreases by \$104.

While this paper will examine the effect of female politicians, it will also determine if female politicians are descriptively representing their fellow women. As previously mentioned, research has found that female politicians have different policy objectives than male politicians. Therefore, it logically follows that women voters have different policy views than male voters. Examining the 2004 presidential election with the National Election Survey, researchers at the University of Michigan found that there was a difference in opinions between male and female voters despite the smallest gender gap among presidential candidates since the 1980s (Whitaker, 2008). Researchers found that women voters believed the government should do more in general by a nine percent margin compared to men (61%-52%). Additionally, women preferred more educational spending by a four percent margin (78%-74%) and preferred more welfare spending by an eight percent margin (27%-19%) compared to men. Overall, the study found that female voters are more economically liberal than male voters. This complements other studies, such as one analyzing General Social Survey data, which found women prefer redistributionist policies, even if income and demographic characteristics are controlled (Alesina, 2005).

Using the data, this paper examines whether the behavior of female politicians matches the preferences of female voters. Initial results show the behavior of female legislators to be positively correlated with the preferences of female voters. Again, surprisingly the actions of female governors stand in contrast to the desires of female voters.

The paper's results contribute to a body of literature focusing on the changes resulting from more diverse political bodies. In the political science field, Susan Carroll and Richard Fox's book about gender in elections has explored the changing preferences of female voters since the 1960s, while detailing the strides female politicians have made. In the economics field, papers by Li-Ju Chen (2013) and Irma Clots-Figueras (2005) have examined whether female politicians in Asian nations affected spending and policy outcomes. They examined Taiwan and India respectively. Chen finds Taiwanese female politicians advocated for more social welfare spending, while Clots-Figueras found that Indian educational outcomes are greater with a higher percentage of female representation.

Philosophical Significance

The research question of whether a politician's gender affects policy outcomes and of whether female politicians represent the preferences of women is relevant due to former Secretary Clinton's possible 2016 presidential campaign as well as the increased number of female representatives across the political field. However, the wider philosophical question has been debated for a much longer time period. At the heart of this research question is discovering what type of representation America actually has.

In 1774, British politician and philosopher Edmund Burke delivered his Speech to the Electors at Bristol at the Conclusion of the Poll. Burke served as a Member of Parliament in the United Kingdom House of Commons. As a MP representing the constituency of Bristol, Burke detailed his personal views on representative democracy. In his speech, Burke said,

It ought to be the happiness and glory of a representative to live in the strictest union, the closest correspondence, and the most unreserved communication with his constituents. Their wishes ought to have great weight with him; their opinion, high respect; their business, unremitting attention. It is his duty to sacrifice his repose, his pleasures, his satisfactions, to theirs; and above all, ever, and in all cases, to prefer their interest to his own. But his unbiased opinion, his mature judgment, his enlightened conscience, he ought not to sacrifice to you, to any man, or to any set of men living. These he does not derive from your pleasure; no, nor from the law and the constitution. They are a trust from Providence, for the abuse of which he is deeply answerable. Your representative owes you, not his industry only, but his judgment; and he betrays, instead of serving you, if he sacrifices it to your opinion.

With these words, Burke lays out his vision for representative democracy. While Burke believes a representative must serve and respect his constituency, Burke also states that the representative cannot be a slave to the wishes and the whims of the people. Instead, the representative must use his own judgment and own intelligence—which public opinion can shape and influence but does not necessarily determine—when serving his constituents.

Many scholars have summarized Burke's argument about democracy into two competing theories of representation. The first is the delegate theory of representation. As a delegate, representatives directly convey the preferences of their respective voters. For example, if the voters were majority pro-choice, then the representative would vote in favor of pro-choice measures regardless of personal convictions. The second is the trustee theory of representation. As a trustee, representatives consider the opinions of the voters, but the opinions are only one determinant of the representative's decision. The representative does not simply vote in favor of legislation due to popular opinion. Instead, the representative votes based on what he determines is the common good.

As evidence by his speech, Burke is firmly in favor of the trustee representative viewpoint. Burke's opinion is further supplemented in his speech at Bristol when he stated, "Parliament is not a congress of ambassadors from different and hostile interests; ...but parliament is a deliberative assembly of one nation." With this statement, Burke argues that if representatives were to be delegates, consensus would be impossible as individual interests would create hostilities and prevent progress. Instead, Burke believed in order for parliaments to be effective for their respective nations it should come together, deliberate about the common good and then act as one unit.

Burke's philosophical rationale has had a major impact on many governments, but especially the government of the United States. In "Federalist Paper No. 63," James Madison (1788) defends the six-year term limit for US senators. In general, many Anti-Federalists took issue with the Senate, as they believed the chamber's design allowed for a lack of accountability. In defending the US Constitution's establishment of the Senate, Madison wrote,

Such an institution may be sometimes necessary as a defense to the people against their own temporary errors and delusions... There are particular moments in public affairs when the people, stimulated by some irregular passion, or some illicit advantage, or misled by the artful misrepresentations of interested men, may call for measures which they themselves will afterwards be the most ready to lament and condemn. In these critical moments, how salutary will be the interference of some temperate and respectable body of citizens, in order to check the misguided career, and to suspend the blow meditated by the people against themselves, until reason, justice, and truth can regain their authority over the public mind?

In summary, Madison argues that the Senate is a bulwark against the human errors and passions of the public. Instead of governing through violent passions, Madison contends level-headedness should and will prevail in the US government. Though there will be some who attempt to excite public opinion, it is the responsibility of the Senate to temper those passions. Following the principles of Burke's philosophy, the six-year term permits stability and immunity from public opinion. This allows for the moderation of passions, providing time to allow the citizen's reason to regain authority over their excitement. Instead of letting irregular passion to reign, the Senate can and must give citizens time to understand and accept the truth of the common good.

Not only does Burke's philosophy have relevance because of its influence on the American governmental system, but this paper also attempts to explore whether current American politicians continue to follow Burke's tradition. If female politicians are found to have a significant effect on government expenditures compared to male politicians, then it may be suggested American politicians are serving as trustees because they are not mindlessly following the wishes of their constituents. Additionally, if female politicians reflect the preferences of female voters, then it may be possible to argue that many of our current representatives are disregarding Burke's trustee representative model, and are instead in favor of the delegate model. However, if there is a difference between the effect of female politicians and the wishes of female voters, then it is possible that Burke's model is prevalent.

Economic Literature Review

This paper complements current economic literature. Multiple papers have investigated the link between the increasing number of female politicians and the changes in policy outcomes. One paper that influenced this capstone greatly was "Do Female Politicians Influence Public Spending? Evidence from Taiwan." Li-Ju Chen wrote the paper for the International Journal of Applied Economics. Taiwan has a higher number of female legislators when compared to other Asian nations. The Taiwanese constitution mandates that seats be reserved for women; therefore, women parliamentary representation in Taiwan was 30.09% in 2009, compared to Singapore's 24.47%, South Korea's 13.75%, and Japan's 9.38%. Chen writes that little is known about the causal effects of women's representation on policy decisions. It has been difficult to

separate the effect of the individual female politicians from the policy preferences of the electorate.

Chen's contribution to the literature on the effects of identity politics is by separately estimating the effects of mayors and council representatives on different government spending areas. The paper provides a method to determine the effect of female politicians on spending outcomes. Chen investigated politics at a local level, determining whether councilwomen and mayors of Taiwanese counties impact spending. Chen used the following regression in her paper:

$$EXP_{i,t} = \alpha_i + \beta_t + \gamma_1 Head_{i,t} + \gamma_2 FEM_{i,t} + \gamma_3 Head_{i,t} * FEM_{i,t} + \gamma_4 X_{i,t} + \varepsilon_{i,t}$$

EXP is a variable that represents the amount of funds dedicated to a certain area of government spending compared to the total spending. Head is a binary variable that denotes whether the mayor of the county is female or not. FEM is a variable that represents the percentage of female councilwomen in a county. Finally, Chen includes the interaction variable of Head*FEM in her regression to capture the effect of having both a female mayor and female councilwomen. The other variables in her regression either represent the constants (alpha and beta) or fixed effects (X).

Chen found that there is an effect when counties have female representation. Though Chen studied seven areas of governmental spending—General Administration, Education & Culture, Economic Development, Social Welfare, Community Development & Environmental Protection, Police Service, and Obligations—the results showed female representation changed spending, yet significance was not apparent across spending categories. One area to highlight is social welfare. The analysis found that counties with a female mayor spend 2.238 percent more on social welfare than counties with a male mayor. The analysis also showed that there is a positive correlation between the number of female councilwomen and the amount spent on social welfare. However, while the effect of female mayors is statistically significant, the effect of an increased number of female legislators is not significant. The effect of a female mayor continued to be significant even when other control variables were added to the regression.

Another area of importance regards spending for economic development. The data analysis found that counties that have one more female councilwoman would cut 0.065 percent from the community development budget. Female mayors complement this trend, as the data shows female mayors have a propensity to cut funds for community development. However, only the female councilwomen variable is significant, while the effect of the female mayor is not. This significant holds even after control variables are introduced.

A final result to note is that female mayors actually decrease educational spending by 1.019 percent compared to a male mayor. Though this variable is not significant, the negative trend does hold when control variables are added to the regression. Chen notes that this may appear contradictory, but recent studies (Iwanaga, 2008) have shown female parliamentarians are less likely to speak about education. Chen also notes that Research & Development funds—a policy preference of male politicians, according to Chen—was included in her educational spending category, something that she believes influenced her results.

In her conclusion, Chen notes that female mayors devote more funds to social welfare, and Chen highlights this is an issue that female politicians usually give attention. Additionally, Chen

notes that there is no evidence that additional female members on the council provide any help to female mayors. However, Chen cautions with the causal argument, stating there are omitted variables—correlated with both female politicians and with governmental expenditures—that exist.

Another helpful paper was “Are Female Leaders Good for Education? Evidence from India.” Irma Clots-Figueras wrote this paper for the American Journal of Applied Economics. The author wanted to understand whether the increase of female politicians would lead to better educational outcomes. This research question is pertinent to India, as the nation has one-third of the world’s poor, and Clots-Figueras references many scholars who contend better education could lead to the eradication of poverty. Clots-Figueras also chose India as her cases study because India is a parliamentary democracy, therefore, the government can impact education through policies. Additionally, India has traditional gender roles instituted by society.

To investigate the question, Clot-Figueras collected information from elections in India between 1967 until 2001. She used this data to study to find close elections in which the politician barely won. The author then combined this data with NSS surveys to gather the educational attainment level of constituents in the respective elected officials’ district. Then Clots-Figueras used the following model for her analysis:

$$Y_{idt} = \alpha + \beta W_{dt} + \theta X + \varepsilon_{idt}$$

In this model, Y is the educational outcome for individual I, living in district d in time t. W is the fraction of districts that elected a female politician, and X includes the fixed effect controls. However, Clots-Figueras later adds onto her regression, as she believes an omitted variable may be biasing her results. Specifically, she contends a district that elects female politicians may also have higher educational outcomes. She then looks at close elections as “quasi-experiments”. By isolating female politicians who won with less than 3.5% of the vote against a male candidate, she determines the effect on educational attainment must have been caused by the gender of the candidate and not the characteristics of the district.

Without the consideration of the omitted variable, the analysis determines female politicians have a significant and positive effect on the educational attainment of individuals living in both rural and urban districts. When omitted variables are considered, female politicians do not have significance on individuals living in rural districts. However, the author discovered that by increasing women representation in the district by 10%, the probability that an individual attains primary education in an urban area increases by 6 percentage points.

This paper is important because the author attempts to isolate the effect of a female politician. On one hand, Clots-Figueras writes gender should not affect policy outcomes due to the median voter theorem. According to the median vote theorem, constituencies’ policy preferences would be apparent and carried out by the elected official without concern of the official’s gender. However, Clots-Figueras determined that the identity of a politician, specifically the gender of a politician, affected policy outcomes. As mentioned earlier, female politicians have impacted the educational attainment of individuals living in urban areas significantly. Clots-Figueras speculates that this increased outcome level is because female politicians have a higher rate of return in urban areas than in rural areas when they invest in education. For example, though education policies affect both men and women, there might be a higher demand for women’s education in urban areas. Unfortunately, the author could not determine if this theory or similar theories hold true for rural areas as well.

A final unpublished paper that influenced this capstone was “Sex and Politics: Do Female Legislators Affect State Spending?” by M. Marit Rehavi (2007). Noting the dramatic increase of female elected officials in state legislatures, Rehavi states there is a lack of empirical evidence on the causal effect of democratically elected officials’ genders on policy outcomes in the United States. In the paper, the author examines the election of female candidates in close races to determine whether a woman’s presence in the state legislature impacts state spending. Essentially, Rehavi has set up a quasi-random variation, as there should be no difference in an electorate that gives a female candidate 49 percent compared to an electorate that gives a female candidate 50.1 percent.

Initially running a OLS regression, Rehavi believes her results to be biased away from zero as government spending and the likelihood to be represented by a female are related. To ensure that her data is free from bias, Rehavi uses an instrument variable technique. Therefore her model is as follows:

$$\begin{aligned}W_{st-2} &= a_s + d_{t-2} + \gamma_1 S_{st-2} * D_{st-2} + \gamma_2 D_{st-2} + \gamma X + v_{st-2} \\Y_{st} &= \alpha_s + \delta_t + \beta_1 W_{st-2} + \beta_2 D_{st-2} + \Omega X + \varepsilon_{st}\end{aligned}$$

The instrument in her model (W) is the success of female legislators in lower houses—usually the houses of representatives—as her instrument, while Y is the spending level for each state. Rehavi also uses a variable (X) to control for various factors such as unemployment rates, fraction of the state house that is Democratic and the turnover rate in each individual legislature.

After analyzing the data, Rehavi found that “the dramatic movement of women into U.S. state legislatures over the past quarter century increased state health spending.” Rehavi also found that female legislators had no effect on other spending areas, and she specifically notes that despite initial predictions, female legislators did not impact educational spending. Her results are robust when including state and year fixed effects and varying definitions of close elections.

In her conclusion, Rehavi challenges the Median Voter Model. Her results show that closely elected females have distinct policy preferences on welfare, prison and childcare spending when compared to their male counterparts. Additionally, Rehavi addresses the lack of significance regarding educational spending. Rehavi suggests that either the spending levels of education are already appropriate in the views of female legislators. She also suggests that since there is not an infinite amount of money and because spending changes take time, health spending is a higher priority for female legislators than educational spending.

Model

In this paper, data from all fifty states from 2001 to 2015 will be used to determine if the increase of female politicians impacts government expenditures. Appropriating funds through fiscal policy is one of the most important and most scrutinized decision state legislatures make. For this paper, analyzing state expenditures has advantages and concerns. The first advantage is that spending decisions are regularly observed across all states in the nation. Though each state may have their own respective budgetary process, the individual processes are similar enough and arrive at the same procedural outcome. Another advantage using the appropriation of funds is that the funds can be aggregated into broad categories across all fifty states. For example, each state spends a certain amount of funds on education, health, and welfare.

A major concern using expenditures for this paper is that individual legislators do not determine budgetary policy. The budget is a process that includes consensus and compromise first within the general assemblies of each respective states, as well as agreement from the governor. Therefore, it is fair to question whether individual politicians are less effective than a member serving in a leadership role. However, this paper assumes that since each legislator has one vote on the final budget bill, therefore, each legislator can be considered equally effective.

The data—which examines the range of years from 2001 until 2015—came from a variety of sources. The National Conference of State Legislatures and Rutgers University’s Center for American Women and Politics provided the data about the percentage of female legislators in each chamber. The data concerning female governors came from the National Governors Association and from each individual state’s website. The expenditures for each state came from the United States Census Bureau’s Business & Industry division.

This paper focuses on three areas of governmental spending: education, welfare and transportation. Welfare and education were selected as dependent variables because other pieces of economic literature have selected these areas of spending, but studies have shown female politicians have a self-stated preference for these expenditures. Researchers found that in elections, male candidates tend to focus their campaign rhetoric on issues such as taxes and the federal budget while female candidates focus on education, welfare and health care (Kahn, 1996). However, while female politicians have a preference for education and welfare, there is no reported preference for transportation spending. Therefore, transportation spending will serve as test to determine whether a politician’s gender matter for spending in general. Also, transportation expenditures are reflective of spending overall.

Table 1 presents the summary statistics for the gathered data. From these summary statistics, it becomes quite apparent the minimal opportunities for female politicians. Over time period, the average percentage of female serving in state legislatures was only a little over 23 percent. Additionally, only 13 percent of governors during the time period were female. Additionally, the summary statistics show that states spending most on education per capita. On average, states spend about 870 dollars per capita on education, while spending approximately 500 dollars per capita on welfare programs and about 420 dollars per capita on transportation. More importantly, the standard deviations of the three spending per capita variables are quite large, as the spending levels per state range widely.

Table 1. Summary Statistics

	FSL	FG	FSLFG	Education Per Capita	Welfare Per Capita	Trans Per Capita
Mean	23.2%	0.13	0.04	\$871.6	\$500.4	\$420.0
Standard Deviation	7%	0.34	0.09	\$354.5	\$245.6	\$282.4
Minimum	7.9%	0	0	\$292.7	\$157.3	\$-33.3
Maximum	42.0%	1	0.36	\$2769.2	\$1571.4	\$2285.7

FSL = % of Female State Legislators
FG = Binary Indicator for Female Governor
FSLFG = Interaction Variable

After gathering the data, the following regressions were chosen to examine a female politician's effect on government spending. The first model is:

$$Y_{i,t} = \alpha + \beta_1 * FSL_{i,t} + \beta_2 * FG_{i,t} + \beta_3 * FSLFG_{i,t} + z_i + \tau_t + \varepsilon$$

In the above equation, $Y_{i,t}$ is the government spending per capita in a certain state i and in time period t . $FSL_{i,t}$ is the percentage of women in the state legislature in a certain state in a certain time period. FG is a binary indicator that shows whether a woman is serving as governor. $FSLFG$ is an interaction variable that determines whether there is a joint effect due to the presences of females in roles as both state legislators and governor. Z represents the state fixed effects, while T represents the time fixed effects.

The second model that is used is:

$$Y_{i,t} = \alpha + \beta_1 * FSL_{i,t} + \beta_2 * FG_{i,t} + \beta_3 * FSLFG_{i,t} + \beta_4 * PerDem_{i,t} + z_i + \tau_t + \varepsilon$$

As is apparent, this model resembles our first model quite closely. Most of the variables are the same, except for the addition of $PerDem$. $PerDem$ represents the percentage of Democrats serving in the state legislature in a certain state in a certain year. The purpose of this model is to determine if our female politicians retain significance if additional controls—such as party—are added to the model.

The third model that was used is:

$$Y_{i,t} = \alpha + \beta_1 * FSL_{i,t} + \beta_2 * FD_{i,t} + \beta_3 * FR_{i,t} + \beta_4 * FSLFG_{i,t} + \beta_5 * PerDem_{i,t} + z_i + \tau_t + \varepsilon$$

This model continues the theme of understanding the role of gender and political politics on spending. The added variable FR and FD are binary indicators to determine the presence and party of a female governor. If there is a female Republican governor, FR is 1, while FD is 1 if there is a female Democratic governor.

Empirical Evidence

Do female politicians affect government spending? The straightforward comparison of expenditures differs when considering a politician's gender. Table 2 shows the impact of female politicians on various spending areas, including education, welfare and transportation funding. For regressions 1, 3 and 5, the variables were regressed on the spending per capita data in a linear regression fashion. For regressions 2, 4 and 6, the variables were regressed on spending per capita data using a fixed effects model fashion.

Regardless of the model used, female legislators are likely to increase funding for education and welfare. In the linear regression model, a ten-percentage increase in the number of female state legislatures results in an increase of \$14.4 in per capita spending in education. In the linear regression model, a ten-percentage increase in the number of female state legislatures also results in an increase of welfare per capita spending by \$108.5. When fixed effects are added, the effect

changes. A ten-percentage increase in female state legislators increases educational per capita spending by \$44.7, while welfare per capita spending increases by approximately \$59.5. An important item to note is that when the fixed effects model is used, the effect caused by the percentage of female state legislators become very significant for both educational and welfare per capita spending.

While female state legislators positively impact educational and welfare spending, the results are not quite as clear for female governors. In the linear regression models, female governors have a positive impact on spending. When a female is serving as a state’s governor, the spending on education per capita increases \$168 and the welfare per capita spending increases approximately \$249. However, when fixed effects are included, the presence of a female governor causes a negative impact on both areas of spending. When a female serves as a state’s governor, education per-capita spending decreases by \$103 and welfare spending per capita decreases by \$104. Again, it is noteworthy that in the fixed effects model, the variables associated with female governors become significant.

Table 2. The effect of female politicians on government spending

(Linear Regression & Fixed Effects Model)

VARIABLES	(1) Education	(2) Education	(3) Welfare	(4) Welfare	(5) Trans	(6) Trans
FSL	144.4 (199)	447.7*** (135.4)	1085.6*** (133.3)	595.1*** (145.9)	-190.7 (159.8)	404.9** (166.7)
FG	168.5 (151.3)	-103.5** (44.8)	249.1** (101.3)	-104.5** (48.2)	102.5 (121.4)	-46.4 (55.1)
FSLFG	-113.5 (565.3)	296.9* (173.8)	-964.8** (378.5)	372.5** (187.2)	-394.4 (453.7)	68.3 (214)
Constant	819.7*** (47.2)	528.4*** (32.7)	249.4*** (31.6)	198.8*** (35.2)	464.4*** (37.9)	247.2*** (40.3)
Year Fixed Effects	N	Y	N	Y	N	Y
State Fixed Effects	N	Y	N	Y	N	Y
Observations	750	750	750	750	750	750
R-squared (Within)	0.02	0.758	0.084	0.669	0.005	0.228

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

As for transportation spending, the results are mostly insignificant. Across models, the only variable that is significant is the effect of female state legislators in the fixed effects model. As

the percentage of female state legislators increases by 10 percent, the amount of spending per capita on transportation increases by \$44.0. Besides that variable, no other variable in the transportation regressions shows significance.

To further the discussion, party was added as a control variable to see if the results of our earlier regressions would change. A political party variable—the percentage of Democrats serving in the state legislatures—was added to the fixed effects model. Table 3 shows results for this controlled regression.

Table 3. The effect of female politicians on government spending
(Party Controlled)

VARIABLES	(7) Education	(8) Welfare	(9) Trans
FSL	346.8*** (133.5)	525.5*** (145.8)	382.6** (168.1)
FG	-92.3** (43.8)	-96.7** (47.9)	-43.9 (55.2)
FSLFG	273.6 (169.9)	356.5* (185.6)	63.1 (214)
PerDem	311.1*** (54.2)	214.6*** (59.2)	69 (68.2)
Constant	435.5*** (35.8)	134.8*** (39.1)	226.7*** (45.1)
Year Fixed Effects	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes
Observations	750	750	750
R-squared (Within)	0.769	0.676	0.229

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The party control showed significance for education and welfare spending. As the percentage of Democrats in a state legislature increased by ten percent, educational spending per capita increased by \$31.1 and welfare spending per capita increased by \$21.4. Both of these variables were very significant. However, controlling for party did not change the significance

of our other variables. Again, it is seen that the presence of females in the state legislatures positively impact educational and welfare spending. As the percentage of female state legislators increased by ten percent, the amount of spending per capita for education increases by \$34.6 and for welfare increases by \$52.5. In addition, the negative trend in spending for female governors held. The presence of a female governor decreases education per capita spending by \$92, while decreasing welfare by capita spending by \$96. Finally, there was not much significance seen in the transportation category.

To continue the discussion, other regressions were completed to further understand the impact that female politicians have on spending. When the party of the governor is included in the models, we still see similar results (see Table 4).

Table 4. The effect of female politicians on governmental spending
(Further fixed effect models)

VARIABLES	(9) Education	(10) Welfare	(11) Trans	(12) Overall Spending
FSL	361.5*** (133.4)	520.0*** (145.1)	383.2** (168.1)	2,112** (980.8)
FD	-40.09* (21.63)	76.06*** (23.52)	34.51 (27.26)	
FR	-54.85 (38.46)	-68.44 (41.83)	-10.87 (48.47)	
PerDem	312.8*** (54.35)	204.6*** (59.12)	66.99 (68.5)	
FG				-494.5 (324.3)
Constant	431.3*** (35.92)	140.8*** (39.07)	227.7*** (45.27)	3,350*** (236.9)
Observations	750	750	750	750
R-squared	0.77	0.679	0.23	0.821

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

FSL = % of Female State Legislature

FD = Indicator of Female Democratic Governor

FR = Indicator of Female Republican Governor

PerDem = Percentage of State Legislators Identifying as Democrat

As the number of female state legislators increases by 10 percent, educational spending per capita increases \$36.15; welfare spending per capita increases \$52; and transportation spending per capita increases \$38.32. Each of these variables has significance to one percent. However, we see mixed results when we divide female governors by party. Across the board, female governors who are Republican are more likely to cut spending. With the presence of a female governor, educational spending per capita decreases by \$54.85, welfare spending per capita decreases \$68.44, and transportation spending decreases by \$10.87. When there is a female

Democratic governor, educational spending per capita decreases \$40.09, welfare per capita spending increases \$76.06 and transportation spending per capita increases by \$34.51. Of all the political gubernatorial variables, only the Female Democratic variable is significant when run against education and welfare spending.

Discussion

As female politicians continue to become more represented in legislatures across the United States, the results shows that their increased presence could result in higher government expenditures. According to the results, the increase of female legislators has correlated with greater spending in the areas of education and welfare. In addition, a greater number of female legislators resulted in a higher level of transportation spending, yet this lacked significance. Overall, this result implies that female legislators reliably impact only certain areas of spending. This aligns with political science surveys that suggest female voters as well as female politicians have a natural inclination towards educational and welfare spending. This finding also aligns with the predictions from Clots-Figueras's paper, which found increasing female parliamentarians by 10 percent increases educational outcomes in urban areas by 6 percent. Finally, the lack of statistical significance with transportation also reflects the lack of female voters' preference.

Interestingly, the negative effect caused by female governors was a surprising result. Across all three spending areas, the presence of a female governor decreases government expenditures. On one hand, this result implies that female governors not only have a different preference than female legislators, but also a different preference from female voters. Even when the female governors were divided by parties, there were instances—especially in education—where female governors regardless of party were likely to cut spending. This result stands in direct contrast with Chen's study on Taiwanese female politicians. Chen found that females who serve in an executive role—a county mayor—increased spending by two percent in areas of social welfare.

While the negative effect was unexpected, there may be several reasons that explain this result. First, our third model showed that Republican female governors are more likely to cut spending when elected. At the same time, conservative states and conservative parties have been more effective at electing female governors. Currently of the five female governors, three are Republicans serving in Oklahoma, South Carolina and Arizona. Using the Cook Political Voting Index, this author found that the average political rating for states during the 2000-2015 time period that have elected female governors leans Republican (R +0.38). Therefore, the governors in our data may have a natural inclination to cut spending due to other factors such as state political ethos or party ideology. Likewise, another reason to explain the negative effect may be the role and stereotypes of governors. Being an executive figure, many governors have to adopt male-oriented leadership qualities. Sheryl Sandberg's book *Lean In* describes that many CEOs experience bias when they assume their positions and appear more decisive and more ambitious. If this theory holds for governors, female governors may cut spending to display male leadership characteristics for their constituents and to ensure they are elected.

Finally, the results have the ability to shed some light on whether female politicians in America are serving as delegates or whether they are serving as Burke-inspired trustees. There could be compelling arguments for both sides of the debate. For those who advocate politicians serve as delegates, they may point to the fact that the impact of female state legislators correlates with the preferences of female voters. This may suggest that female legislators are directly conveying the wishes of their constituents. However, this author believes those who argue for

the trustee form of government are much more convincing. The results show that the presence of female state legislators increases spending in certain areas of government expenditures. Additionally, the presence of a female governor has a negative effect on spending. Therefore, female representatives are different from their male counterparts. Since the regressions controlled for state fixed effects, it may be fair to imply that the political culture of each state was controlled for, meaning that since female politicians made an impact when compared to male politicians, they are not directly conveying the wishes of their constituents.

To further understand the impact of female politicians, it would require more data and more analysis. As females continue to be elected across the country, their election will create more data for our sample. Further regressions could also include female voter characteristics or set up a regression discontinuity to isolate the impact of a female politician from constituency preferences.

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