

Web Appendix for:
“To Link or Not to Link?
Agenda Change in International Bargaining”
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Part I: Coding Rules for Key Variables

Coding Issue Addition and Issue Subtraction

The information used to code states' use of issue addition and issue subtraction comes from a review the UNFCCC negotiations themselves. Archived webcasts were viewed and summarized.¹ The analysis of the statements made in the archived webcasts were corroborated using daily reports of the negotiations put out by the International Institute for Sustainable Development (IISD)'s Reporting Service, when possible. However, these summary reports do not give information about every statement made, and sometimes do not indicate which countries did make a particular statement. They only highlight some of them. Going to the webcasts themselves was therefore necessary to gather the complete data needed to code this variable. From this information, the statements made by state representatives (or representatives speaking on behalf of a coalition of states) were analyzed. A description of how these statements were used to code states' issue linkage strategies is given below, along with illustrative examples. These examples can also be found in the paper.

Coding Issue Addition. Based on the statements state representatives actually made in the negotiations, a state's bargaining strategy is coded as being characterized by *issue addition* when the statement reflected either of two characteristics. First, a state is coded as having used issue addition if it suggested that an issue not already on the bargaining agenda should be brought into the discussions. As an illustrative example, in the SBSTA negotiations that took place on 8 December 2009 in the Copenhagen COP, Sierra Leone proposed that a discussion of the potential enactment of "forest law enforcement, governance, and trade" should be brought into the negotiations.²

A state's bargaining strategy is also coded as being characterized by issue addition if it suggested creating a working group (referred to in these negotiations as a "Contact Group") to discuss a new issue. By doing so, a state is essentially proposing that an issue should be added at the contact group level of negotiations. As an example of this second type of issue addition, several states suggested that a contact group should be established in the Copenhagen COP to discuss a possible long-term cooperative agreement ("LCA agreement"), which would include legally-binding emission reduction requirements for developing states.³ The establishment of such a working group would bring a new issue, in a new bargaining format, into the Copenhagen negotiations.

Table 1: Summary Statistics for the "Issue Addition" Variable.

Minimum	Maximum	Mean	Standard Deviation
0	1	.209	.407

¹The webcasts for the Bali (2007) COP are available at this website: <http://www.un.org/webcast/unfccc/>, and the webcasts for the Copenhagen (2009) COP are available at this website: http://unfccc4.meta-fusion.com/kongresse/cop15/templ/archive.php?id_kongressmain=1&theme=unfccc.

²The webcast of this meeting can be found at: http://cop15.meta-fusion.com/kongresse/cop15/templ/play.php?id_kongresssession=2313&theme=unfccc. Sierra Leone's statement begins at 1:46:26.

³The statement made by Tuvalu in the plenary negotiations of the Copenhagen COP illustrates this type of issue addition. The webcast of this meeting can be found at: http://cop15.meta-fusion.com/kongresse/cop15/templ/play.php?id_kongresssession=2352&theme=unfccc. Tuvalu's statement begins at 32:48.

Coding Issue Subtraction. Based on the statements they actually made in the negotiations, a state’s bargaining strategy is coded as being characterized by *issue subtraction* when the statement reflected either of two characteristics. First, a state is coded as having used an issue subtraction strategy if it suggested that an issue currently on the bargaining agenda should be removed from the discussion. For example, Brazil specifically argued in the SBSTA negotiations of the Copenhagen COP that any consideration of the inclusion of carbon capture and storage (CCS) should be put off for future COPs.⁴

A state’s bargaining strategy is also coded as being characterized by issue subtraction if it suggested moving the discussions of an issue from the current negotiation into another level of negotiations in the Conference. This type of strategy represents issue subtraction at the level of the negotiation being analyzed. As an example of this second type of issue subtraction, Russia, the United States, and Japan argued in the negotiations of the Working Group on Long-term Cooperative Action (LCA) that the LCA issue should be dropped as a stand-alone issue in the Copenhagen Conference (as well as in future conferences).⁵ Instead, they argued that the LCA issue being negotiated in that forum should be merged into other discussions.

Table 2: Summary Statistics for the “Issue Subtraction” Variable.

Minimum	Maximum	Mean	Standard Deviation
0	1	.108	.310

Coding “No-Agreement Costs”

One key factor that I argue influences a state’s incentive to use issue addition and/or issue subtraction is the costliness of its no-agreement outcome. In the context of the multilateral climate change negotiations, the costliness of a state’s no-agreement outcome is characterized by its ability to adapt to the adverse effects of climate change – global warming, rising sea levels, and desertification. I therefore code the costliness of each state’s no-agreement outcome using the “Environmental Vulnerability Index (EVI)” put forth by the Secretariat of the Pacific Community, Applied Geoscience and Technology Division (SOPAC). This index measures a number of factors related to threats to a states environmental integrity on a scale from 1 (non-vulnerable) to 7 (vulnerable). Each of these factors relates to different types of environmental issues - from climate change and climate change desertification to biodiversity, human health, and exposure to natural disasters.

Given that the no-agreement alternative of interest in these climate change negotiations relates to each states vulnerability to the adverse effects of climate change, itself, I draw on the factors SOPAC defines as being related to climate change and climate change desertification to construct a measure of the costliness of each states no-agreement alternative.⁶ For

⁴The webcast of this meeting can be found at: http://cop15.meta-fusion.com/kongresse/cop15/templ/play.php?id_kongresssession=2313&theme=unfccc. Brazil’s statement begins at 32:10 of this webcast.

⁵The webcast of this meeting can be found at: http://cop15.meta-fusion.com/kongresse/cop15/templ/play.php?id_kongresssession=2293&theme=unfccc. As an illustrative example of this type of issue subtraction, the statement made by the United States begins at 1:51:39 of this webcast.

⁶The list of these factors can be found on SOPAC’s website: <http://www.sopac.org/index.php/environmental-vulnerability-index>.

each of these factors, I take the value coded by SOPAC (each on the 1-7 scale), and average them across all of the different climate change factors.

However, the costliness of the no-agreement outcome not only depends on the environmental vulnerability of states to climate change effects, but also their ability to deal with those effects on their own (i.e., without a cooperative climate change agreement). To take this into account, I weight each state’s EVI measure (as calculated following the description above) by its GDP per capita.⁷ This second part of the measure captures a state’s ability to deal with the environmental problems it faces from climate change. A larger GDP per capita indicates a wealthier state, *ceteris paribus*, and thus a state that is better able to deal with any climate change problems that it does face.

States with the most costly no-agreement outcome are therefore those facing significant adverse environmental impacts from climate change and that have few resources to deal with those problems. States with the most beneficial no-agreement outcome face few adverse impacts from climate change and have significant resources to deal with any problems they do face.

There are interim calculations that go into the coding of this variable so that I can test the argument I seek to test – the effect associated with facing a more costly no-agreement outcome. First, because larger values of the EVI measure indicate a *more* vulnerable state (as coded by SOPAC) and larger values of a state’s GDP per capita indicate a state better able to deal with climate change problems, they point in different directions regarding their effect on the costliness of the no-agreement outcome. I therefore made the following calculations: I inverted the EVI measure so that larger numbers indicate a state that is *less* vulnerable to climate change, and rescaled the resulting interim measure so that 0 took on an empirically-meaningful value. I then interacted this “inverse EVI measure” with a state’s (logged) GDP per capita. The result is a measure for which larger values indicate that a state faces fewer costs from no agreement (i.e., that face few adverse impacts from climate change *and* have more resources to deal with any problems they do face). Given that the goal of this study is to evaluate the effect of having a *greater cost* associated with no agreement, I then invert this interim interaction term (and rescale it, again, so that 0 takes on a meaningful value). The result is a continuous measure that ranges from 0 to 36.8, with larger values indicating that a state faces a more costly no-agreement outcome.

Table 3: Summary Statistics for the Resulting “No-Agreement Costs” Variable.

Minimum	Maximum	Mean	Standard Deviation
0	36.803	23.943	6.134

⁷The GDP per capita measure is logged to account for skewness.

Coding “Differently-Valued Issues”

The measure of the degree to which a set of issues are differently-valued by negotiating states is based on the finding in the formal literature that shows that the linkage of issues that are more different valued creates a larger zone of agreement (Tollison and Willett 1979; Sebenius 1983). This measure is therefore a proxy that measures the average zone of agreement across each pair of states on each issue in a given negotiation. The larger is the average zone of agreement, the more differently valued are the issues in that negotiation, all else constant. To code this measure, I follow the rules put forth by McKibben (2013), which I summarize here.

I calculate this measure by (1) coding the position of each state on each issue in a negotiation, and (2) the flexibility of that position. Each state’s position is coded on either one side of the issue or the other. The flexibility captures how far in the bargaining space an agreement could be from a state’s position, with that state still being willing to accept the agreement. I then use that information to determine the size of the policy space where two states’ set of acceptable agreements overlap. This “zone of agreement” is calculated for each pair of states on each issue in the bargaining interaction. These individual zones of agreement are then averaged across all issue-pairs to proxy the “average zone of agreement” created by a given set of issues.

In these negotiations, the position of each state on each issue was assigned based on their membership in various coalitions. In the context of these climate change negotiations, these positions almost always fall in the “Annex I states” versus “non-Annex I states” categories, as labeled by the Kyoto Protocol. States’ positions were coded as an answer to the following question: “given a state’s status regarding current climate change agreements, if that state was solely interested in lowering the cost to themselves from a new agreement, what side would they take on each issue?” The result is a (coarse) measure of states’ positions on the issues, and admittedly, one that might not yield a perfect evaluation of every state’s position on every single issue. However, coding states’ positions in this way allows for the coding of states’ positions to be completely separate from the coding of the flexibility they have in those positions (which I code based on the actual statements states make regarding each issue). It also allows for a consistent coding across different issues and different negotiations. I believe these benefits outweigh the costs of coding states’ positions in this way.

The flexibility states had in their position on each issue was then coded. Drawing on the webcasts of the actual negotiations, states’ flexibility was coded based on the actual statements made by their representatives. If a state was in a coalition whose chair made a statement on an issue, defending their *own position* on that issue, that state was coded with a “small” degree of flexibility. If the chair of a state’s coalition made a statement in support of the *opposing* position, that state is coded with a “large” degree of flexibility. Finally, if a state’s representative took the floor on its own (individual) behalf, and makes a statement defending her state’s *own position* on an issue, that state is coded with “very small” flexibility; if her statement is made in support of the *opposing* position, that state is coded with a “very large” degree of flexibility on that issue. If no statement was made either way on a particular issue, a state is coded with a “medium” degree of flexibility on that issue. Admittedly, this is again a somewhat coarse measure. However, its coarseness allows for consistent coding across different issues in different negotiations. I believe that the consistency of the coding process provides benefits that outweigh the costs of using a somewhat coarse, categorical measure.

To calculate the zone of agreement between each pair of states on each issue that is

produced by their individual flexibility and relative positions, numerical values were assigned to the categorical measures of the distance between states' bargaining positions, as well as for each state's flexibility. Following McKibben (2013), the bargaining space is normalized on each issue to the [0,1] interval, and states' positions are coded at one extreme or the other. Their flexibility is then calculated as: very small= 0, small= .25, medium= .5, large= .75, and very large= 1.⁸ Using these measures, the zone of agreement was then calculated, and averaged across the values of the individual zones of agreement produced between each pair of states on each issue.⁹

The result is a proxy of the overall degree to which the issues on the agenda in a given negotiation were differently valued. Larger values indicate that a set of issues were "more differently valued," all else constant.

Table 4: Summary Statistics for the "Differently-Valued Issues" Variable.

Minimum	Maximum	Mean	Standard Deviation
-.153	.077	-.026	.062

⁸Other numerical assignments are clearly possible. The result will be a different overall "scale," but changes in the scale can be interpreted in the same way (as long as the ordinal ranking between the categories is preserved).

⁹See McKibben (2013) for a detailed explanation of how this calculation was carried out.

Part II: Marginal Effects Results

This section of the Web Appendix is designed to demonstrate the robustness of the marginal effects analysis reported in the paper. In particular, the rate of change illustrated by a marginal effects analysis depends on the point chosen for all other variables in the model. In other words, the slope of the function can change over the multidimensional plane, and all the marginal effects that we observe depend on the particular point at which we choose to evaluate the slope of the function. I therefore demonstrate, here, that the marginal effects reported in the paper are not sensitive to the particular point I chose.

Issue Additional Analysis. In the original paper, the first figure depicted the marginal effect on the likelihood a state will use issue addition that is associated with a one-unit increase in the degree to which the issues on the agenda were differently valued, and how that marginal effect varies depending on the costliness of the no-agreement outcome for that state. These marginal effects were calculated at the point on the multi-dimensional function when the “differently-valued issues” variable is at its mean. Figure 1 here in the Web Appendix re-reports these marginal effects. Figures 2 and 3 also plot the marginal effect on the likelihood a state will use issue addition that is associated with a one-unit increase in the degree to which the issues on the agenda were differently valued, and how that marginal effect varies depending on the costliness of the no-agreement outcome for a state. However, instead of reporting the marginal effects at the mean of the “differently-valued issues” variable, the point at which the rate of change is evaluated is the minimum of the “differently valued issues” variable in Figure 2 and the maximum in Figure 3.

As Figures 1–3 show, the substantive results reported in the paper hold: statistically insignificant marginal effects are associated with a one-unit increase in the “differently-valued issues” variable when states have very low costs associated with not reaching an agreement. However, statistically significant, negative marginal effects are associated with a one-unit increase in the “differently-valued issues” variable when states have very high costs associated with not reaching an agreement. These results are consistent with the predictions of hypothesis 1 and its underlying logic. Moreover, these results hold across all three figures, showing the robustness of the results across different points in the function at which the marginal effects can be evaluated.

Issue Subtraction Analysis. In the original paper, the second figure depicted the marginal effect on the likelihood a state will use issue subtraction that is associated with a one-unit increase in the degree to which the issues on the agenda were differently valued, and how that marginal effect varies depending on the amount of CO₂ that state emits. These marginal effects were calculated at the point on the multi-dimensional function when the “differently-valued issues” variable is at its mean. Figure 4 here in the Web Appendix re-reports these marginal effects. Figures 5 and 6 also plot the marginal effect on the likelihood a state will use issue subtraction that is associated with a one-unit increase in the degree to which the issues on the agenda were differently valued, and how that marginal effect varies depending on the amount of CO₂ that state emits. However, instead of reporting the marginal effects at the mean of the “differently-valued issues” variable, the point at which the rate of change is evaluated is the minimum of the “differently valued issues” variable in Figure 5 and the maximum in Figure 6.

As Figures 4–6 show, the substantive results reported in the paper hold: statistically insignificant marginal effects are associated with a one-unit increase in the “differently-

valued issues” variable when a state would have to pay few costs if an agreement is reached (i.e., it has low levels of CO₂ emissions). However, statistically significant, positive marginal effects are associated with a one-unit increase in the “differently-valued issues” variable when a state has very high costs associated with reaching an agreement (i.e., it has have high levels of CO₂ emissions). These results are consistent with the predictions of hypothesis 3 and its underlying logic. Moreover, these results hold across all three figures, showing the robustness of the results across different points in the function at which the marginal effects can be evaluated.

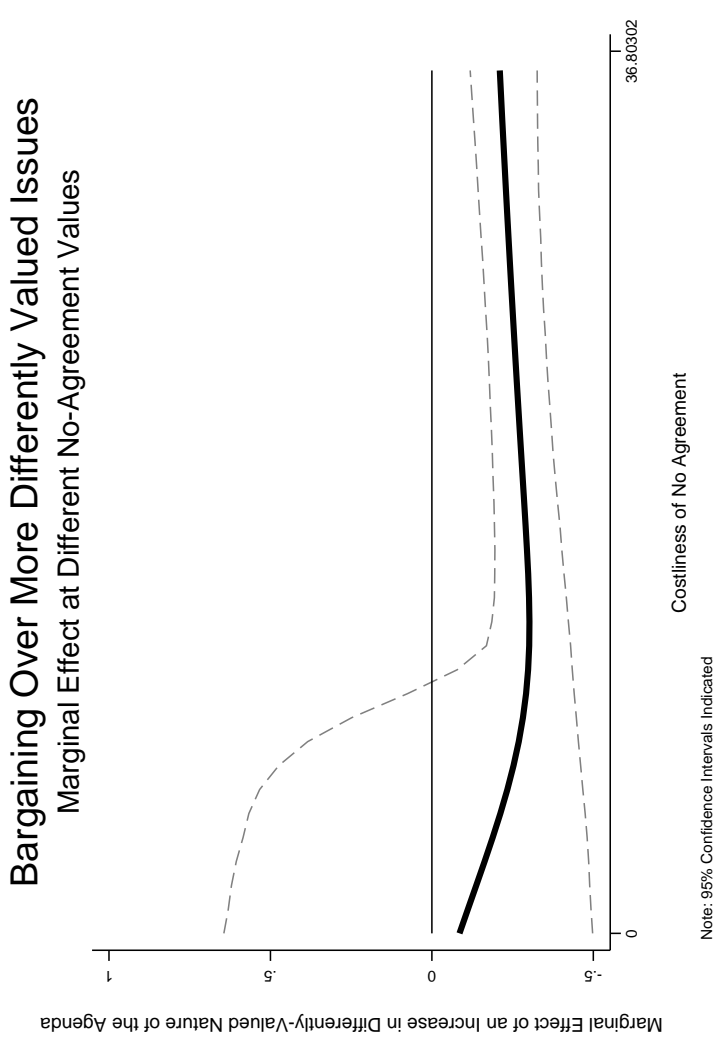


Figure 1: Marginal Effect Calculated at the Mean of the Differently-Valued Issues Variable

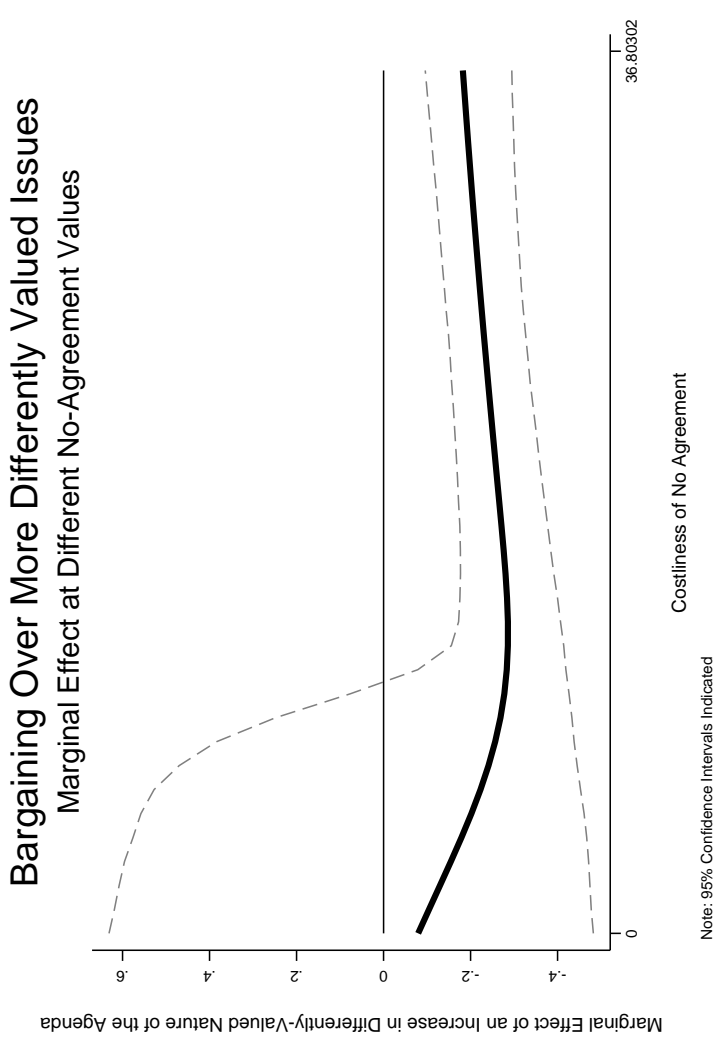


Figure 2: Marginal Effect Calculated at the Minimum of the Differently-Valued Issues Variable.

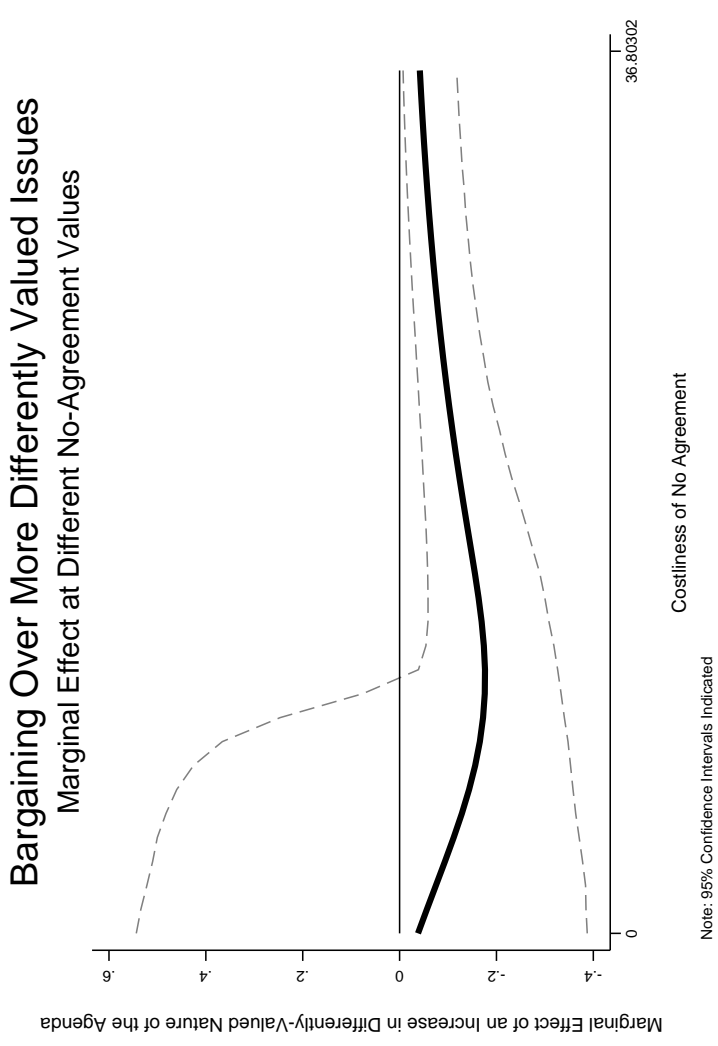


Figure 3: Marginal Effect Calculated at the Maximum of the Differently-Valued Issues Variable.

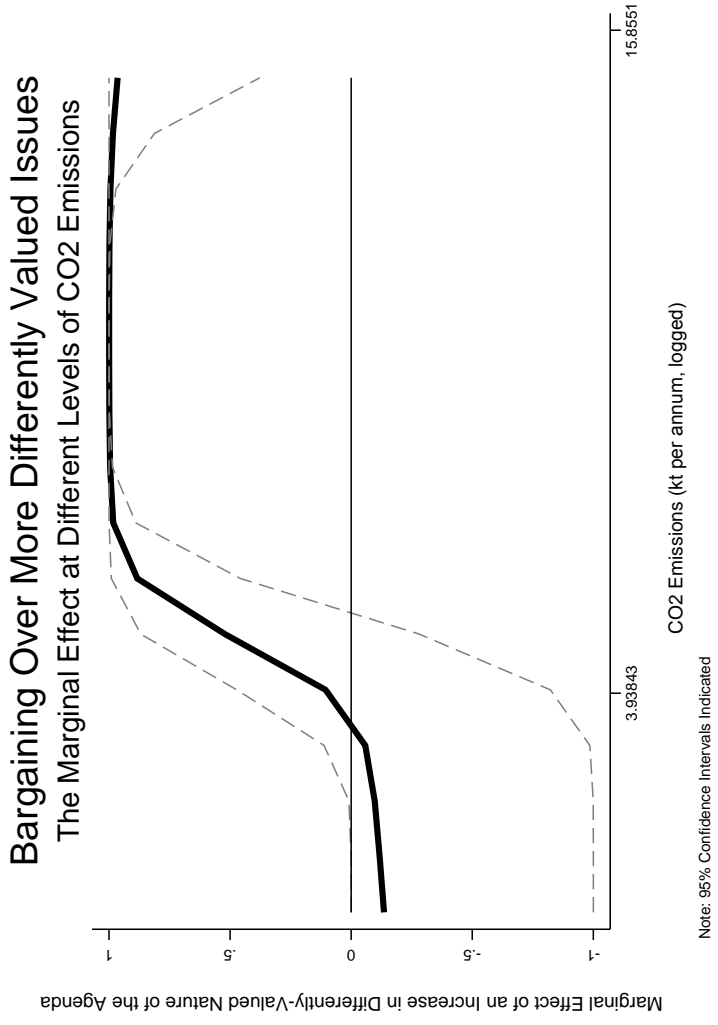


Figure 4: Marginal Effect Calculated at the Mean of the Differently-Valued Issues Variable.

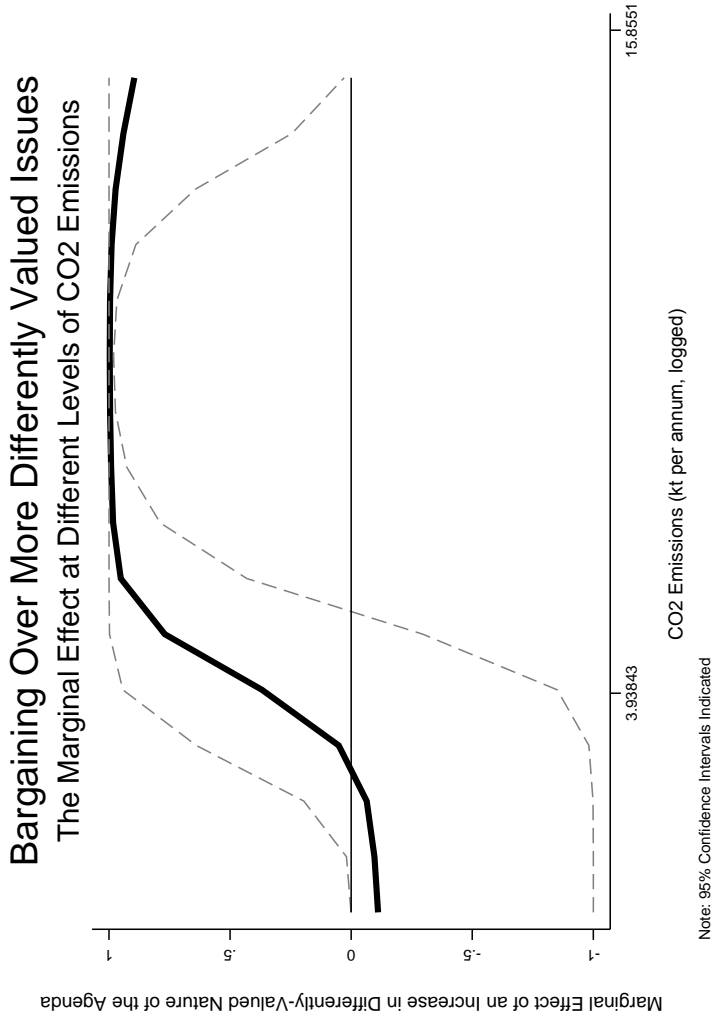


Figure 5: Marginal Effect Calculated at the Minimum of the Differently-Valued Issues Variable.

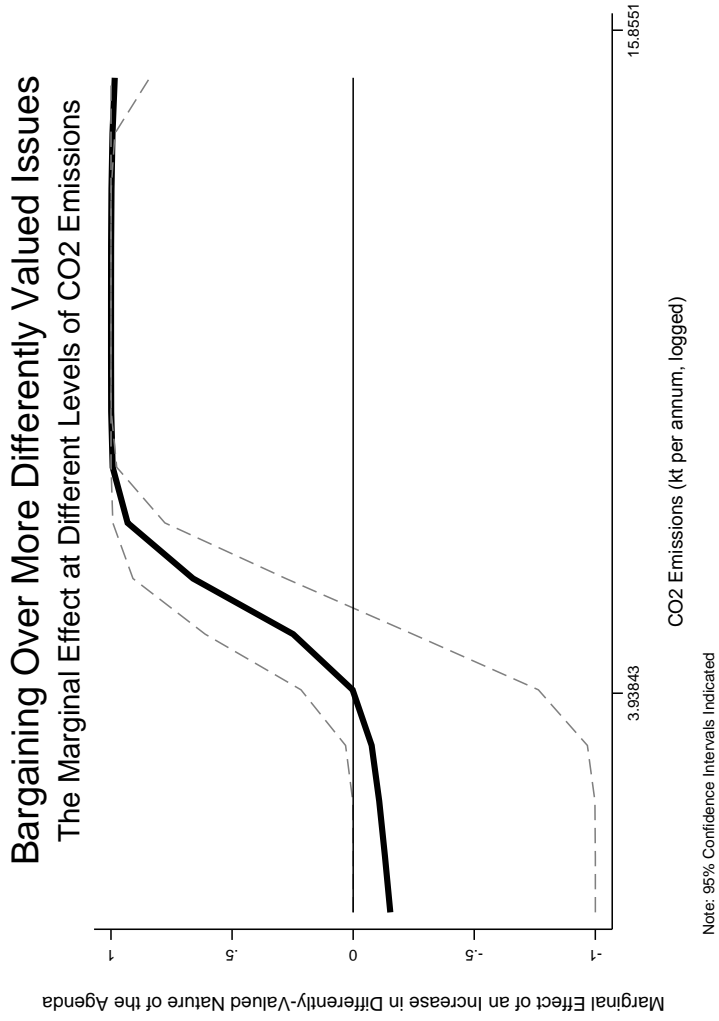


Figure 6: Marginal Effect Calculated at the Maximum of the Differently-Valued Issues Variable.

References

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