Web Appendix for
Gender Quotas and the Crisis of the Mediocre Man: Theory and Evidence from Sweden

January 14, 2016

1 Web Appendix

In this Web Appendix, we report on some results that speak to the mechanisms behind our results and to the robustness of the main findings.

1.1 Seats and Supply: Some Mechanisms

A few recent studies have related gender quotas to parties' electoral performance. As argued in this work, a quota can either hurt or help a party depending on voters' bias for or against woman politicians (Maniquet et al. 2008; Esteve-Volart and Bagues 2010; Casas-Arce and Saiz 2015). When politician competence is the outcome, a shift in the number of seats won by the party can impact on selection by increasing or decreasing the level of internal party competition for seats. We analyze the impact of the quota on the Social Democrats' electoral success by using three alternative outcome variables in equations (5) and (6) in the main text**.** Table W1 replicates the analysis of Table 3 and Figure 5 in the main text for the Social Democratic party's (i) vote share in the municipal election, (ii) seat share, and (iii) number of seats. In neither case do we find an impact. The estimates are positive, but small in size is small and not statistically significant.[1]

[1] We cannot rule out a positive effect of the quota on the success of the Social Democratic party as a whole. The quota was simultaneously adopted for the national parliament and

Given that the quota did not impact on the number of seats won by the local parties, the number of seats available to men must have decreased in proportion to the quota bite. This raises the question of whether having a smaller number of available seats can explain our main finding by, for example, triggering more competition for these seats among the men, or by raising the cut-off for becoming elected in the distribution of male competence.

We investigate this by re-estimating our baseline specifications (corresponding to Table 3 and Figure 5 in the main text) for the impact on competence in two alternative groups of politicians: a "constant number" of elected men, and the top three elected men. In the first estimation provided in columns (1) and (2) of Table W2, we hold the number of elected men in each local party constant across time at the pre-quota (1991) number. Note that this is possible because our data includes all nominated politicians below the cut-off for the last elected person on the list. In columns (3) and (4) of Table W2, we only include the top-three men, regardless of their ballot positions.

The results suggest that the effect is not principally driven by a reduction in the number of elected men. The estimates for the pre-post equation (**??**) are essentially identical to the baseline results when municipality time trends are included in the regression. For the period-by-period estimation, the estimates are slightly smaller, and the immediate (1994) impact is not significant. Turning to the top-three men on the ballot, the estimated impact of the quota becomes larger than the baseline finding that included men among the top-three list ranks. [2]

An increase in the quality of men selected could also reflect a supply effect which is related to the quota bite. The supply of competent men may have pre-dated the quota, for some reason, and led to an improvement in the quality of those elected following the adoption of the quota. We test for this by letting the outcome variable be using the fraction of competent politicians on the electoral ballot as a whole – i.e., also including nominated

the local elections, these elections take place on the same day, and only 20% of the voters split their vote. This makes local and national effects difficult to disentangle. Figure W1 in the Web Appendix shows the Social Democrats' vote share in the national parliament and the average municipality. In thir graph, the 1994 election stands out as the most successful election in the 1991-2010 period, in both time series. In the parliamentary election, the party improved its vote share by 7.5 percentage points.

[2]We also hold the number of women constant at their 1991 number in columns 5 and 6. The sign and size of the point estimates in this regression suggests that the selection of women improved in the same manner as the selection of men, but that average competence was somewhat reduced by the increase in the number of elected women.

but non-elected politicians. The results are shown in Table W3**.** We see that the estimates are smaller in size than in the baseline findings, and some estimates have lost their statistical significance. Importantly, we do not see an improvement in the selection of men to the list as a whole in the pre-quota elections of 1985 and 1988 and 1991.

Examining the estimates for the post-quota elections, we can get an idea of whether competent men were drawn to the electoral ballots of local parties that were forced to take stronger stances on gender equality. The results for the post-quota election periods do not support this idea, since the coefficients are slightly smaller than those for the elected politicians only. The findings suggest that the improvement in selection arose from the top portion of the ballots, a pattern that is further pursued by empirical analysis in the main text.

1.2 Robustness Checks

Here, we summarize the results from a range of robustness checks for the baseline findings regarding the improvement in the selection of men.

First, we replicate the main results in Table 3 and Figure 5 of the main text for the unrestricted sample of local Social Democratic parties. This sample includes both parties with a woman as the top-ranked politician and parties that did not comply with the quota. The results are displayed in Table W4 and show that the size of the estimated effects are reduced by about 25% but remain statistically significant.

Table W5 is devoted to a second robustness check, based on an alternative way to compute the quota bite. For each local party, we take its share of elected women in 1991 (the last year before the quota) and subtract it from 0.5 (i.e. $X = 50\% - Z$, where Z is the share of women elected in local party 1 in 1991). As in the previous robustness check, the estimates become slightly smaller in size, but the pattern of statistical significance does not change.

We have also addressed the concern that the bite of the quota could be correlated with an unobserved shock that hit municipalities between 1991 and 1994 and which is correlated with the supply or demand for competent male politicians. We do so first by adding municipal control variables to the regressions, and second, by estimating the impact of the Social Democratic party's quota on the selection in the other two largest parties in the same municipality.

Table W6 shows the results when we include a host of municipal control

variables. The local economic and political context is captured by: (i) a measure of the municipality's gap in per-capita income between men and women, (ii) four categorical dummy variables for size of the municipal assembly, and (iii) six dummy variables for municipality types, defined by Statistics Sweden.[3] This choice of variables follows previous work outlining the cultural geography of gender equality in Sweden (Forsberg, 1997). The controls are measured in 1991 and interacted with all election-period dummies. This effort of purging the influence of municipality characteristics as confounders for the relationship between competence and the quota bite does not have any impact on our baseline results.

Table W7 examines the quota's impact on the selection by the other parties, replacing the outcome variables with the proportion(s) of competent politicians in the next largest parties, the Conservatives and the Center party, combined. In the pre-post estimation (Pane A), the estimates are not statistically significant when municipal time trends are included. In the period-by-period estimation, however, we find significant estimates for the 2002 and 2006 elections. Overall, the estimates in Table W7 do not show that other parties enjoyed a rise in male competence in the immediate post-quota elections (1994 and 1998), which might suggest the presence of municipality shocks correlated with the quota bite. In addition, the results might indicate spillovers on the other parties, but only in the later elections of the sample period.

A final set of robustness tests in Table W8 use alternative measures of competence, namely the average score of the two enlistment tests presented in Section 4 of the main text. These results show a clear improvement in terms of leadership ability but not in terms of cognitive ability. For the cognitive score, the point estimates are relatively large in size, but lack statistical significance.

[3]This socioeconomic classification is done by Statistics Sweden and classifies each municipality as one of: average (benchmark) type, large city, suburban city, mid-size city, sparsely populated area, rural area, or industrial or mining town.

References

[1] Casas-Arce, P. and A. Saiz (2015), "Women and Power: Unpopular, Unwilling, or Held Back?", *Journal of Political Economy* 123, 641-669.

[2] Bagues, M. F. and B. Esteve-Volart (2010), "Can Gender Parity Break the Glass Ceiling? Evidence from a Repeated Randomized Experiment," *Review of Economic Studies* 77, 1301-1328.

[3] Maniquet, F., G. R. Frechette, and M. Morelli (2008), "Incumbents' Interests and Gender Quotas", *American Journal of Political Science* 52, 891-907.

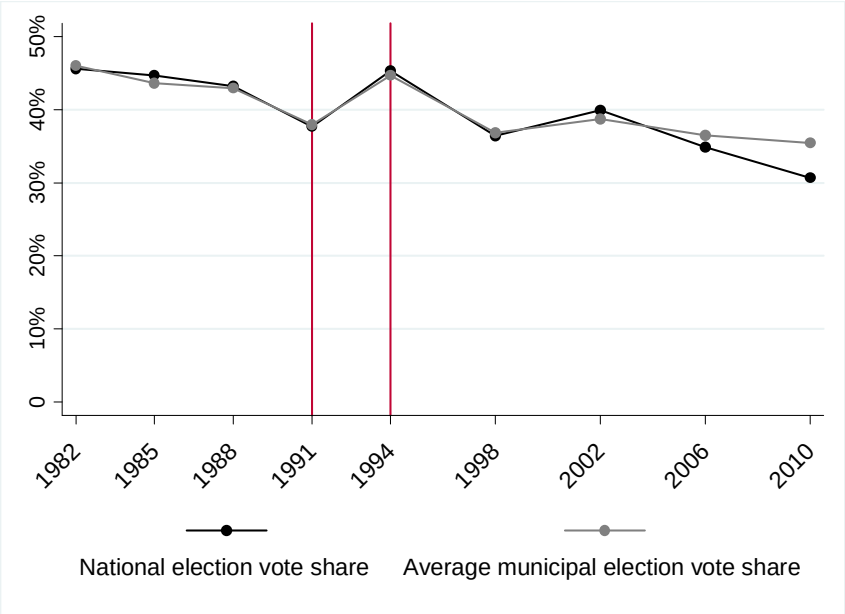
Tables and Figures

Table W1. Quota impact on the electoral success of local Social Democratic Parties.

Outcome Variable:	*Pane A: Pre-Post D-i-D*					
	Number of Seats		*Seat Share*		*Vote Share*	
	(1)	(2)	(3)	(4)	(5)	(6)
*Post-Quota*Δw94-91*	0.482	-0.226	0.052	0.010	0.058	0.024
	(2.092)	(2.369)	(0.034)	(0.050)	(0.036)	(0.052)
Muni. time trends		x		x		x
Observations	1,795	1,795	1,795	1,795	1,784	1,784
	Pane B: Period-by-Period D-i-D					
D1982*Δw94-91	-4.078*		-0.068		-0.066	
	(2.283)		(0.042)		(0.040)	
D1985*Δw94-91	0.995		0.011		-0.027	
	(3.209)		(0.067)		(0.034)	
D1988*Δw94-91	-0.466		0.021		0.020	
	(2.202)		(0.030)		(0.030)	
			1991 = Reference year			
D1994*Δw94-91	-0.009		0.033		0.046	
	(1.842)		(0.038)		(0.037)	
D1998*Δw94-91	0.050		0.037		0.031	
	(2.234)		(0.047)		(0.044)	
D2002*Δw94-91	-0.870		0.036		0.031	
	(2.510)		(0.048)		(0.047)	
D2006*Δw94-91	-1.512		0.037		0.046	
	(2.609)		(0.049)		(0.048)	
D2010*Δw94-91	-0.231		0.059		0.048	
	(2.874)		(0.058)		(0.059)	
Observations	1,795		1,795		1,784	

Notes: Robust standard errors clustered at the municipality level in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

Figure W1. National election vote share of the Social Democratic party, 1982-2010



Note: The vertical lines mark the introduction of the gender quota in 1994.

Table W2. Quota impact on competence, holding constant the number of elected men or women.

	Pane A: Pre-Post D-i-D					
Sample:	*Male Politicians*		*Male Top 3 Politicians*		*Female Politicians*	
	(1)	(2)	(3)	(4)	(5)	(6)
*Post-Quota*Δw94-91*	0.212*	0.361**	0.365	0.884***	-0.115	0.367
	(0.120)	(0.146)	(0.244)	(0.304)	(0.186)	(0.249)
Mun- time trend		x		x		x
Observations	1,783	1,783	1,762	1,762	1,760	1,760
	Pane B: Period-by-Period D-i-D					
D1982*Δw94-91*	-0.165		0.007		0.494*	
	(0.179)		(0.400)		(0.255)	
D1985*Δw94-91*	-0.166		-0.036		-0.012	
	(0.159)		(0.308)		(0.241)	
D1988*Δw94-91*	-0.136		-0.149		0.164	
	(0.135)		(0.289)		(0.246)	
			1991 = Reference year			
D1994*Δw94-91*	0.110		0.766***		0.179	
	(0.102)		(0.211)		(0.201)	
D1998*Δw94-91*	0.238*		0.297		0.165	
	(0.122)		(0.256)		(0.237)	
D2002*Δw94-91*	0.236		0.419		0.219	
	(0.160)		(0.329)		(0.276)	
D2006*Δw94-91*	0.025		0.198		-0.219	
	(0.164)		(0.327)		(0.251)	
D2010*Δw94-91*	-0.132		-0.052		-0.127	
	(0.198)		(0.327)		(0.266)	
Observations	1,783		1,762		1,760	

Notes: Robust standard errors clustered at the municipality level in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

Table W3. Quota impact on competence, full candidate list.

	Pane A: Pre-Post D-i-D					
Sample:	*All Politicians*		*Male Politicians*		*Female Politicians*	
	(1)	(2)	(3)	(4)	(5)	(6)
*Post-Quota*Δw*$_{94\text{-}91}$	0.107*	0.137*	0.187**	0.157*	-0.105	0.065
	(0.065)	(0.074)	(0.079)	(0.087)	(0.113)	(0.128)
Mun- time trend		x		x		x
Observations	1,807	1,807	1,807	1,807	1,807	1,807
	Pane B: Period-by-Period D-i-D					
D1982*Δw$_{94\text{-}91}$	0.005		-0.157		0.203	
	(0.085)		(0.100)		(0.144)	
D1985*Δw$_{94\text{-}91}$	0.031		-0.037		0.056	
	(0.073)		(0.076)		(0.166)	
D1988*Δw$_{94\text{-}91}$	-0.023		-0.084		0.000	
	(0.074)		(0.079)		(0.155)	
			1991 = Reference year			
D1994*Δw$_{94\text{-}91}$	0.117*		0.099		0.035	
	(0.061)		(0.074)		(0.106)	
D1998*Δw$_{94\text{-}91}$	0.133		0.134		0.029	
	(0.083)		(0.097)		(0.132)	
D2002*Δw$_{94\text{-}91}$	0.135		0.178		-0.057	
	(0.088)		(0.114)		(0.140)	
D2006*Δw$_{94\text{-}91}$	0.046		0.082		-0.189	
	(0.094)		(0.121)		(0.162)	
D2010*Δw$_{94\text{-}91}$	0.122		0.092		-0.017	
	(0.091)		(0.120)		(0.157)	
Observations	1,807		1,807		1,807	

Notes: Robust standard errors clustered at the municipality level in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

Table W4. Baseline result, un-restricted full sample.

	Pane A: Pre-Post D-i-D					
Sample:	*All Politicians*		*Male Politicians*		*Female Politicians*	
	(1)	(2)	(3)	(4)	(5)	(6)
*Post-Quota*Δw94-91*	0.054	0.260**	0.181	0.288**	-0.277	0.091
	(0.091)	(0.104)	(0.114)	(0.142)	(0.173)	(0.190)
Mun- time trend		x		x		x
Observations	2,551	2,551	2,551	2,551	2,537	2,537
	Pane B: Period-by-Period D-i-D					
D1982*Δw94-91*	0.053		-0.111		0.313	
	(0.123)		(0.147)		(0.241)	
D1985*Δw94-91*	0.046		0.028		0.049	
	(0.128)		(0.147)		(0.235)	
D1988*Δw94-91*	-0.042		-0.066		-0.133	
	(0.105)		(0.111)		(0.212)	
			1991 = Reference year			
D1994*Δw94-91*	0.197**		0.207**		-0.078	
	(0.080)		(0.093)		(0.171)	
D1998*Δw94-91*	0.090		0.182		-0.164	
	(0.104)		(0.125)		(0.187)	
D2002*Δw94-91*	0.167		0.238		-0.089	
	(0.110)		(0.149)		(0.207)	
D2006*Δw94-91*	-0.059		0.099		-0.417*	
	(0.127)		(0.162)		(0.238)	
D2010*Δw94-91*	-0.056		-0.006		-0.348	
	(0.147)		(0.200)		(0.245)	
Observations	2,551		2,551		2,537	

Notes: Robust standard errors clustered at the municipality level in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

Table W5. Baseline results with the bite of the gender quota defined as 0.5 minus the proportion of elected women in 1991.

	Pane A: Pre-Post D-i-D					
Sample:	*All Politicians*		*Male Politicians*		*Female Politicians*	
	(1)	(2)	(3)	(4)	(5)	(6)
*Post-Quota*Δw94-91*	0.111	0.289***	0.223*	0.310*	-0.144	0.244
	(0.099)	(0.110)	(0.116)	(0.160)	(0.197)	(0.191)
Mun- time trend		x		X		x
Observations	1,795	1,795	1,795	1,795	1,783	1,783
	Pane B: Period-by-Period D-i-D					
D1982*Δw94-91*	0.048		-0.070		0.307	
	(0.137)		(0.158)		(0.302)	
D1985*Δw94-91*	0.022		0.026		-0.058	
	(0.134)		(0.151)		(0.257)	
D1988*Δw94-91*	0.056		0.063		-0.052	
	(0.115)		(0.118)		(0.234)	
			1991 = Reference year			
D1994*Δw94-91*	0.206**		0.214**		0.024	
	(0.082)		(0.094)		(0.191)	
D1998*Δw94-91*	0.205*		0.294**		0.019	
	(0.111)		(0.128)		(0.211)	
D2002*Δw94-91*	0.255*		0.356**		0.049	
	(0.131)		(0.162)		(0.224)	
D2006*Δw94-91*	0.043		0.217		-0.283	
	(0.145)		(0.165)		(0.264)	
D2010*Δw94-91*	0.008		0.064		-0.289	
	(0.161)		(0.215)		(0.254)	
Observations	1,795		1,795		1,783	

Notes: Robust standard errors clustered at the municipality level in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

Table W6. Baseline results with controls for municipality characteristics in 1991 interacted with the election period dummies

	Pane A: Pre-Post D-i-D					
Sample:	*All Politicians*		*Male Politicians*		*Female Politicians*	
	(1)	(2)	(3)	(4)	(5)	(6)
*Post-Quota*Δw94-91*	0.107	0.304**	0.326***	0.375**	-0.350	0.200
	(0.103)	(0.122)	(0.119)	(0.174)	(0.216)	(0.236)
Mun- time trend		x		X		X
Observations	1,795	1,795	1,795	1,795	1,783	1,783
	Pane B: Period-by-Period D-i-D					
D1982*Δw94-91*	0.083		-0.144		0.525	
	(0.156)		(0.180)		(0.319)	
D1985*Δw94-91*	0.048		-0.040		0.245	
	(0.172)		(0.187)		(0.320)	
D1988*Δw94-91*	-0.010		-0.075		-0.017	
	(0.139)		(0.151)		(0.266)	
			1991 = Reference year			
D1994*Δw94-91*	0.245**		0.295***		0.042	
	(0.102)		(0.112)		(0.241)	
D1998*Δw94-91*	0.162		0.291**		-0.075	
	(0.126)		(0.143)		(0.236)	
D2002*Δw94-91*	0.241*		0.332*		0.012	
	(0.139)		(0.196)		(0.248)	
D2006*Δw94-91*	0.000		0.224		-0.432	
	(0.162)		(0.197)		(0.302)	
D2010*Δw94-91*	0.044		0.170		-0.316	
	(0.159)		(0.225)		(0.265)	
Observations	1,795		1,795		1,783	

Notes: Robust standard errors clustered at the municipality level in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

Table W7. Impact of the Social Democratic quota on average competence in the Conservative and Center party

	Pane A: Pre-Post D-i-D					
Sample:	*All Politicians*		*Male Politicians*		*Female Politicians*	
	(1)	(2)	(3)	(4)	(5)	(6)
*Post-Quota*Δw94-91*	0.121	0.056	0.134	-0.035	0.283	0.220
	(0.108)	(0.133)	(0.127)	(0.169)	(0.187)	(0.225)
Mun- time trend		x		x		x
Observations	1,797	1,797	1,795	1,795	1,759	1,759
	Pane B: Period-by-Period D-i-D					
D1982*Δw94-91*	-0.157		0.047		-0.707**	
	(0.163)		(0.168)		(0.297)	
D1985*Δw94-91*	-0.059		0.128		-0.305	
	(0.142)		(0.150)		(0.292)	
D1988*Δw94-91*	0.094		0.175		0.079	
	(0.101)		(0.123)		(0.208)	
			1991 = Reference year			
D1994*Δw94-91*	0.077		0.104		0.120	
	(0.115)		(0.140)		(0.206)	
D1998*Δw94-91*	0.006		-0.014		0.292	
	(0.126)		(0.159)		(0.224)	
D2002*Δw94-91*	0.261*		0.439**		0.045	
	(0.139)		(0.180)		(0.230)	
D2006*Δw94-91*	0.030		0.302*		-0.240	
	(0.158)		(0.171)		(0.283)	
D2010*Δw94-91*	0.076		0.270		0.050	
	(0.157)		(0.214)		(0.257)	
Observations	1,797		1,795		1,759	

Notes: Robust standard errors clustered at the municipality level in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

Table W8. Baseline results using enlistment data for cognitive ability and leadership as the outcome variable.

	Pane A: Pre-Post D-i-D			
Outcome Variable:	*Leadership Score*		*IQ*	
	(1)	(2)	(3)	(4)
*Post-Quota*Δw94-91*	2.542**	1.917	0.545	1.338
	(1.062)	(1.346)	(0.945)	(1.430)
Mun- time trend		x		x
Observations	1,353	1,353	1,476	1,476
	Pane B: Period-by-Period D-i-D			
D1982*$\Delta w_{94\text{-}91}$	0.376		1.639	
	(1.999)		(1.550)	
D1985*$\Delta w_{94\text{-}91}$	-1.015		2.517*	
	(1.398)		(1.352)	
D1988*$\Delta w_{94\text{-}91}$	0.075		0.718	
	(1.238)		(1.175)	
	1991 = Reference year			
D1994*$\Delta w_{94\text{-}91}$	3.143**		1.803	
	(1.291)		(1.374)	
D1998*$\Delta w_{94\text{-}91}$	3.043**		1.508	
	(1.296)		(1.366)	
D2002*$\Delta w_{94\text{-}91}$	0.464		1.926	
	(1.396)		(1.285)	
D2006*$\Delta w_{94\text{-}91}$	1.840		1.403	
	(1.379)		(1.162)	
D2010*$\Delta w_{94\text{-}91}$	3.486**		1.459	
	(1.491)		(1.286)	
Observations	1,353		1,476	

Notes: Robust standard errors clustered at the municipality level in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

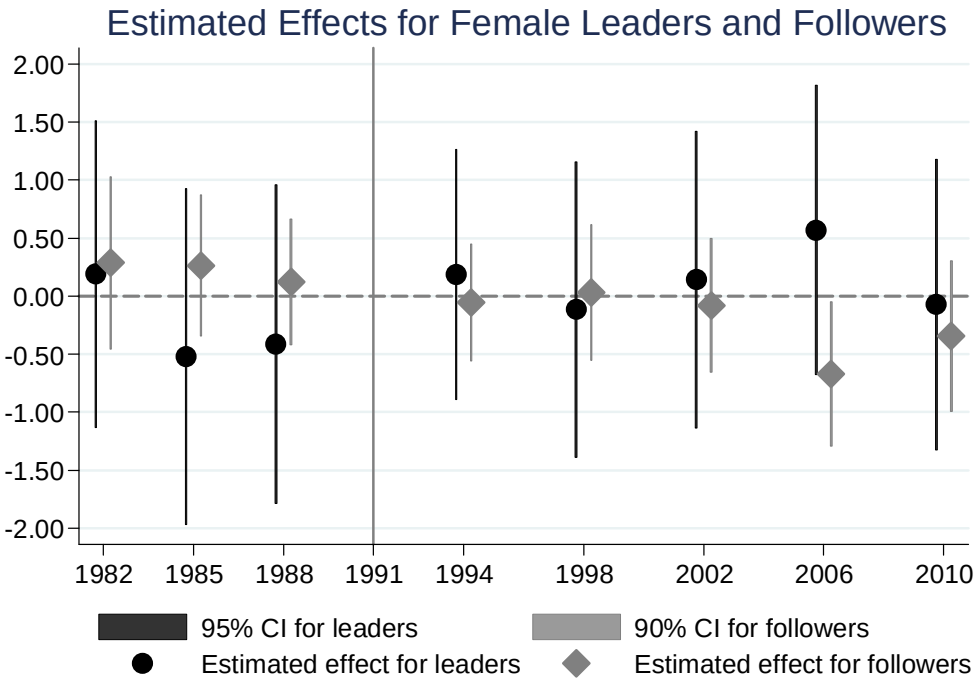


Figure W2. Competence effect on female leaders and followers