Problem Set 1 - Electoral competition and voter behavior

Political Economics II (EC38011) Spring 2025

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Suggested solutions

These are some suggested solutions! I'm trying to develop the solutions to be clear and cover relevant questions all the time. So if you spot any typos or thinkos (or mathos for that matter) please help me improve these solutions by emailing mattias.folkestad@iies.su.se.

Problems

1. **Noncrediable comittments and probabalistic voting** Problem 3.8.1 in Persson et al. (2000)

Solution: In case someone is paying close attention to details, it is reasonable to make the additional assumption that $\alpha^P \in (0, 1)$

a) The chosen policy is given by the maximization problem:

$$q_2^{P*} = \arg\max_{q_2} \ln(y - q_1 - q_2) + \alpha^P \ln(q_1) + (1 - \alpha^P) \ln(q_2)$$

The policy will satisfy the FOC:

$$\frac{1}{y - q_1 - q_2} = \frac{1 - \alpha^P}{q_2} \iff q_2 = \frac{1 - \alpha^P}{2 - \alpha}(y - q_1)$$

And to verify a maximum either take SOC, or just notice that the objective function is strictly concave in q_2

This can be thought of as function or the winning politicians type and the campaign platform: $q_2^P(q_1^P, \alpha^P)$.

So for a voter the expected utility of a platform from politician P is:

$$
\begin{aligned}
&\mathbb{E}_{F^P}[\ln\{y - q_1^P - q_2(q_1^P, \alpha)\} + \alpha^i \ln(q_1^P) + (1-\alpha^i)\ln\{q_2(q_1^P, \alpha)\}] \\
&= \int_{(0,1)} \left[\ln(y - q_1^P - \frac{1-\alpha}{2-\alpha}(y - q_1^P)) + \alpha^i \ln(q_1^P) + (1-\alpha^i)\ln(\frac{1-\alpha}{2-\alpha}(y - q_1^P))\right] dF^P(\alpha) \\
&= \int_{(0,1)} \left[\ln\left(\frac{y - q_1^P}{2-\alpha}\right) + \alpha^i \ln(q_1^P) + (1-\alpha^i)\ln\left(\frac{1-\alpha}{2-\alpha}(y - q_1^P)\right)\right] dF^P(\alpha) \\
&= W(q_1^P, \alpha^i, F^P)
\end{aligned}
$$

The preferred policy is thus: $\arg\max_{q_1^P} W(q_1^P, \alpha^i, F^P)$ which clearly depends on the beliefs.

b) Votes are characterized by α^i so a swing voter has α^s s.t. $W(q_1^B, \alpha^s) = W(q_1^A, \alpha^s)$. So that answers the first question.

To find the vote share of the two parties we need to find the share of α^i's where the function $W(q_1^B, \alpha^i) - W(q_1^A, \alpha^i)$ is positive/negative since that determines the voting decision. As discussed in class the "naive" approach of just saying something like:

$$\pi^B = F(\mathbb{1}[W(q_1^B, \alpha^i) - W(q_1^A, \alpha^i) \geq 0])$$

is wrong, since clearly if believes over both candidates are the same and both platforms are the same - then this expression say that candidate B get 100 percent of the votes. But we know that it should be 50/50.

So we need to analyze this a bit more. I prefer to start from the back. What we want is a function that maps a policy pairs to vote shares $(q_1^A, q_1^B) \to (\pi_A, \pi_B)$. As said, a policy pair implicitly defines a swing voter $\alpha^s(q_1^A, q_1^B)$.

So what to do? Let's think about the function $\mathcal{W}(q_1^A, q_1^B, \alpha^i) = W(q_1^B, \alpha^i) - W(q_1^A, \alpha^i)$, which is the expected payoff if B win. Following out desire to find a swing voter that split the electorate we need to differentiate this function w.r.t. α^i. It will tell us how the payoff changes with the type for a given policy pair.

$$
\begin{aligned}
\frac{\partial \mathcal{W}}{\partial \alpha^i} &:= \phi(F^B, F^A, q_1^A, q_2^B) \\
&= \ln(q_1^B) - \ln(q_1^A) - \mathbb{E}_{F^B}\left[\ln\left(\frac{1-\alpha}{2-\alpha}(y - q_1^B)\right)\right] + \mathbb{E}_{F^A}\left[\ln\left(\frac{1-\alpha}{2-\alpha}(y - q_1^A)\right)\right] \\
&= \ln(q_1^B) - \ln(q_1^A) - \ln\left(y - q_1^B\right) - \mathbb{E}_{F^B}\left[\ln\left(\frac{1-\alpha}{2-\alpha}\right)\right] + \ln\left(y - q_1^A\right) + \mathbb{E}_{F^A}\left[\ln\left(\frac{1-\alpha}{2-\alpha}\right)\right] \\
&= \ln\left(\frac{q_1^B}{y - q_1^B}\right) - \ln\left(\frac{q_1^A}{y - q_1^A}\right) + C
\end{aligned}
$$

So what can we say about this function that helps us? Well recall that a feasible $q_1 \in (0, y)$ So we can evaluate the limits of ϕ. Thus first fix the policy q_1^A and then note that the limits w.r.t. q_1^B are $\pm\infty$. So the derivative must have a root (for fixed q_1^A). Is it only one root? Well it clear that $\ln\left(\frac{q_1^B}{y-q_1^B}\right)$ is increasing, thus only one root. (Partially differentiate ϕ w.r.t. q_1^B for a formal argument).

Now we are making progress! There exists a unique q_1^B for every q_1^A such that $\phi(\cdot) = 0$ and at that policy the voters decision rule $\mathcal{W}$ will not depend on voter types, i.e. all voters vote the same way. For what party depends on the value of $\mathcal{W}(\cdot)$ evaluated at that policy. For positive values 100 percent vote for B for negative 100 percent vote for A and when it is zero all voters are indifferent and vote by the flip of a coin thus A and B get 50 percent each.

But this is clearly not the full story. It just says that for each policy of party A there exists a policy for party B such that vote shares are as described. But what about all others cases?

Now define the function $q_1^B(q_1^A)$ as this unique policy that give $\phi(\cdot) = 0$. For all policies below i.e. $q_1^B < q_1^B(q_1^A)$ $\phi(\cdot) < 0$ and vice versa.

The interpretation is that there is a monotonic (positive/negative) relationship between α^i and the $\mathcal{W}(\cdot)$ function for that part in the policy space. We have now also verified single crossing!

So the vote share for the whole policy space given by the distribution $F(\cdot)$.

$$
\pi_B = \begin{cases} F(\alpha^s(F^B, F^A, q_1^A, q_2^B)) & q_1^B < q_1^B(q_1^A) \\ \{1, 1/2, 0\} & q_1^B = q_1^B(q_1^A) \\ 1 - F(\alpha^s(F^B, F^A, q_1^A, q_2^B)) & q_1^B > q_1^B(q_1^A) \end{cases}
$$

And as always $\pi_A = 1 - \pi_B$.

c) If beliefs are the same we have $C = 0$. Then it is clear that the "split-the-vote"-response $q_1^B(q_1^A) = q_1^A$ i.e. policy convergence in equilibrium.

When they are different the parties clearly have to run on different platforms to split the vote.

d) (Extra) Note that the question does not explicitly ask about equilibrium. It is clear however that in the case with similar beliefs that policy converges to the median voters bliss point q_1^m. The Nash equilibrium strategy for party P is:

$$q_1^P = \begin{cases} q_1^m & \text{for} \quad q_1^{P'} = q_1^m \\ q_1^P > q_1^{P'} & \text{for} \quad q_1^{P'} < q_1^m \\ q_1^P < q_1^{P'} & \text{for} \quad q_1^{P'} > q_1^m \end{cases}$$

The argument is similar for different beliefs, but policy will not be the same. So in welfare terms we can compare the two scenarios by taking the expected welfare and compare it to the median voter equilibrium.

I also made another observation - that I forgot to mention in class. In this model, although not explicitly stated politicians are office motivated in this model - well, they will act that way at least, since they will always benefit from choosing q_2. Except from the following scenario.

Lets assume politicians type are the same $\alpha^A = \alpha^B$ but that voters beliefs are quite different. And add the critical assumption that politicians know the type of the other. Then another equilibrium exists where one party drop out of the race (or suggest a policy that they know will loose) and let the winning party campaign on the q_1 that represent the politicians joint bliss point.

Formally one should think of this as a participation constraint for both parties. If the utility for the other party running uncontested (i.e. choose q_1, q_2 freely) is greater than the expected utility in equilibrium then they will not run.

Perhaps not empirically relevant (in particular if we think och preference for q_2 as ideology) but it highlights two important aspect of modeling political competition. Time order and information!

2. **Lobbying** Problem 3.8.5 in Persson et al. (2000)

Solution: First note that there is a typo on the question (should have pointed this out) it should be $C_P = \sum O^J \lambda^J C_P^J$.

a) Voters who are indifferent between two candidates (i.e. swing voters) are described by

$$W(q^A; \alpha^J) = W(q^B; \alpha^J) + h \cdot (C_B - C_A) + \sigma^J + \tilde{\delta} \quad \text{for each } J,$$

where $C_P := \sum_J O^J \lambda^J C_P^J$ for $P \in \{A, B\}$.

Candidate A's vote share is given by

$$\pi_A = \sum_J \lambda^J \phi^J \left(\sigma^J + \frac{1}{2\phi^J} \right),$$

and the candidate's probability of winning is written by

$$p_A = \frac{1}{2} + \frac{\psi}{\phi} \sum_J \lambda^J \phi^J \left[(W(q^A; \alpha^J) - W(q^B; \alpha^J)) + h \cdot (C_A - C_B) \right].$$

b) The objective function of each group J is given by

$$\mathcal{U}^J = \underbrace{p_A W(q^A; \alpha^J) + (1 - p_A) W(q^B; \alpha^J)}_{\text{Expected utility for the election}} - \underbrace{\frac{1}{2}(C_A^J + C_B^J)^2}_{\text{Cost of contributions}}.$$

The group maximizes the objective function to determine the amount of contribution for each party. Since you can not make negative contributions, only positive contributions to the opponent, the maximization require some KT-conditions. Formally:

$$\max \mathcal{U}^J(\cdot) \quad wrt \quad C_A^J, C_B^J \quad st \quad C_A^J, C_B^J \geq 0 \tag{1}$$

This problem have the lagrangian:

$$\mathcal{L}^J = \mathcal{U}^J(\cdot) + \mu_A C_A^J + \mu_B C_B^J$$

And thus KT-conditions

$$\frac{\partial \mathcal{U}^J}{\partial C_A^J} + \mu_A = 0$$
$$\frac{\partial \mathcal{U}^J}{\partial C_B^J} + \mu_B = 0$$
$$\mu_A \geq 0 \text{ , with } \mu_A = 0 \text{ if } C_A^J > 0$$
$$\mu_B \geq 0 \text{ , with } \mu_B = 0 \text{ if } C_B^J > 0$$

From here is should be clear that the sign on the partial derivatives depends on the sign of $W_A^J - W_B^J$:

$$\frac{\partial \mathcal{U}^J}{\partial C_A^J} = \frac{\partial p_A}{\partial C_A^J}(W_A^J - W_B^J) - (C_A^J + C_B^J) = \psi h \lambda^J (W_A^J - W_B^J) - (C_A^J + C_B^J)$$

$$\frac{\partial \mathcal{U}^J}{\partial C_B^J} = \frac{\partial p_A}{\partial C_B^J}(W_A^J - W_B^J) - (C_A^J + C_B^J) = -\psi h \lambda^J (W_A^J - W_B^J) - (C_A^J + C_B^J)$$

We proceed by analyzing the four exhaustive cases.

Zero contributions to both parties will only be optimal if both $\psi h \lambda^J (W_A^J - W_B^J) \leq 0$ and $-\psi h \lambda^J (W_A^J - W_B^J) \leq 0$ which implies only when $W_A^J = W_B^J$

Positive contribution to both will never be optimal. Since $\mu_A = \mu_B = 0$ then both $\frac{\partial \mathcal{U}^J}{\partial C_A^J} = \frac{\partial \mathcal{U}^J}{\partial C_B^J} = 0$ but if $C_A^J + C_B^J > 0$ then both conditions cannot be fulfilled.

Then if $C_A^J > 0$ and $C_B^J = 0$ then $\mu_A = 0$. This means what:

$$\psi h \lambda^J (W_A^J - W_B^J) = C_A^J$$
$$-\psi h \lambda^J (W_A^J - W_B^J) \leq C_A^J \iff \psi h \lambda^J (W_A^J - W_B^J) \geq C_A^J$$

Both conditions are fulfilled when $\psi h \lambda^J (W_A^J - W_B^J) = C_A^J$ and note that this also means $\psi h \lambda^J (W_A^J - W_B^J) \geq 0$

And a symmetric argument for $C_B^J > 0$ and $C_A^J = 0$

Then for the This whole thing can be summarized for the contribution per member as:

$$C_P^{J*} = \max\{0, \psi h (W_P^J - W_{P'}^J)\}$$

where P' denotes the other candidate.

c) We wanna plug in the results from b) into the win probability p_A. Recall that no group contribute to both parties and from the expression just derived we see that C_A and C_B enters p_A symmetric. Thus w.l.o.g we can set $C_A^{J*} = \psi h (W_A^J - W_B^J)$ and $C_B^{J*} = 0$. Then using $C_A^* = \sum_J O^J \lambda^J C_A^{J*}$ give (note the different summation indexes):

$$\begin{aligned}
p_A &= \frac{1}{2} + \frac{\psi}{\phi} \sum_J \lambda^J \phi^J \left[(W(q^A;\alpha^J) - W(q^B;\alpha^J)) + h \cdot (C_A - C_B) \right] \\
&= \frac{1}{2} + \frac{\psi}{\phi} \sum_J \lambda^J \phi^J \left[(W(q^A;\alpha^J) - W(q^B;\alpha^J)) + h \sum_G O^G \lambda^G \psi h (W_A^G - W_B^G) \right] \\
&= \frac{1}{2} + \frac{1}{\phi} \left(\sum_J \psi \lambda^J \phi^J (W(q^A;\alpha^J) - W(q^B;\alpha^J)) + (\psi h)^2 \sum_J \lambda^J \phi^J \sum_G O^G \lambda^G (W_A^G - W_B^G) \right) \\
&\text{change order of summation and note that } \sum_G \lambda^G = 1 \\
&= \frac{1}{2} + \frac{1}{\phi} \sum_J \lambda^J \phi^J [\psi + O^J (\psi h)^2] (W(q^A;\alpha^J) - W(q^B;\alpha^J)
\end{aligned}$$

For A the optimal policy will given the policy of the opponent boils down to maximizing:

$$\sum_J \lambda^J \phi^J [\psi + O^J (\psi h)^2] W(q^A;\alpha^J)$$

with respect to q^A. Giving

$$q^{lob} := V_q^{-1} \left(\frac{\sum_J \lambda^J \phi^J \left(\psi + (\psi h)^2 O^J\right)}{\sum_J \lambda^J \alpha^J \phi^J \left(\psi + (\psi h)^2 O^J\right)} \right).$$

Note that the problem is symmetric for party B and and we have policy convergence in equilibrium. Defining $\tilde{\alpha} := \frac{1}{\phi} \sum_J \lambda^J \phi^J \alpha^J$ we can start answering the questions!

$O^J = 0$ for all J give $q^{lob} = V_q^{-1}(\frac{1}{\tilde{\alpha}}$ and so does $O^J = 1$ for all J. So when all(none) groups are organized. Policy is not changed by lobbying in this model.

When $\phi^J = \phi$ we get that $q^{lob} = V_q^{-1}(\alpha)$ or the group social optimal. (Recall $\sum_J \lambda^J \alpha^J := \alpha$)

Note also that contributions in equilibrium is zero when all groups are organized. This is due to the fact that policy is announced before contributions are fixed. Policy will converge so no need to contribute.

d) When some group is not organized, but others are not equilibrium policy will deviate from the policy discussed in c). Mathematically its still q^{lob} of course. Thus policy convergence remains.

To analyze it more formally lets consider:

$$\bar{\alpha} := \frac{1}{\gamma} \sum_J \gamma^J \alpha^J = \frac{\gamma^1}{\gamma}\alpha^1 + \frac{\gamma^2}{\gamma}\alpha^2 + \frac{\gamma^3}{\gamma}\alpha^3$$

where $\gamma^J := \lambda^J \phi^J \left(\psi + (\psi h)^2 O^J\right)$ and $\gamma = \sum_J \gamma^J$. Clearly we see that the $\frac{\gamma^J}{\gamma}$ works as weights that pulls $\bar{\alpha}$ towards the group parameter α^J. The conclusion is that organized groups can move policy towards their bliss point.

What group have then the strongest incentive to organize? Clearly the more extreme groups. If the bliss point is close to the policy implemented in the no lobbying equilibrium, there is not much to gain from organizing.

3. **Women's suffrage.** The role of women voters in the expansion of the government in the US is the topic of Lott and Kenny (1999). In this exercise we will see how the relationship hold up if we include more countries in the sample. We also learned that voter turnout keep on increasing after a reform that expanded the franchise, in this particular case female suffrage in the US. In general newly franchised groups have an initially lower turnout (see Morgan-Collins (2023) for deeper analysis of the case of women.).

   a) Use the data on government expenditure and year of female suffrage provided (or by all means find alternative sources) in order to analyse the relationship between female suffrage expansion and the size of government. Discuss your findings.

   b) Discuss some of the plausible explanations for the initial difference in turnout between men and women after female enfranchisement.

   c) Are there any reasons to ex-ante expect convergence in turnout? For gender gap in particular and other suffrage extensions in general?

   d) Discuss some of the factors that should correlate with faster/slower/any closing of the turnout gap.

e) (Extra) Find some data on the gender (or other) turnout gap for other countries than the US? Can some of the hypothesis discussed be tested?

4. **Moral values and voting.** In this exercise we are revisiting Enke (2020). Enke provides a model for probabilistic voting and extends the model with moral values with interesting predictions.

   a) Using the conceptual framework presented in section II of the paper derive the optimal level of moral universalism for a presidential candidate. I.e the parameter θ_j. For a closed form solution we need a distributional assumption on the popularity shock ϵ which can be set to uniform with density ϕ. To further simplify assume that voters are homogeneous in nonmoral characteristics ($x_i = x$).

   b) Use the results from a) to discuss if there are empirical support for your results and why/why not they would hold up in the real world.

   c) By using the replication files and data provided for the US 2020 and 2024 presidential elections you will now extend Enke's analysis in table 6 with additional elections years. Discuss your results and the implications for external validity of the findings in the paper.

   d) (Extra) If you are interested I have also added text-data for campaign rhetoric for Donald Trump and Joe Biden in the 2020 election. Using the raw data and following the methodology outlined in the paper one can reproduce figure 6A with another elections year added which perhaps is an even better test for the usefulness of the model.

Solution:

a) In order to simplify notation lets just use R, D for parties and r, d for candidates. Note that the subscripts on α, β thus become redundant. The expected vote share for the Democrats are:

$$\pi_D = \frac{1}{\mathbb{I}} \sum_{i=1}^{\mathbf{I}} \pi_D^i$$

We get an expressing for π_D^i in equation (5) and with our assumption about homogeneity in nonmoral characteristics we can get the simpler version (We can just skip the policy part since candidates are office oriented they will choose the same policy.):

$$\pi_D^i = \mathbb{P}(\alpha + \beta\theta_i > \epsilon_i)$$

Now using the distributional assumption on the idiosyncratic popularity shock we get:

$$\begin{aligned}\pi_D^i &= \mathbb{P}(\epsilon_i \leq -(\alpha + \beta\theta_i)) \\ &= \phi(\frac{1}{2\phi} - (\alpha + \beta\theta_i)) \\ &= \frac{1}{2} - \phi(\alpha + \beta\theta_i)\end{aligned}$$

Thus $\pi_D = \frac{1}{2} - \phi(\alpha + \beta\overline{\theta})$ where $\overline{\theta}$ is the average level or universalist moral values in the electorate. Note now that this is the expected vote share, and we will assume that the candidate maximizes wrt this objective, rather than winning probabilities which is usually unproblematic (see page 34 in Persson et al. (2000)).

The choice variables here is the candidates own moral stance θ_j. For Democratic candidate this give FOC:

$$
\begin{aligned}
&\frac{\partial \pi_D}{\partial \theta_d} = 0 \\
\implies & -\phi\left(\frac{\partial \alpha}{\partial \theta_d} + \frac{\partial \beta}{\partial \theta_d}\overline{\theta}\right)) = 0 \\
\implies & \frac{\partial(-\lambda(\gamma^2\theta_d^2 + 2\gamma(1-\gamma)\theta_d\theta_D))}{\partial \theta_d} + 2\lambda\gamma\overline{\theta} = 0 \\
\implies & -\lambda(2\gamma^2\theta_d^* + 2\gamma(1-\gamma)\theta_D) + 2\lambda\gamma\overline{\theta} = 0 \\
\implies & \theta_d^* = \frac{1}{\gamma}(\overline{\theta} - \theta_D) + \theta_D
\end{aligned}
$$

The problem is symmetrical for the republican candidate.

Not surprisingly the candidate want to compensate for the parties deviations from the average moral values in the electorate. One perhaps interesting implication is the role of the γ-parameter. When γ is close to unity candidates form both parties will just signal the same moral values as the average voter. But if we have a low γ i.e. voters think party identity is more important than candidate characteristics candidates will have to become more extreme in their deviations from the party average in order to attract voters.

b) Given the empirical results in the paper the democratic party has higher universalist values $\theta_D > \theta_R$. This also implies that optimal strategy for the democratic candidate always is less universalist than the republican candidate (in the general election that is). Unfortunately the evidence presented in the paper cannot really speak to this. The measures of the political rhetoric in for individual candidates (fig 3) are taken from the primaries, not the general election campaign.

   However it is interesting to note that in the three elections studied only 2008 with this prediction. Obama is scored as less universalist then McCain. As we will see in d) this is also the case in 2020.

   Is this a surprise? Well nothing in the world suggest that candidates are chosen optimally. But perhaps they should communicate optimally once they start the general election campaign?

c) See table 1. Code in separate file.

d) See figure 1. Code in separate file.

References

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Lott, Jr., J. R. and L. W. Kenny (1999, December). Did Women's Suffrage Change the Size and Scope of Government? *Journal of Political Economy 107*(6), 1163–1198.

Morgan-Collins, M. (2023, June). Bringing in the New Votes: Turnout of Women after Enfranchisement. *American Political Science Review*, 1–16.

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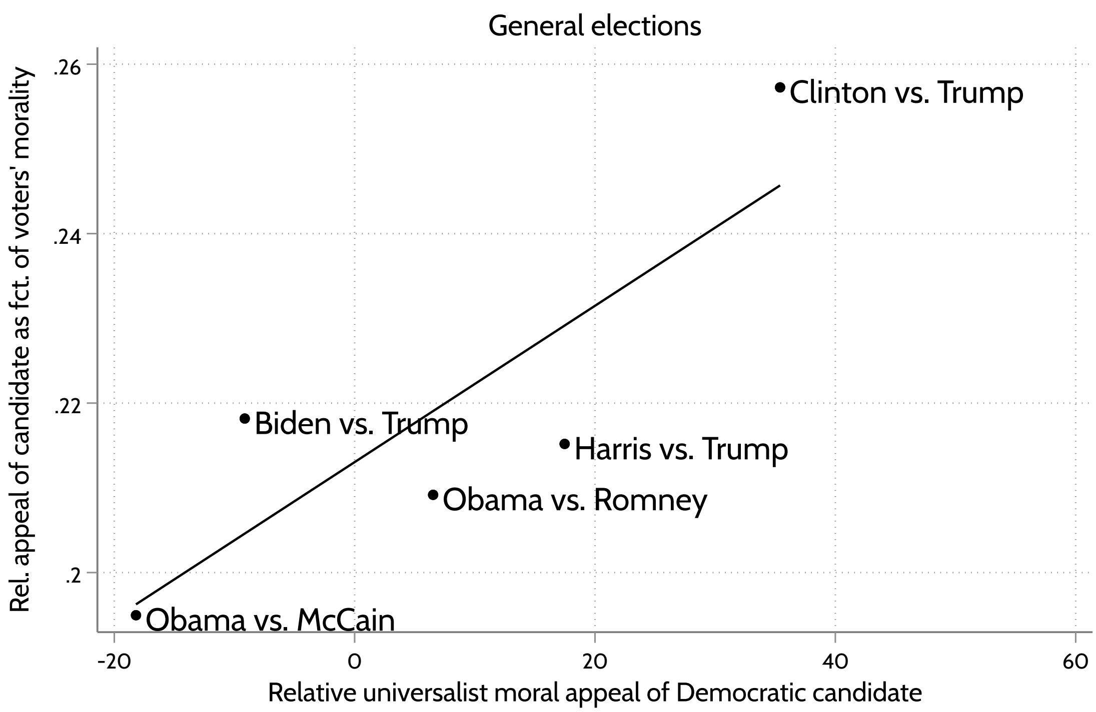

Figure 1: Figure 6A, Enke 2021

Table 1: Table 6

	Dependent variable:							
	Vote shares							
	Presidential election							
	Trump				Δ [Trump – Ave. GOP]			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Moral values	-2.38***	-1.64***	-1.41***	-2.02***	-2.19***	-1.50***	-1.28***	-1.83***
	(0.30)	(0.25)	(0.24)	(0.57)	(0.28)	(0.23)	(0.23)	(0.54)
Log (HH income)		-2.14	6.52***	4.28		-3.30**	4.59**	2.07
		(1.59)	(1.96)	(3.14)		(1.49)	(1.84)	(2.96)
Unemployment rate		-1.00***	-0.64***	-1.03**		-0.92***	-0.58***	-0.94**
		(0.19)	(0.19)	(0.47)		(0.18)	(0.18)	(0.44)
Racism index		1.71***	1.37**	-0.019		1.60***	1.24**	-0.084
		(0.37)	(0.60)	(2.96)		(0.35)	(0.57)	(2.72)
Log(Population density)		-6.36***	-7.59***	-8.03***		-6.01***	-7.25***	-7.70***
		(0.24)	(0.25)	(0.35)		(0.23)	(0.23)	(0.33)
Fraction religious		11.3***	9.05***	4.40		10.3***	8.20***	4.15
		(2.10)	(2.11)	(3.46)		(1.94)	(1.93)	(3.15)
Abs. value of moral values index		-0.16	-0.40	-0.41		-0.12	-0.35	-0.30
		(0.39)	(0.36)	(0.80)		(0.36)	(0.34)	(0.76)
Latitude		0.17	0.27	0.71		0.18	0.26	0.76
		(0.21)	(0.71)	(1.39)		(0.19)	(0.67)	(1.31)
Longitude		0.013	-0.0044	-0.49		0.032	0.017	-0.28
		(0.16)	(0.51)	(1.08)		(0.15)	(0.48)	(1.03)
State FE	Yes	Yes	No	No	Yes	Yes	No	No
Commuting zone FE	No	No	Yes	No	No	No	Yes	No
CBSA FE	No	No	No	Yes	No	No	No	Yes
Observations	2248	2206	2206	1621	2248	2206	2206	1621
R^2	0.36	0.62	0.82	0.88	0.36	0.62	0.82	0.88

Table 2: Table 6

	Dependent variable:							
	Vote shares							
	Presidential election							
	Trump				Δ [Trump – Ave. GOP]			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Moral values	-0.024***	-0.017***	-0.015***	-0.021***	0.13***	0.097***	0.086***	0.13***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)	(0.02)	(0.02)	(0.04)
Log (HH income)		-0.037**	0.045**	0.021		-0.96***	-1.52***	-1.76***
		(0.02)	(0.02)	(0.03)		(0.11)	(0.12)	(0.21)
Unemployment rate		-0.0090***	-0.0061***	-0.010**		0.052***	0.041***	0.065**
		(0.00)	(0.00)	(0.00)		(0.01)	(0.01)	(0.03)
Racism index		0.015***	0.012**	0.0015		-0.071***	-0.094**	-0.056
		(0.00)	(0.01)	(0.03)		(0.02)	(0.04)	(0.18)
Log(Population density)		-0.063***	-0.076***	-0.080***		0.23***	0.22***	0.20***
		(0.00)	(0.00)	(0.00)		(0.02)	(0.02)	(0.03)
Fraction religious		0.11***	0.087***	0.039		-0.70***	-0.64***	-0.19
		(0.02)	(0.02)	(0.04)		(0.15)	(0.17)	(0.30)
Abs. value of moral values index		-0.0028	-0.0050	-0.0053		0.025	0.041	0.082
		(0.00)	(0.00)	(0.01)		(0.03)	(0.03)	(0.05)
Latitude		0.00024	0.00031	0.0038		0.0086	-0.00098	0.048
		(0.00)	(0.01)	(0.01)		(0.01)	(0.05)	(0.09)
Longitude		0.00080	0.00095	-0.0017		0.014	0.015	0.16**
		(0.00)	(0.01)	(0.01)		(0.01)	(0.04)	(0.08)
State FE	Yes	Yes	No	No	Yes	Yes	No	No
Commuting zone FE	No	No	Yes	No	No	No	Yes	No
CBSA FE	No	No	No	Yes	No	No	No	Yes
Observations	2248	2206	2206	1621	2248	2206	2206	1621
R^2	0.37	0.62	0.82	0.88	0.49	0.58	0.81	0.89