Replication Paper

Feven Yohannes

April 20, 2020

Abstract

Kuipers (2019) explores the effect that the election of female candidates in the Indonesian legislature have on intimate partner violence attitudes. I replicated Nicholas Kuipers' paper "The Effect of Electing Female Candidates on Attitudes Towards Intimate Partner Violence" and I found my results to be consistent with the results found in the paper. After running the code from the main models, I concurred that the results showed that the election of female candidates did, in fact, have an effect that's statistically significant on the IPV attitudes on female constituents. These results are particularly important because it shows the possible effect that female candidates can have on decreasing IPV, by at least contributing to more condemnation of IPV. Thus, the election of female candidates can result in tangible responses to IPV, leading to safer and healthier communities for women.

Introduction

My project replicates data from Kuipers "The Effect of Electing Femlae Candidates on Attitudes Towards Intimate Partner Violence". In this paper, Kuipers investigates the relationship between the election of female candidates and the change in IPV (intimate partner violence) opinions. He creates two models that predict the change in IPV opinions with the predictor variable of an additional female legislator. The first model looks at female constituents, while the second examines male constitutents. His models show statistically signifcant results for female constituents in particular, thus showing that the addition of female legislators does have some impact on IPV opinions. After examining these models, Kuipers goes on to explain pausaible reasons for the impact that female legislators could have. One reason includes allocating more resources to health centers that in turn could impact IPV opinions through awareness and appporiate resources for victims. This finding is particuarly important as it demonstrates that female legislators have a unique impact

1

on women issues. This idea that female legislators have an impact on reducing IPV has also been explored by other authors as Kuipers mentions. In a study conducted in India, Iyer et al (2012) saw that female victims were most likely to report their abuse in the 1990's, following the implementaion of gender quotas in the legislature. Furthermore, this is also consistent with a study conducted in Rwanda, where Burnet (2011) found that the increase in female legislators led to the enaction of a law that specifically targeted prohibiting gender violence. In conjunction with Kuipers' paper, both literatures outline the possible effect that an increase in female legislators can have on IPV and thus, reveal the signifiacnce of female legislators on women's issues and health. In my replication paper, I use R programming to replicate the modeling through the use of data and code that was made available on Dataverse (footnote). In order to replicate the tables and figures featured in the paper, I downloaded all of the available data and ran the same exact codes that were originally used. The replication of these models can be found here [1].

Through my replication, I found results that were consistent with the findings of the original paper. I specifically focused on the main results of the paper that showed the relationship between the election of female candidates and IPV opinions. The first model examined the relationship between the election of a female candidate and the change in female attitudes from 2009 (before the election of a female candidate) and 2012 (three years after the election of a female candidate). on multiple questions related to IPV. The first table displayed the p values of the coefficients from the first model that explored female candidates and change in IPV opinions on a variety of questions. These five questions include 1)Is it okay to beat one's wife if she goes out? 2)Is it okay to beat one's wife if she neglects the kids? 3)Is it okay to beat one's wife if she argues? 4)Is it okay to beat one's wife if she refuses food? 5) Is it okay to beat one's wife if she burns food? The fitted models show that female respondents are more likely to have attitudes that condemn IPV. For example, "the proportion of female respondents stating that it is acceptable to beat one's wife if she burns the food drops by 3.2 percentage points"(Kuipers 6). These results are generally consistent with all five questions, thus showing that the election of a female candidate did lead to more condemnation of intimate partner violence and abuse. The second model and table show the relationship between the election of a female candidate on the change in IPV opinions by male constituents. It follows the same procedures and modeling of the first model, with the only difference being the gender of the respondents of the survey. In this model, we see some of the same patterns of less tolerant opinions on intimate partner violence and abuse, however, they were not as statistically significant as the results from the first table. Thus leading us to conclude that there are some discrepancies between the effect of an election of a female candidate on male and female constituents.

---

[1] All analysis for this paper can be found on this repo link : https://github.com/fyohannes/Milestone_8

Paper Review:

Nicholas Kuipers' paper "The Effect of Electing Female Candidates on Attitudes Towards Intimate Partner Violence", examines how electing female candidates in local elections in Indonesia can lead to a decrease in intimate partner violence. He specifically looks at elections where the female candidate narrowly wins. This narrow win is determined ny a win by a female candidatae by one percent or less. Kuipers only looks at narrow wins as a means to somewhat control for pre-exisitng attitudes. Thus, Kuipers assumes that by looking at regions with narrow wins, constituents will have less of an bias attitude towards questions relating to IPV and thus making their opinions on IPV easier to analyze. Overall he finds that a female victory in local elections leads to an increase in female constituents and male constituents (although not as much) condemning domestic abuse. In his experiment, Kuipers examines the effect of electing female candidates to the Dewan Perwakilan Rakyat Daerah, a legislative body in Indonesia. He estimates the effect of adding an additional female lawmaker to the legislative body on tolerance levels of IPV among constituents. To measure the attitudes towards IPV, Kuipers used the USAID Demographic and Health Survey (DHS), which was conducted in 2012 as a nationally representative survey of middle-aged women and men. The main results showed that electing females did affect constituent's beliefs toward IPV. For example "Electing a female legislator leads a 6.4 percentage point drop in the proportion of women who say it is acceptable to beat one's wife if she goes out without telling her husband". The main results also showed to have similiar effects on IPV opinions for male constituents, however, the results were not as statistically significant. However, one point estimate that was signifcant for males was for the coefficent of the fifth dependent variable. Kuipers finds that the addition of an elected female candidate leads to a decrease in the share of male constiutents who claim that it is acceptable to beat one's wife if she refuses sex by 3.3 percentage points. While the results show a general trend of more condemning addtiudes towards IPV, Kuipers also conducts a placebo test to further confirm his results. One concern that was mentioned was the concern that there was an "imbalance in pre–election differences in the distribution of outcomes"(Kuipers,2009,6). The placebo test conducts an analysis on survey data from 2007 and then is compared with the results from 2009. Table three, the results of the placebo test, doesn't give any indication that there was a pre-election imbalance. The results show that sentiments towards IPV seemed to be consistent between constitutencies where a female candidate narrowly won and constitutencies where a female candidate narrowly lost. Thus, conducting this placebo test gives more assurance for the accuracy of the results of our first two models. The results of the main analysis demonstrate that the addition of a female legislator can have an effect on attitudes towards IPV. Kuipers claims that the reason for this change in attitude may be because of laws that female politicians tend to enact in regard to domestic abuse. Kuipers analyzed recent data from 2019 candidate platforms for

local offices and found that female candidates were 28 times more likely to mentioned women's issues than male candidates. Thus, from this one could infer that female candidates priortize women issues more and this could in turn result in differing methods to address women issues when elected. Female politicians may allocate more resources in awareness, helping victims, or strengthening laws that prohibit or punish domestic abuse. Kuipers finds that female legislators are more likely to allocate health funding to iniatives regarding women issues. Overall it seems that female legislators play a large role in changing attitudes towards IPV. Female legislators could have a large effect on policy implications and empowering people to condemn IPV.

Literature Review

As previously mentioned, this paper focuses on the effects that female policymakers and legislations have on IPV opinions. In his paper, Kuipers introduces other countries in which the relationship between female representation in government and attitudes towards IPV (intimate partner violence) is significant. For example, he refers to a paper titled "Powerful Women: Does Exposure Reduce Bias?" by Beaman et al. (2009). This paper is a case analysis on Indian village councils and similarly to Kuipers' paper, it examines the effect the female leaders can have on changing perceptions about female capacity and gender roles. In this paper, India saw that an increase in female representation led to weakened gender stereotypes in the domestic sphere and well as the political arena. Although attitudes on male leaders did not change, this paper shows a change in attitude towards female leaders, most notably the perspective of the effectiveness and capacity of female politicians, all contributing to the weakening of gender stereotypes. The theory and findings within this paper greatly tie to the research question presented in Kuipers' paper. Both papers analyze the impact that female candidates can have on attitudes related to women's rights and gender norms. These theories are not only present in the aforementioned papers, but the same themes are present in a working paper conducted by the United Nations called "Maternal Mortality and Women's Political Participation". This working paper examines the relationship between quotas for women in parliament and the effect it has on the decline in maternal mortality across multiple nations. The paper highlighted how maternal mortality fell at a faster rate for countries that had instituted gender quota in their parliament. In conclusion, this paper finds that women's involvement in policy-making, not country income or advances in medical technology, is the greatest factor for rapid maternal mortality decline. All three papers highlight the importance of female politicians on pertinent issues such as maternal mortality or domestic abuse. Thus, these papers emphasize the effect that women politicians have on breaking stereotypes and how they are more efficient in dealing with female health and wellness issues. By placing the United Nations working paper and the paper conducted by Beaman et al, they help reinforce the theory that is found in Kuiper's paper.

Replication:

In my replication project, I replicated the three main models of the paper. The first model looked at the effect of female incumbency on IPV attitudes on female constiutents. The second model looked at the effect of female incumbency on IPV attitudes of male constituents. The third model was a placebo test that predicted the effect of female incumbency on pre-treatment attitudes for both male and female constituents. In my replication, I found all of my results to be consistent with the results of the original paper. Any discrepencies that occured was most likely due to natural error that occurs when re-running the original code. Thus, any discrepencies with the estimates of the coefficents from the models were non-significant and only accumulated to a couple of percenatge points.
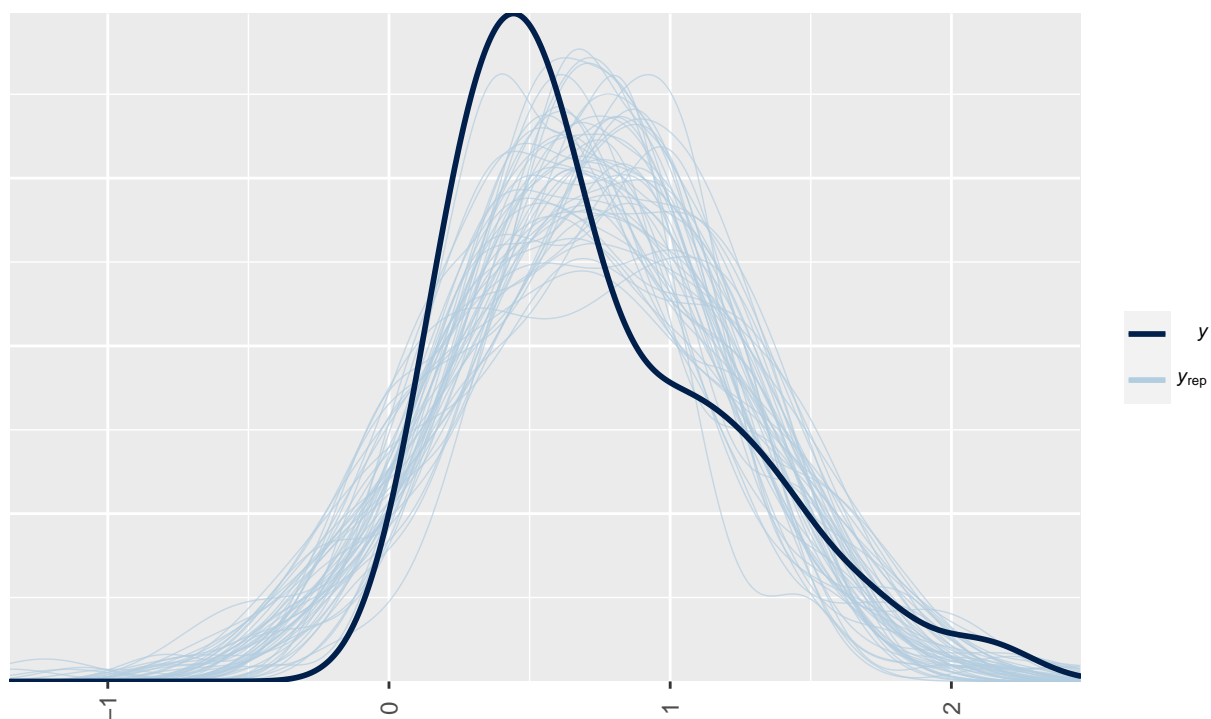
Extension:

Table 1: Linear regressions of Female Incumbency on
IPV attitudes for Female Constitutents

	Goes out	Neglects Children	Argues	Refuses sex	Burns food	Index
(Intercept)	0.288	0.313	0.088	0.115	0.053	0.832
	(0.022)	(0.020)	(0.010)	(0.013)	(0.008)	(0.061)
woman_win	-0.060	-0.055	-0.034	-0.020	-0.031	-0.197
	(0.030)	(0.030)	(0.015)	(0.018)	(0.011)	(0.081)
N	128	128	128	128	128	128

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Posterior Predicitve Checking for Female Constituent Results
Examining the regression that predicts the change in overall female attitudes on Intimate Partne

model seems to be a good fit for the model that predicts change in IPV attitudes for female constituents.

Table 2: Linear regressions of Female Incumbency on
IPV attitudes for Male Constituents

	Goes out	Neglects Children	Argues	Refuses sex	Burns food	Index
(Intercept)	0.142	0.149	0.056	0.040	0.017	0.401
	(0.023)	(0.022)	(0.018)	(0.009)	(0.007)	(0.059)
woman_win	-0.029	-0.028	-0.019	-0.032	-0.013	-0.124
	(0.032)	(0.032)	(0.024)	(0.012)	(0.010)	(0.084)
N	128	128	128	128	128	128

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Posterior Predicitve Cehcking for male Constituent Results
Examining the regression that predicts the change in overall male attitudes on Intimate Partner
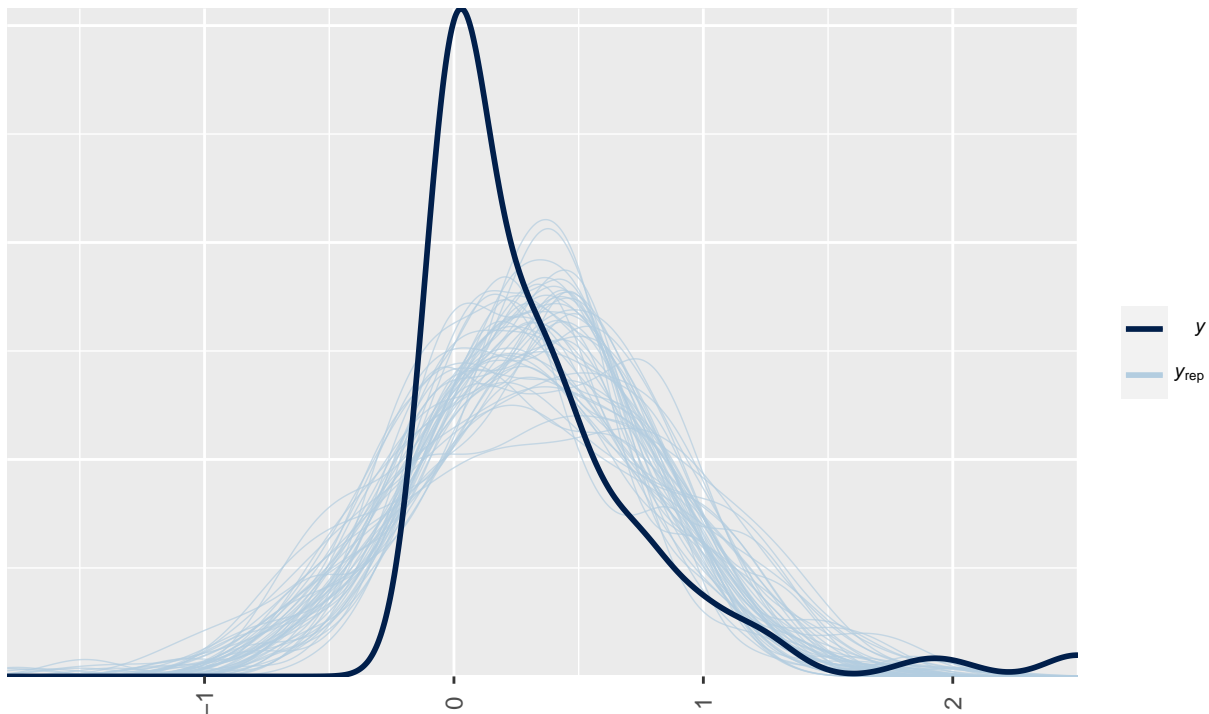
that the addition of female legislators has a larger effect on female constituents than male constituents.

For my extension, I focused on re-creating the original regressions through a Bayesian model rather than a standard linear regression. A Bayesian regression, unlike the standard linear regression that reflects Frequentist thought, examines the predicitive probability and sampling of posterior probability distribution. This distribution intergrates priors into the modeling and thus change the distribution of our posterior probaility. I used this Bayesian method and ran two models from the main results of the paper. The first was the model that predicted female attitude changes on IPV public opinion. The second was a similiar model that predicted male attitudes on IPV public opinion. These new models used the Bayesian inference for linear modeling and thus included regularizing piors on the model parameters.

First I modeled the two regressions through the Bayesian function stan_lm rather than a standard lm function. I had kept the dependent variables the same because I wanted to compare the regressions with the two different functions without changing much else in the model. The stan_lm function includes an argument that specifies the priors of the model so it's included in the regression. In my regression I set priors to NULL because there were no specific priors from the data available. While the model did not include specific priors, the regressions created still . . . . . .

Overall, I attempted to examine any discrepencies between the results of these models with the original

models found in the paper. I evaluated how well this model fit the data by comparing the coefficent estimates with the coefficent estimates in the original models used in the paper and through a posterior predicitve check.

In my first model, the model that predicited the change in female IPV opinions, the results between the coefficents of the standard linear model was consistent with the Bayesisan model. The coefficents for female incumbency, which measured the change in public opinion for regions where a female candidate won by one percentage point. The results essentially rendered the same output for each dependent variable after accounting for some minor discrpencies. For example we see that the coefficents for Female Incumbency on the second dependent variable in the orginal paper is -.0.058. In the new model we see the Female Incumbency coefficent at around -0.0366. Most imporatntly the coefficent estimates for the index (the aggregation of all 5 models with their respecicive dependent variables) were also consistent. In the original paper, the constant was 0.835 and the coefficent for Female Incumbency was -0.203. In my regression model the index showed a constant of 0.832 and a Female Incumbency coefficent of -0.197. Thus, while the numbers are not identical, the values are not far from each other and thus show consistency between the two types of models.

Similiar to the first model that predicted the change in IPV opions, the second model predicted the change in IPV opinions for male constitutents. I also ran a Bayesian regression on the second model and generally found the estimates for the the coefficents of female incumbency on each dependent variable to be consistent with the original paper. Looking at the index specifically, we see that the esitmate for the consant and Female Incumbency coefficent is O.406 and -0.133 respecitvely in the original paper. In my regression I found the consant to be 0.401 and the coefficent for Female incumbency to be -0.124. Thus, these the two ouputs are quite similiar and consistent. Overall, the two Bayesian models seemed to be consistent with the results of the standard linear models. This tells us that . . . .

In addition to the Bayesian models that I created, I also ran a posterior predictive check on the Bayesian regressions for both the models that predicted the change in female and male attitudes. The graphics that I have shown below represent these posterior predictive checkings, a method that simulates replicated data and compares it to the orginal data. Each graph compares the simulated data which is donoted as yrep and has a light blue color, with the orginal data which is donoted as y and has a dark blue color. When running the posterior predictive check on the regressions that predicted female public opinion, we can see that both fitted lines are quite similiar. This suggests that the model that we have is a pretty good fit for our data. However, when running the posterior predicitve check on regressions that predicted male public opinion, we can see that that fitted lines have more variance and at times don't follow the same pattern. This is specifally true for regressions that predicted male opinions from the third, fourth, and fifth dependent variable. This

outcome is in line with the results of the data, as the paper stated that the regressions for males showed less signifcant results, thus hinting that the model for male constituents are not a great fit for the data.

Tables and Figures:

Table 3: Effect of Female Incumbency on Female Attitudes Towards IPV

	Dependent variable:					
	Is it okay to beat one's wife if she:					
	Goes out	Neglects children	Argues	Refuses sex	Burns food	Index
	(1)	(2)	(3)	(4)	(5)	(6)
Female Incumbency	−0.064*	−0.058*	−0.036*	−0.023	−0.032**	−0.203*
	(0.031)	(0.029)	(0.015)	(0.018)	(0.011)	(0.084)
Constant	0.290**	0.314**	0.089**	0.116**	0.053**	0.835**
	(0.024)	(0.021)	(0.013)	(0.015)	(0.010)	(0.068)
Observations	128	128	128	128	128	128
Bandwidth	1%	1%	1%	1%	1%	1%

Note: *p<0.05; **p<0.01; ***p<[0.***]

Table 4: Effect of Female Incumbency on Male Attitudes Towards IPV

	Dependent variable:					
	Is it okay to beat one's wife if she:					
	Goes out	Neglects children	Argues	Refuses sex	Burns food	Index
	(1)	(2)	(3)	(4)	(5)	(6)
Female Incumbency	−0.031	−0.031	−0.021	−0.033*	−0.014	−0.133
	(0.032)	(0.031)	(0.024)	(0.013)	(0.010)	(0.084)
Constant	0.144**	0.150**	0.057**	0.040**	0.017	0.406**
	(0.021)	(0.021)	(0.021)	(0.012)	(0.009)	(0.069)
Observations	128	128	128	128	128	128
Bandwidth	1%	1%	1%	1%	1%	1%

Note: *p<0.05; **p<0.01; ***p<[0.***]

Table 5: Effect of Female Incumbency on Pre-treatment Attitudes Towards IPV (Placebo Test)

	Goes out		Neglects children		Argues		Refuses sex		Burns food	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Female	−0.037	−0.073	−0.004	−0.008	0.010	−0.032	0.012	0.010	0.006	0.020
	(0.036)	(0.038)	(0.036)	(0.043)	(0.018)	(0.030)	(0.022)	(0.027)	(0.015)	(0.020)
Constant	0.282**	0.168**	0.276**	0.172**	0.071**	0.086**	0.074**	0.058**	0.038**	0.017*
	(0.027)	(0.032)	(0.026)	(0.031)	(0.014)	(0.024)	(0.017)	(0.016)	(0.011)	(0.008)
Observations	128	128	128	128	128	128	128	128	128	128
Bandwidth	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Gender	F	M	F	M	F	M	F	M	F	M

Dependent variable:
Is it okay to beat one's wife if she:

Note: *p<0.05; **p<0.01; ***p<[0.***]

Share of Seats Won by Women in Treatment and Control Constituencies
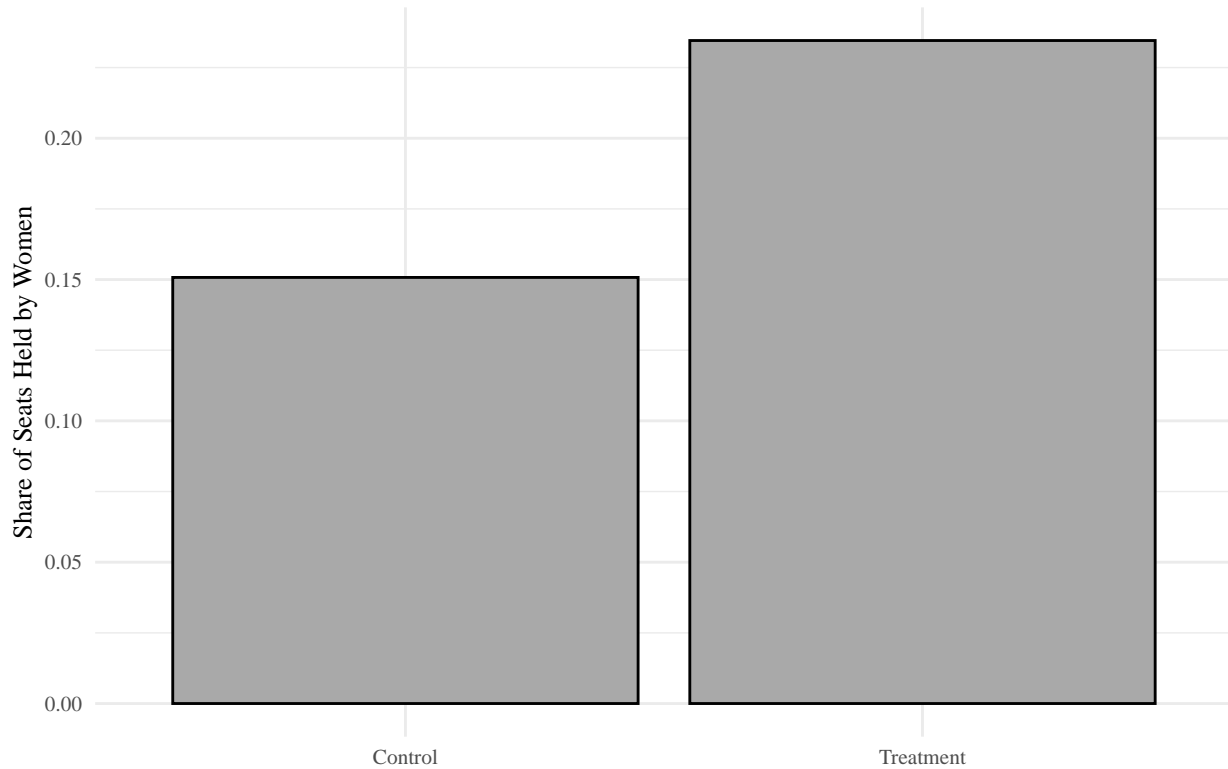
Appendix:

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu

% Date and time: Sat, Apr 25, 2020 - 22:49:10

Table 6: Effect of Female Incumbency on Female Attitudes Towards IPV

	Dependent variable:					
	Is it okay to beat one's wife if she:					
	Goes out	Neglects children	Argues	Refuses sex	Burns food	Index
	(1)	(2)	(3)	(4)	(5)	(6)
Female Incumbency	−0.064*	−0.058*	−0.036*	−0.023	−0.032**	−0.203*
	(0.031)	(0.029)	(0.015)	(0.018)	(0.011)	(0.084)
Constant	0.290**	0.314**	0.089**	0.116**	0.053**	0.835**
	(0.024)	(0.021)	(0.013)	(0.015)	(0.010)	(0.068)
Observations	128	128	128	128	128	128
Bandwidth	1%	1%	1%	1%	1%	1%

Note: *p<0.05; **p<0.01; ***p<[0.***]

Table 7: Effect of Female Incumbency on Male Attitudes Towards IPV

	Dependent variable:					
	Is it okay to beat one's wife if she:					
	Goes out	Neglects children	Argues	Refuses sex	Burns food	Index
	(1)	(2)	(3)	(4)	(5)	(6)
Female Incumbency	−0.031	−0.031	−0.021	−0.033*	−0.014	−0.133
	(0.032)	(0.031)	(0.024)	(0.013)	(0.010)	(0.084)
Constant	0.144**	0.150**	0.057**	0.040**	0.017	0.406**
	(0.021)	(0.021)	(0.021)	(0.012)	(0.009)	(0.069)
Observations	128	128	128	128	128	128
Bandwidth	1%	1%	1%	1%	1%	1%

Note: *p<0.05; **p<0.01; ***p<[0.***]

Table 8: Effect of Female Incumbency on Pre-treatment Attitudes Towards IPV (Placebo Test)

	Dependent variable:									
	Is it okay to beat one's wife if she:									
	Goes out		Neglects children		Argues		Refuses sex		Burns food	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Female	−0.037	−0.073	−0.004	−0.008	0.010	−0.032	0.012	0.010	0.006	0.020
	(0.036)	(0.038)	(0.036)	(0.043)	(0.018)	(0.030)	(0.022)	(0.027)	(0.015)	(0.020)
Constant	0.282**	0.168**	0.276**	0.172**	0.071**	0.086**	0.074**	0.058**	0.038**	0.017*
	(0.027)	(0.032)	(0.026)	(0.031)	(0.014)	(0.024)	(0.017)	(0.016)	(0.011)	(0.008)
Observations	128	128	128	128	128	128	128	128	128	128
Bandwidth	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Gender	F	M	F	M	F	M	F	M	F	M

Note: *p<0.05; **p<0.01; ***p<[0.***]

% Table created by stargazer v.5.2.2 by Marek Hlavac, Harvard University. E-mail: hlavac at fas.harvard.edu

% Date and time: Sat, Apr 25, 2020 - 22:49:10

Table 9: Effect of Female Incumbency on Pre-treatment Female Support for IPV (Placebo Test)

	Dependent variable:									
	Is it okay to beat one's wife if she:									
	Goes out		Neglects children		Argues		Refuses sex		Burns food	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Female	−0.037	−0.073	−0.004	−0.008	0.010	−0.032	0.012	0.010	0.006	0.020
	(0.036)	(0.038)	(0.036)	(0.043)	(0.018)	(0.030)	(0.022)	(0.027)	(0.015)	(0.020)
Constant	0.282**	0.168**	0.276**	0.172**	0.071**	0.086**	0.074**	0.058**	0.038**	0.017*
	(0.027)	(0.032)	(0.026)	(0.031)	(0.014)	(0.024)	(0.017)	(0.016)	(0.011)	(0.008)
Observations	128	128	128	128	128	128	128	128	128	128
Bandwidth	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Gender	F	M	F	M	F	M	F	M	F	M

Note: *p<0.05; **p<0.01; ***p<[0.***]

Table 10: Descriptive Statistics (Female Respondent Outcomes)

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max

Table 11: Descriptive Statistics (Male Respondent Outcomes)

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max

Conclusion:

Kuiper's "The Effect of Electing Femlae Candidates on Attitudes Towards Intimate Partner Violence" examines the impact that female legislatures can have on attitudes of intimate partner violence (IPV) in Indonesia. To measure this change in attitude, Kuipers uses survey data that gathers IPV opinions from 2009 and 2012 (after the introduction of female legislators). He models the effect of female legislators with two regressions that show the change in attiude to a series of IPV questions for female and male constituents, respectively. Overall, he finds that female legislators seem to have an effect on the changing attitudes towards IPV, particularly for female constituents. He explores the reason behind this change in attitude and attributes the change to increased funding for IPV related legislations as well as the increase in importance that IPV seems to have for female legislators in comparison to male legislators. I succesfully replicated Kuipers results, except for minor discrepancies which do not affect his conclusions. I replicated the paper in R programming, and I was able to derive similiar values for my regressions, which also showed significant values especially for dependent variables in the regression specific to female constituents. Thus, my replicated models showed that the addition of female legislators seem to have an effect on decreasing sentiments that tolerate IPV, leading to opinions that increasily condem IPV. I further investiagted these results through an extension that conducted these same models through a Bayesian framework rather than a standard linear model. When conducting my Bayesian regressions on the two main models, I generally found the results to be consistent with the original results found in the paper. When comparing the indexes of the model that predicted change in IPV attitudes for both male and female constituents, I found the estimates for the Female Incumbency coefficent and intercepts to be fairly similiar. Thus, I found little discrepencies between the Bayesian regressions and standard linear regressions. In additon to comparing the estimates, I also ran a posterior predictive check with the Bayesian regressions to examine how well both index models fit the data. The posterior predictive check highlighted how the model that predicted the change in IPV opinions for female constitutents was a better fit than the model specific to male constitutents. Thus, from this we can infer that the addition of a female legislator has a larger effect on female constituents than male constitutents. Thus, this leads me to ask what should be done to increase more condemnation of IPV for male constituents? While the answer to this question is beyond the scope of this paper, it is something interesting to consider. The results of the paper show that in large, female legislators do have an effect on community wide IPV opinions. They on average

seem to put women's issues on the forefront of their politics, thus leading to more enaction of legislation that condemns IPV and helps victims of IPV. This acknowledgement is quite important as it highlights how attitudes of IPV can change for the better. While this is very important, it's also necessary to note that the problem most likely will not be solved by the election of female legislators alone. Even if female legislators to enact important laws that condemn IPV, there must be more political action that condemns IPV, for both male and female legislators alike. Thus, while the results of this paper highlights the benefits that female legislators have and the importance of IPV in one's community, it also highlights the need for more political action.