Supplementary Materials for "Institutional Design and Elite Support for Climate Policies: Evidence from Latin American Countries"

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November 20, 2019

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1 Latin American Elite Survey

From October 1 to December 5, 2018, we ran an elite survey with respondents from ten Latin American countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, and Peru. The survey proceeded in two steps.

First, we collected information on Latin American elites. Our target sample included:

1. Executive members
2. Legislative members
3. Civil society
4. Academics

For each profile, in each country, we aimed at surveying:

1. 10 Executive members
2. 10 Legislative members
3. 15 Civil society
4. 15 Academics

To do so, we built a dataset of prospective respondents that was ten times larger than our sample goal of 500 elite members. We constructed the dataset by gathering information from government websites, local NGOs, newspapers, and university departments.

After finishing this dataset, we started the surveying stage. From November 12 to December 5, we ran the survey by contacting the elite members by phone or by email. We had two teams of

enumerators, one based in São Paulo and another based in Rio de Janeiro, Brazil. The teams were comprised of Portuguese and Spanish native speakers. Although our initial expectation was to collect 500 survey responses, we completed 654 interviews.

2 Conjoint Experiment Analysis: Identification and Estimation

A conjoint experiment is a statistical technique that allows individuals to express their preferences on multiple attributes of a single topic (Hainmueller et al. 2014; Bansak et al. 2016). Individuals are presented with two hypothetical scenarios, A and B, each containing a series of characteristics a researcher wants to evaluate. The individual chooses one of them. As the attributes are randomised and individuals choose between different pairs of hypothetical scenarios, we can estimate how individuals value each of the conjoined elements.

In our research, we ask what features elite members would like to see implemented in a climate change agreement. We ask their opinion on 6 questions: 1) who makes the rules; 2) who enforces the laws; 3) what punishment should be used against lawbreakers; 4) how are repeated violations punished; 5) how are costs distributed, and 6) how often the agreement will be renegotiated. Each of the questions has four to five different attributes. For the first two questions, we ask individuals if they would rather have the community, local governments, federal governments, or international organizations to create or enforce rules. As for punishments, we have options ranging from do nothing to fines and incarceration. We ask whether the costs of climate change agreements should be paid mostly or exclusively by developed countries, by polluting countries regardless of their wealth, or if costs should be allocated according to the history of emissions of a given nation. Individuals also state their preferences for short-term agreements, a proxy we use for flexibility, or for long-term ones, our proxy for the stability of rules.

Conjoint experiments have many advantages. First, as each individual chooses between many pairs of possible climate agreements—seven in our case—we can drastically increase our statistical power without incurring in further financial costs. Thus, the design maximizes our research budget. Second, individuals rarely decide considering one attribute at a time, as presented in other types of survey experiments. In that regard, our conjoint analysis mirrors how people naturally make

their choices, that is, by simultaneously taking several characteristics into consideration. Finally, as the experiments consist of a simple choice between two bundles, conjoint analyses are easy to understand and to implement. This research design reduces the cognitive load of interviewees, so we can expect more accurate responses from our sample.

3 Conjoint Experiment Dimensions

In Table 1 of the main paper, we present the attributes and values for climate mitigation in our conjoint experiment. Here, we discuss the theoretical underpinnings of each of the dimensions and attributes evoked.

3.1 Attribute One: *Who Makes the Rules*

Climate change governance faces various challenges in terms of national and local implementations. For example, the voluntary character of the Nationally Determined Contributions (NDCs), which are the core mechanism of the Paris Agreement, illustrates this decentralized nature. Climate governance can be observed at a number of different scales, such as the international, national, subnational, regional, and local levels (Brühl and Rittberger 2001). Microlevel implementation requires regulations and attribution of responsibilities for each level, for which we propose the first dimension of our conjoint experiment is *Who makes the rules?*. To mirror the choices available for climate agreement signatory countries, we included the following levels of ruling: international organizations; federal governments; local governments; local community members; and non-governmental organizations. These levels reveal differences in rule making and top-down versus bottom-up possible schemes.

Moving to the *International Organizations* dimension, currently there is no international institution that centralizes agenda-setting, rule making, conflict resolution, and law enforcement for climate-related issues. On the other hand, the Conference of Parties is the highest decision-making body of the UNFCCC (United Nations Framework Convention on Climate Change), and the UN Climate Convention could possibly evolve into a more institutionalized model of international governance. The very signing of the many agreements that comprise the broad climate mitigation international framework—the Rio Convention, the Kyoto Protocol, and the Paris Agreement—constitute a step in this direction of further institutionalization.

We can take the WTO (World Trade Organization) as an example. After the establishment of the GATT (General Agreement on Tariffs and Trade), trade organizations progressively increased their role as gatekeepers, issue entrepreneurs and proponents of international norms. In turn, this movement solidified the international trade regime and established dedicated international organizations. The process of continuous, and eventually formal, institutionalization of trade regimes has been discussed by the rational functionalist school of international relations (e.g., Simons and Martin 2002). This mechanism could plausibly be valued by specific country elites as a reliable and legitimate potential source of climate mitigation rules.

We also include the *Federal government* as an alternative rule provider. Once a treaty is signed and ratified, it must be internalized by a minimum number of signatories in order to entry into force. In other words, federal governments have to comply with the engagement, which highlights the essential role states play in the implementation of international treaties. Despite the growing importance of transnational networks and non-state actors in global regimes, states remain the fundamental actors in the international realm.

Concerning climate-related agreements, the bare existence of international institutions is not sufficient for global climate governance. In fact, scholars have posited that these engagements can be understood as a discursive strategy, one which allows states to satisfy internal public opinion demands without taking costly global warming mitigation initiatives (e.g., Dimitrov 2005). In that sense, elites may see the federal government as a more credible source of effective environmental legislation. Latin American countries provide examples of national-level climate legislation, such as Mexico's General Law for Climate Change (2012), Bolivia's Mother Earth Legal Framework (Law 300/2012), and Costa Rica's Biodiversity Law (1998).

Local actors, such as municipal governments, have also been active players in the creation of climate mitigation norms (Barber 2013; Fraundorfer 2017). Significantly, cities have built a number of networks dedicated to climate issues, such as the ICLEI (Local Governments for Sustainability) and the C40. They include 94 cities and promote coordinated actions to fight climate change. While some countries opt to internalize and implement climate rules at the national level, others prefer to withdraw from the climate treaties and allow local governments to voluntarily comply with international conventions. The state of California is a recent example. Although the United States had chosen to withdraw from the Paris Agreement, the state government offered a plan to follow the

mitigation schemes proposed by the treaty.

Likewise, climate mitigation practices and norms are strongly influenced by local community members and non-governmental organizations. The civil society has long played a substantive role in setting the agenda and monitoring compliance of climate legislation (Brühl and Rittberger 2001). This is also true for Latin America. Indigenous groups have been particularly active in the local sphere and the international arena, as climate change directly endangers traditional communities (Bellier 2012). At the international level, we highlight the creation of the United Nations Permanent Forum on Indigenous Issues. Locally, Latin American communities have founded many non-governmental organizations to fight climate change, such as the *Asamblea Nacional de Afectados Ambientales* (ANAA) in Mexico, the *Red de los Pueblos Fumigados* in Argentina and the *Rede Brasileira de Justiça Ambiental* (RBJA) in Brazil.

3.2 Attribute Two: *Conflict Resolution Mechanism*

International regimes require efficient institutions to deal with non-compliance and cost reparation to aggrieved parties. We consider five institutions that can plausibly serve as instances for conflict mediation in climate issues: the United Nations; government bureaucracies; local courts; private arbitration; and informal norms.

International trade disputes, such as those concerning unfair practices, are already solved by international courts. The WTO Dispute Settlement Body and the International Criminal Court are two well-known examples. In this sense, the United Nations can also provide a similar resolution mechanism to solve climate disputes.

In other situations, government bureaucracies have the discretion to settle conflicts and enforce punishment to violators (Biesbroek et al. 2018). In Latin America, one example is the Brazilian Environmental Protection Agency (IBAMA), which is run by the federal government. The IBAMA is free to set rules nationally and punish any violation of environmental laws in Brazil. Another example is provided by the Costa Rican National Environmental Office (SETENA). It is responsible for receiving denunciations and conducting investigations on environmental crimes.

Local courts can also function as conflict resolution mechanisms in case of non-compliance. A widely-publicized case in Latin America involves the lawsuit filed by almost 30 thousand Ecuadorian citizens against oil companies Texaco/Chevron. The case was brought to a provincial court in Ecuador

(Pigrau 2014). Alternatively, private arbitration is a low-cost and prompt approach for the problem in the case of violations. Chile and Argentina resorted to private arbitration in 1972 to address a border dispute, and the Permanent Court of Arbitration frequently addresses environmental issues.

Informal norms could also be a plausible and low-cost form of solving conflicts. For example, non-institutionalized forms of reputational sanction within the climate international regime, such as *naming and shaming*, can act as a peer-pressure mechanism pushing for compliance. Note that informal norms within communities usually boost compliance in many situations and allow for more flexible and context adapted solutions (Ostrom (1990)).

3.3 Attributes Three and Four: *Punishment* and *Punishment for Repeated Violations*

The third and fourth attributes relate to punishments against non-compliance. We design the first feature, *Punishment*, to capture what types of punishment elites would like to apply to climate agreement violators. The options we present closely match existing Latin American regulations on the subject. As such, they constitute plausible answers for the interviewees. For instance, in Brazil, violations are punishable with a range of options, from community services and fines to imprisonment (Law 9605/98, available in: http://www.planalto.gov.br/ccivil_03/leis/l9605.htm. That is also the case for Peru (Law 29263, available in: http://www.minam.gob.pe/delitosambientales). Similarly, Ecuador has recently approved legislation that adds severe penalties on perpetrators of climate violations to the national constitution. Incarceration, for instance, is one of the possible punishments (Article 245, Código Orgánico Integral Penal, available in: http://www.oas.org/juridico/PDFs/mesicic5_ecu_ane_con_judi_c%C3%B3d_org_int_pen.pdf). In this respect, our selected treaty characteristics are plausible to Latin American elites.

Following the same logic, the fourth experimental feature, *Punishment for repeated violations*, captures the actions that should be taken upon subsequent violations of climate change agreements.

3.4 Attribute Five: *Agreement Costs*

The fifth design principle refers to the distribution of the agreement's costs. Here we consider the normative debates on climate equality, burden-sharing, and distributive justice in global public goods provision. More specifically, developing nations have stressed how wealthier countries have

historically contributed more to global warming (Santos 2017). For instance, under Copenhagen Accord and the Kyoto Protocol, developed countries were deemed as the sole responsible for CO2 emissions (Kartha and Erickson 2011). Over time, the wealthier nations successfully contested this position, arguing that emerging economies such as China and India accounted for a large share of greenhouse gas emissions as well. Hence, a new compensation principle emerged, that of *common but differentiated responsibilities and respective capabilities*. While accounting for past environmental pollution, the model also request the contribution of developing countries.

Our design feature allows us to capture the position of Latin American elites in this debate. We add four variables derived from the discussion presented above. The first posits that only rich countries should pay the coses of climate agreements, reflecting the original stance of developing nations. The second states that rich countries should pay more than poor countries, which also test the elites' willing to contribute to public goods. The third alternative states that countries should pay costs according to the history of emissions, while the last one affirms that only current emissions should be taken into account. Understanding how Latin American elites stand on this normative issue is essential for assuring compliance in the local level and for crafting national level climate governance schemes.

3.5 Attribute Six: *Renegotiation*

Finally, our last conjoint experiment dimension investigates the rigidity of the agreement. From a theoretical standpoint, we know from the contract theory literature that more rigid agreements may fall short when their underlying conditions change. However, agreements that change constantly might be too unstable to form a path dependency and provide focal points for long-run coordination. Thus, parties have to strike a balance between legal stability and the need for adaptation. For instance, if a climate agreement has deleterious effects in the economy while only marginally improving slightly the country's environmental output, decision-makers will push for treaty renegotiations. Conversely, longer agreements reduce coordination costs and give predictability to the system. We analyse temporal preferences of Latin American elites by including five different climate agreement renegotiation schedules: one year, five years, twenty years, fifty years, or never.

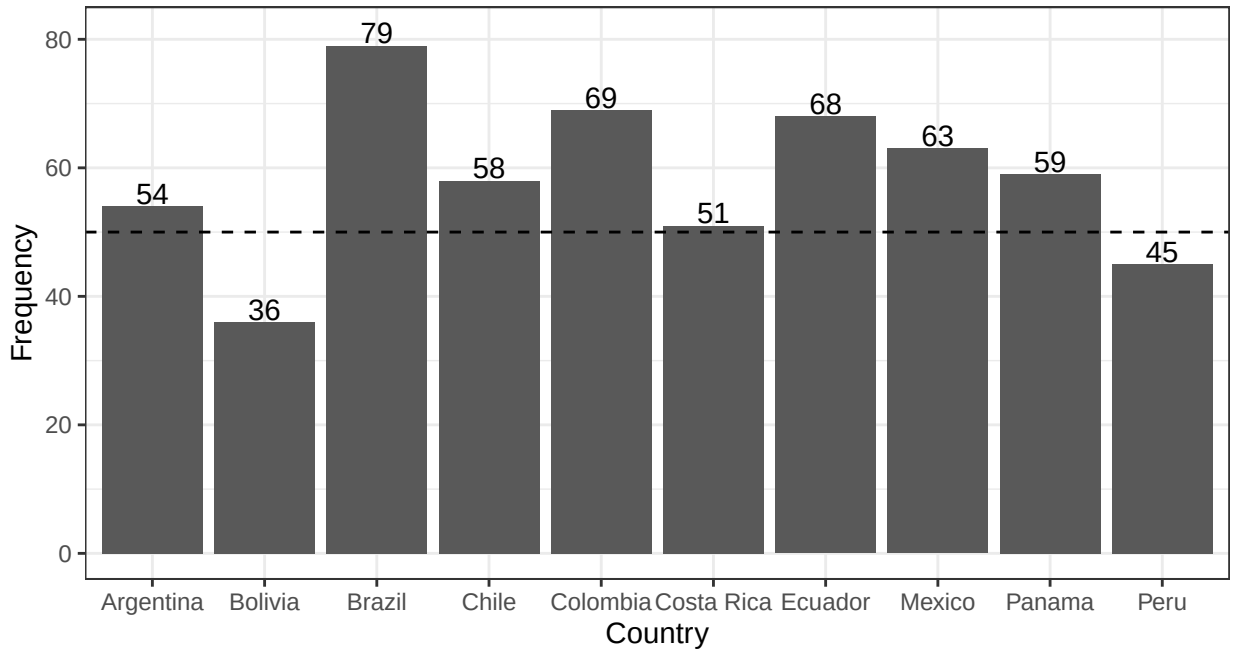
Latin America has a history of political and economic volatility, so it is unclear whether elites will prefer long-term or short-term climate change initiatives. On the one hand, elites may perceive

longer contracts as a means to force collective commitment to fighting global warming. On the other hand, elites can also anticipate future volatility discount the future more heavily in favor of immediate circumstances.

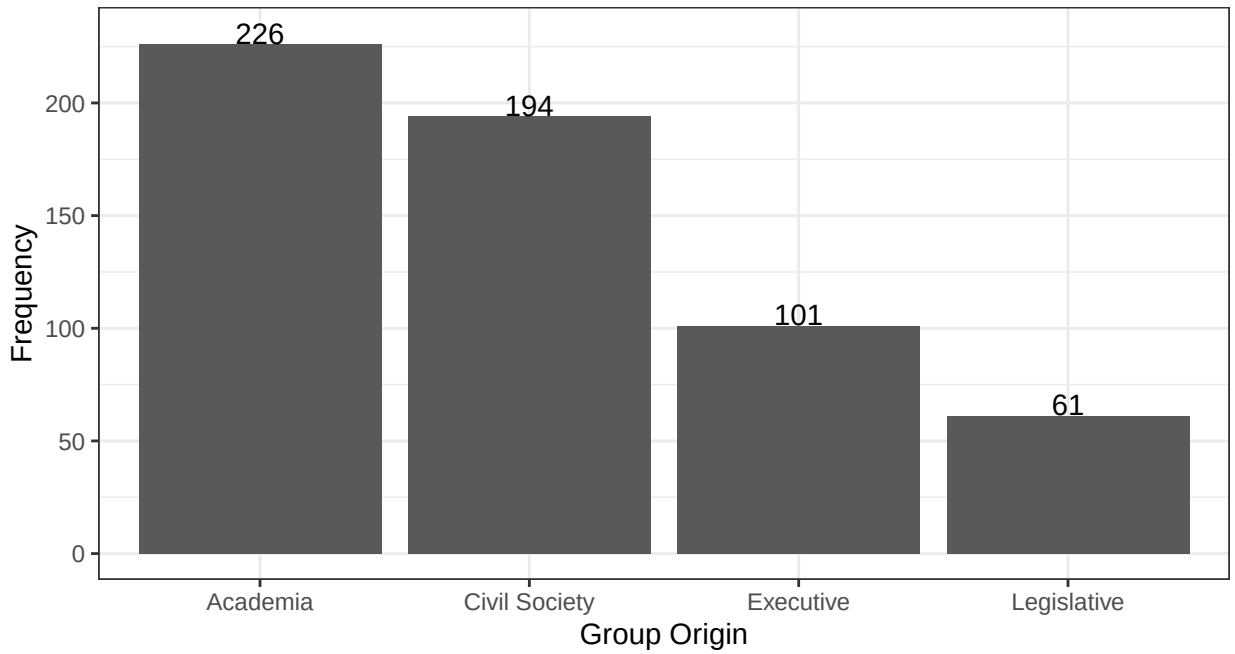
4 Descriptive Statistics

The main demographic statistics we collected are: country indicators, elite types, and the geolocation of the respondents. We show their distributions in the graphs below.

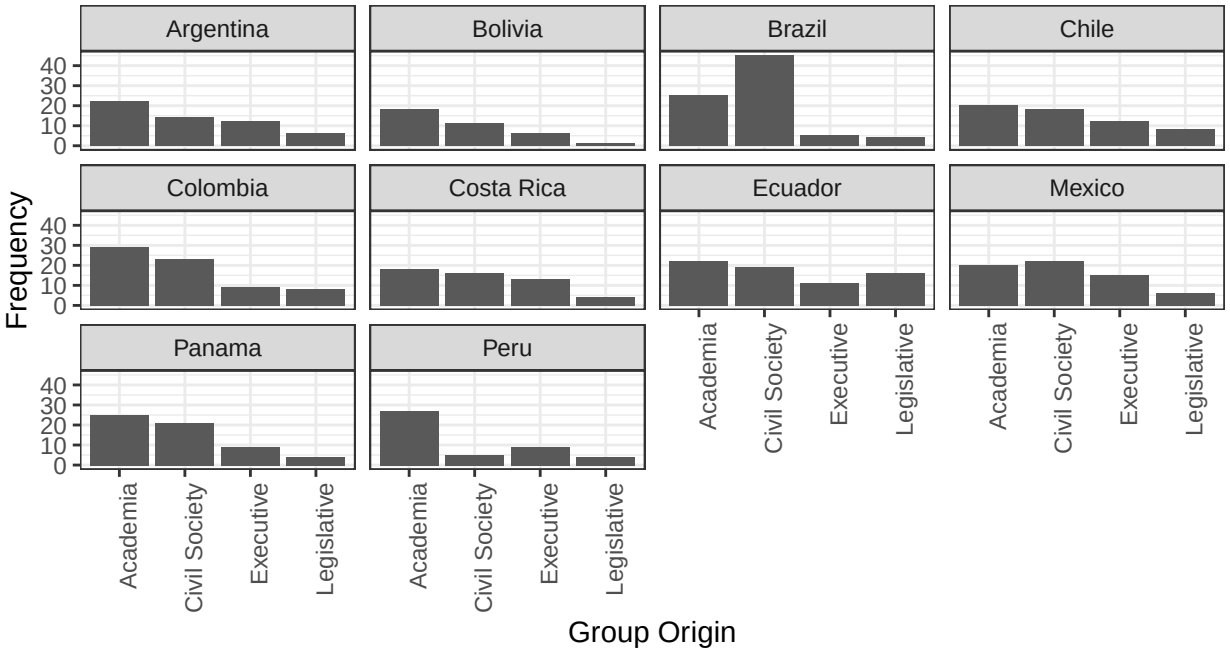
```
library(plm); library(tidyverse)
library(haven); library(clusterSEs)
library(stargazer); library(cjoint)
library(sp); library(cregg)
library(kableExtra)
load('data.RData')


aux <- cj %>%
  select(Response.ID, countryOrigin, groupOrigin, LocationLongitude, LocationLatitude) %>%
  unique()


# Country
tab <- data.frame(table(aux$countryOrigin))
names(tab) <- c('Country', 'Frequency')
p<- ggplot(data = tab, aes(x = Country, y = Frequency)) +
  geom_bar(stat = "identity") +
  geom_hline(yintercept = 50, linetype = "dashed", color = "black") +
  theme_bw() + annotate(geom = "text", label = tab$Frequency,
                        x = tab$Country, y = tab$Frequency + 2)
p
```




```
# Elite type

tab <- data.frame(table(aux$groupOrigin))

names(tab) <- c('Group Origin', 'Frequency')

p<- ggplot(data = tab, aes(x = `Group Origin`, y = Frequency)) +

  geom_bar(stat = "identity") +

  theme_bw() + annotate(geom = "text", label = tab$Frequency,

                        x = tab$`Group Origin`, y = tab$Frequency + 5)

p
```



```r
# Elite type and group type

tab <- data.frame(table(aux$groupOrigin, aux$countryOrigin))

names(tab) <- c('Group Origin','Country', 'Frequency')

p<- ggplot(data = tab, aes(x = `Group Origin`, y = Frequency)) +

  geom_bar(stat = "identity") +

  facet_wrap(~Country) +

  theme_bw() +

  theme(axis.text.x = element_text(angle = 90, hjust = 1))

p
```



As we can see, we managed to contact more than fifty elite members for all countries but Bolivia and Peru. To compensate for the low response rates in these two countries, we exceeded the sample size in all the remaining states.

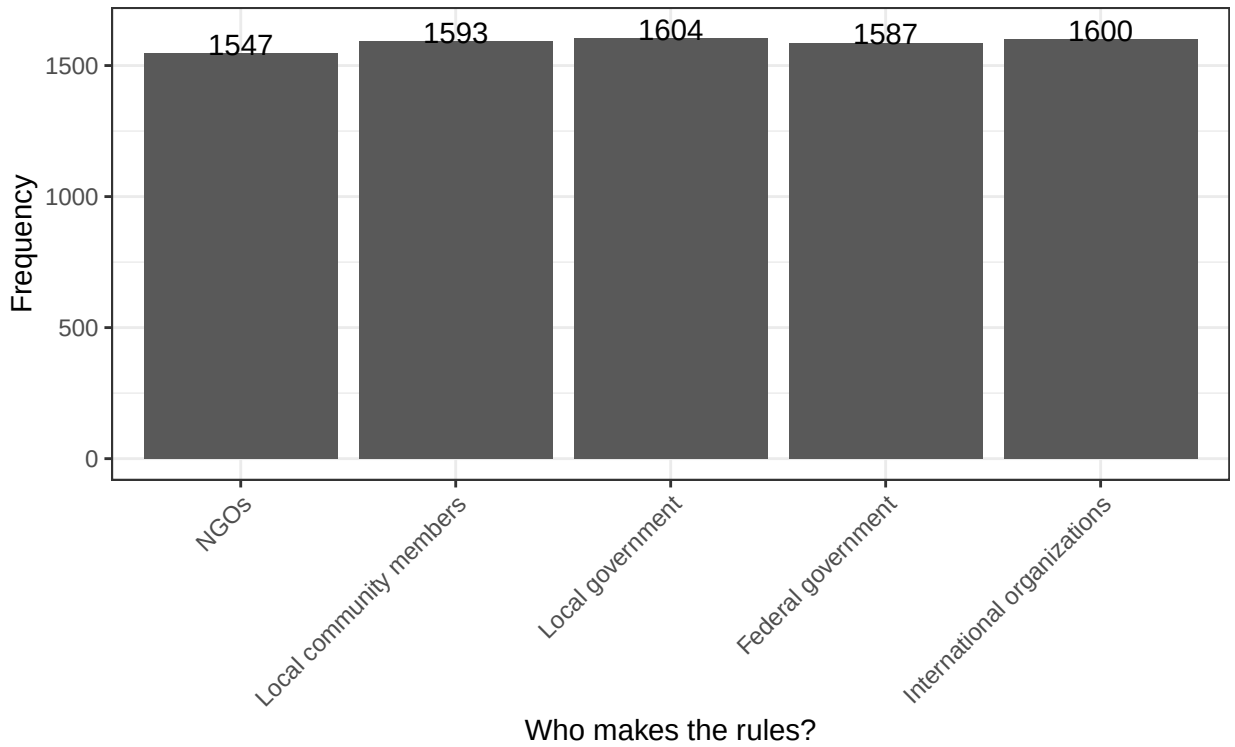
Regarding elite type, we have more data on academics and members of civil society. They are followed by members the Executive and of the Legislative, respectively. This result is in line with our expectations given the difficulty of accessing high profile government members.

In the map, we see that respondents are concentrated in the largest municipalities of their respective countries. As elites tend to be more urban and well-educated than the average citizen, we expected the clustering of elites in big cities.

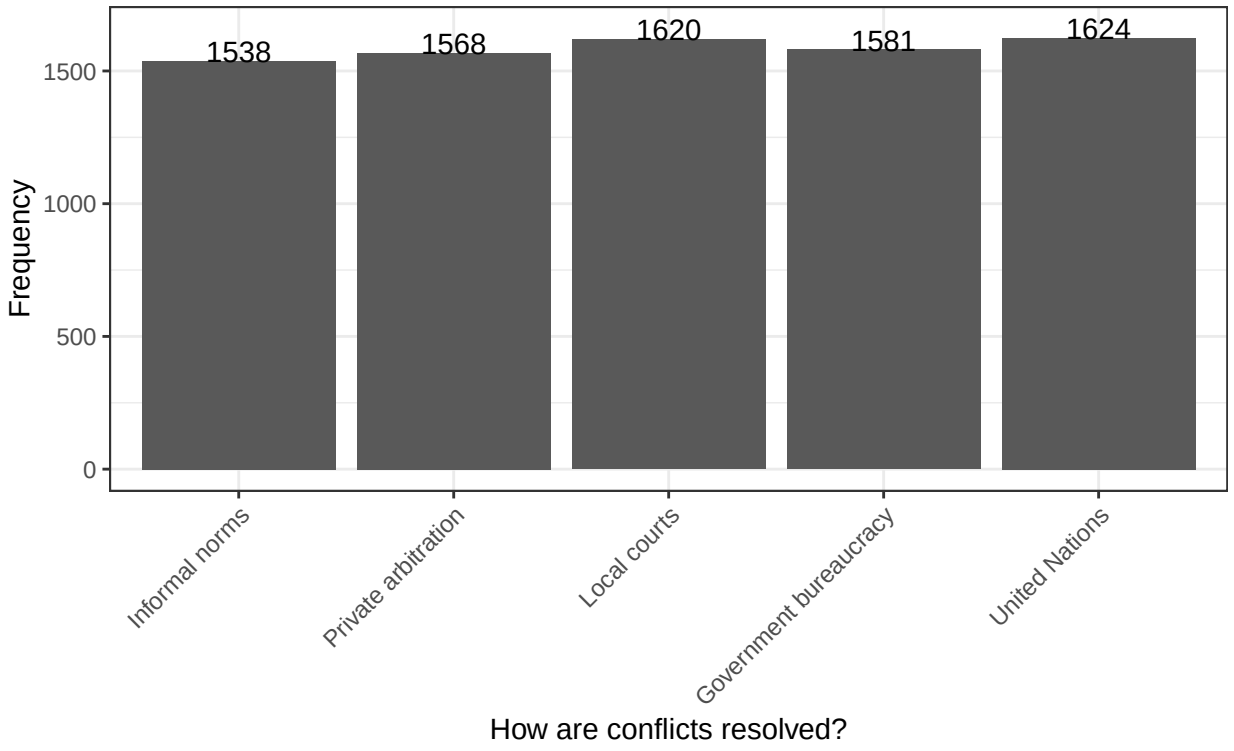
5 Frequency of Features Selected by Each Attribute

The figures below display the freature frequency for each attribute, by each task.

```
aux <- cj %>%
  select(Response.ID, `Who makes the rules?`, `How are conflicts resolved?`, `What punishments
  unique()


# Who makes the rules
tab <- data.frame(table(aux$`Who makes the rules?`))
names(tab) <- c('Levels', 'Frequency')
p <- ggplot(data=tab, aes(x = Levels, y = Frequency)) +
  geom_bar(stat="identity") +
  theme_bw() + xlab('Who makes the rules?') +
  annotate(geom = "text", label = tab$Frequency,
           x = tab$Levels, y = tab$Frequency + 35) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
p
```

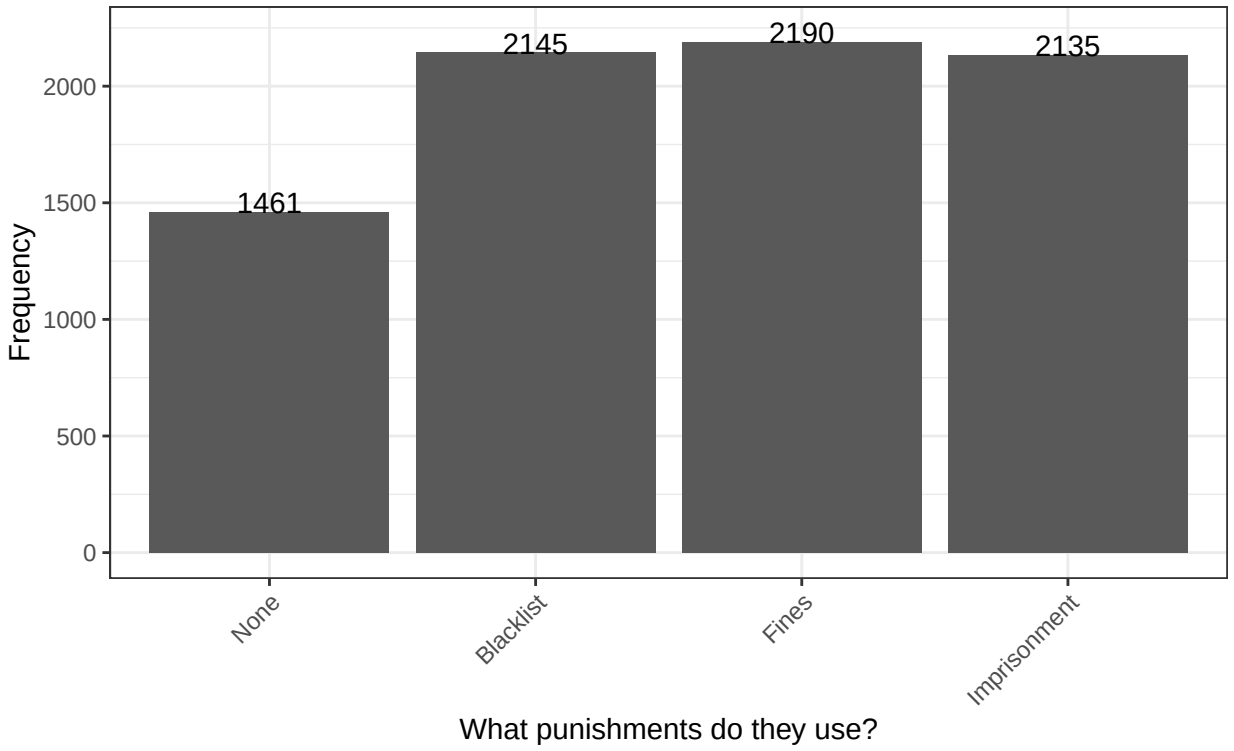


```r
# How are conflicts resolved?
tab <- data.frame(table(aux$`How are conflicts resolved?`))
names(tab) <- c('Levels', 'Frequency')
p <- ggplot(data=tab, aes(x = Levels, y = Frequency)) +
  geom_bar(stat="identity") +
  theme_bw() + xlab('How are conflicts resolved?') +
  annotate(geom = "text", label = tab$Frequency,
           x = tab$Levels, y = tab$Frequency + 35) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
p
```

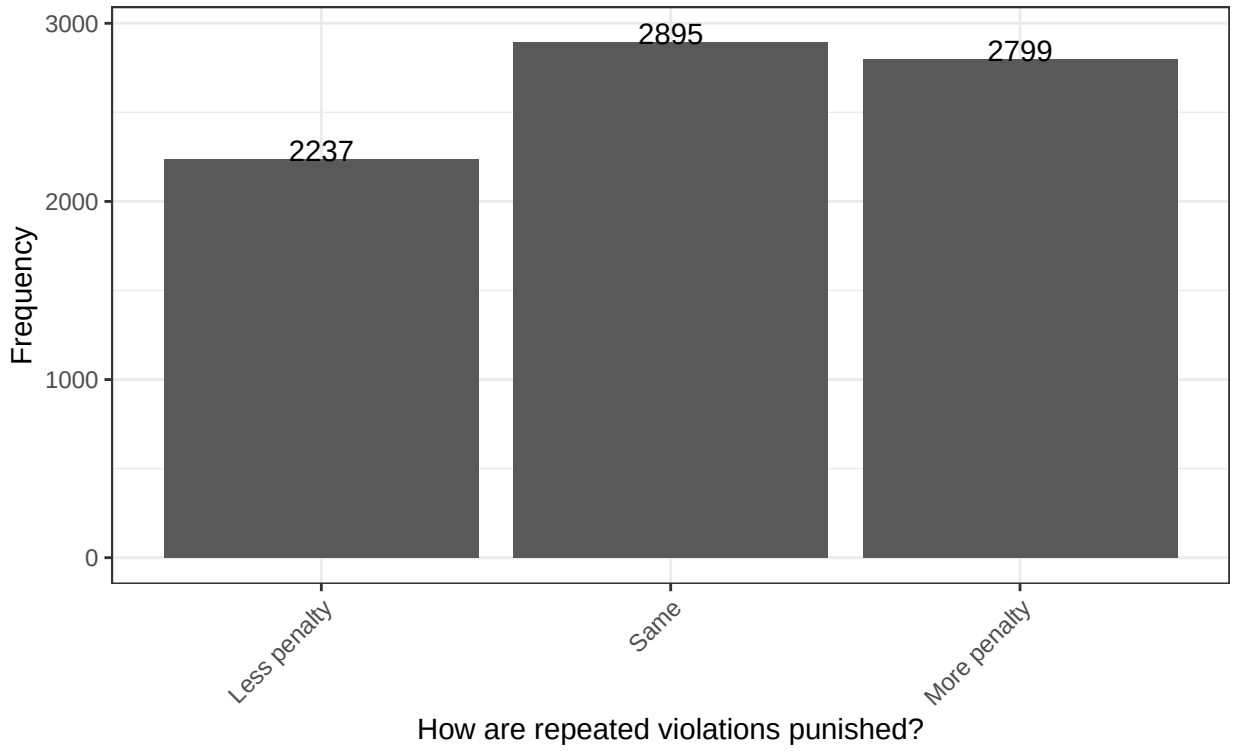



```r
# What punishments do they use?
tab <- data.frame(table(aux$`What punishments do they use?`))
names(tab) <- c('Levels', 'Frequency')
p <- ggplot(data=tab, aes(x = Levels, y = Frequency)) +
  geom_bar(stat="identity") +
  theme_bw() + xlab('What punishments do they use?') +
  annotate(geom = "text", label = tab$Frequency,
```

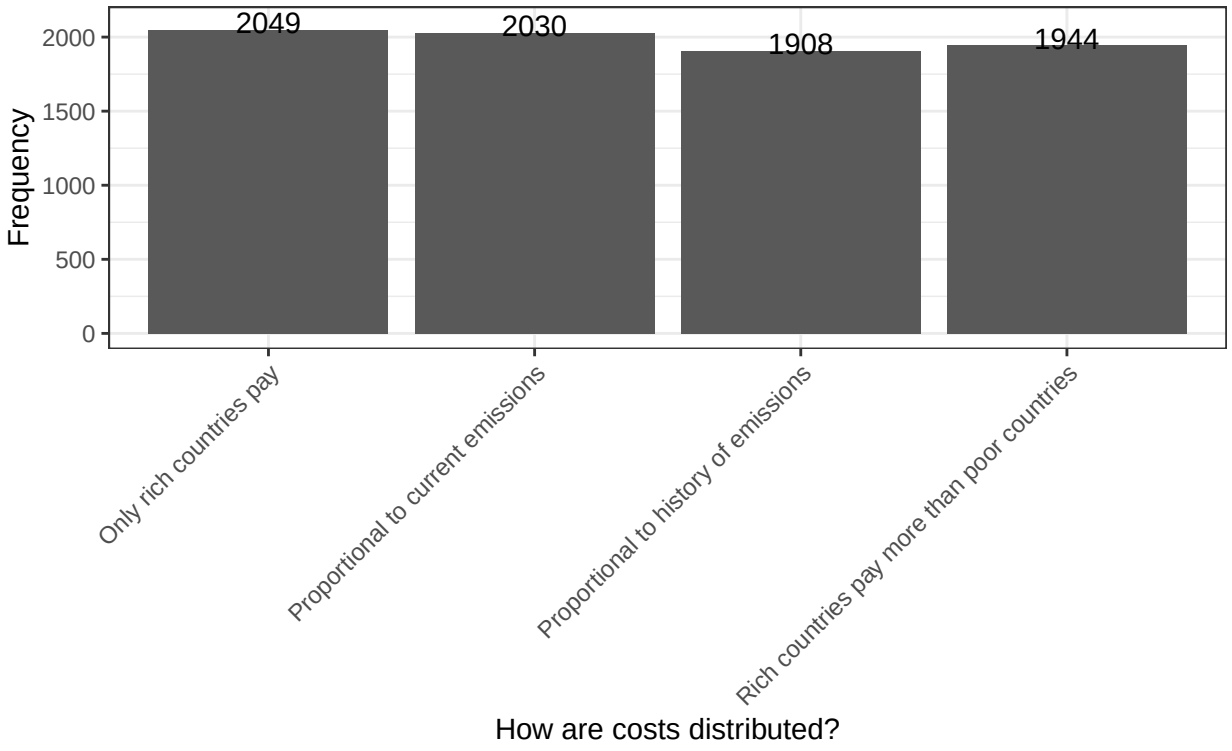
```
            x = tab$Levels, y = tab$Frequency + 40) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
p
```



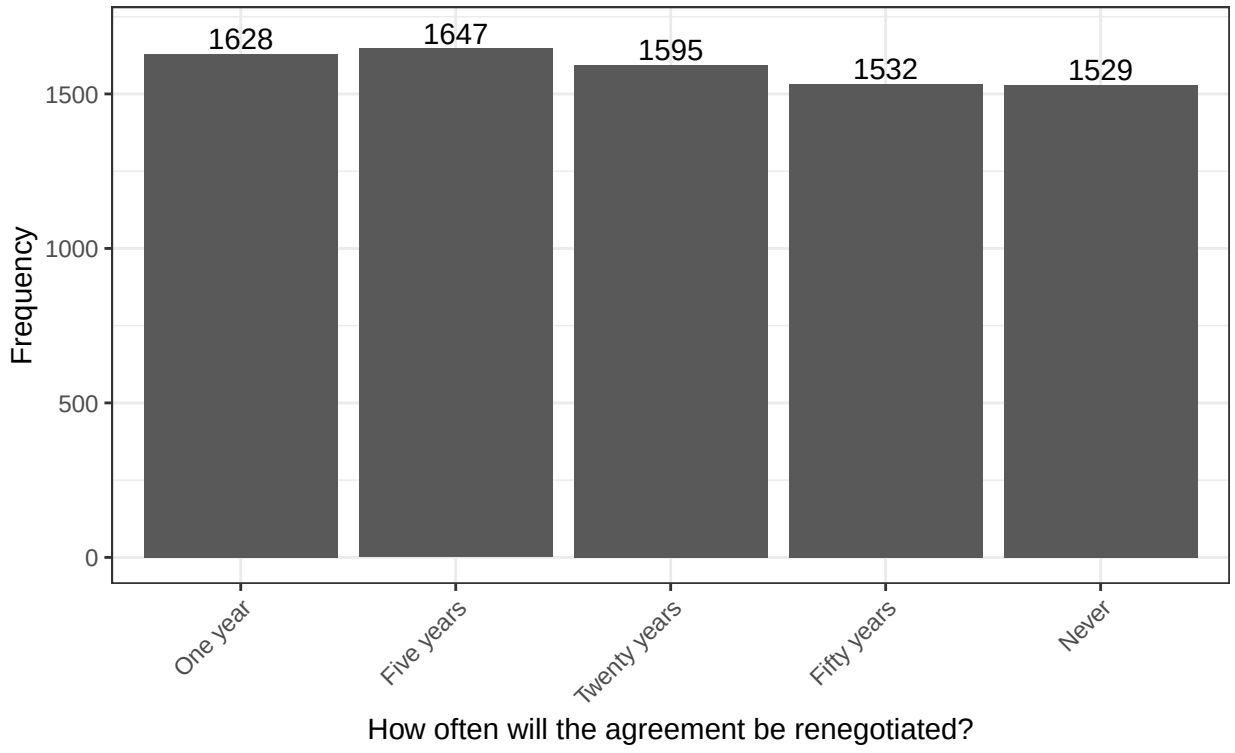

```
# How are repeated violations punished?
tab <- data.frame(table(aux$`How are repeated violations punished?`))
names(tab) <- c('Levels', 'Frequency')
p <- ggplot(data=tab, aes(x = Levels, y = Frequency)) +
  geom_bar(stat="identity") +
  theme_bw() + xlab('How are repeated violations punished?') +
  annotate(geom = "text", label = tab$Frequency,
           x = tab$Levels, y = tab$Frequency + 50) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
p
```




```
# How are costs distributed?
tab <- data.frame(table(aux$`How are costs distributed?`))
names(tab) <- c('Levels', 'Frequency')
p <- ggplot(data=tab, aes(x = Levels, y = Frequency)) +
  geom_bar(stat="identity") +
  theme_bw() + xlab('How are costs distributed?') +
  annotate(geom = "text", label = tab$Frequency,
           x = tab$Levels, y = tab$Frequency + 50) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
p
```




```r
# How often will the agreement be renegotiated?
tab <- data.frame(table(aux$`How often will the agreement be renegotiated?`))
names(tab) <- c('Levels', 'Frequency')
p <- ggplot(data=tab, aes(x = Levels, y = Frequency)) +
  geom_bar(stat="identity") +
  theme_bw() + xlab('How often will the agreement be renegotiated?') +
  annotate(geom = "text", label = tab$Frequency,
           x = tab$Levels, y = tab$Frequency + 50) +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
p
```



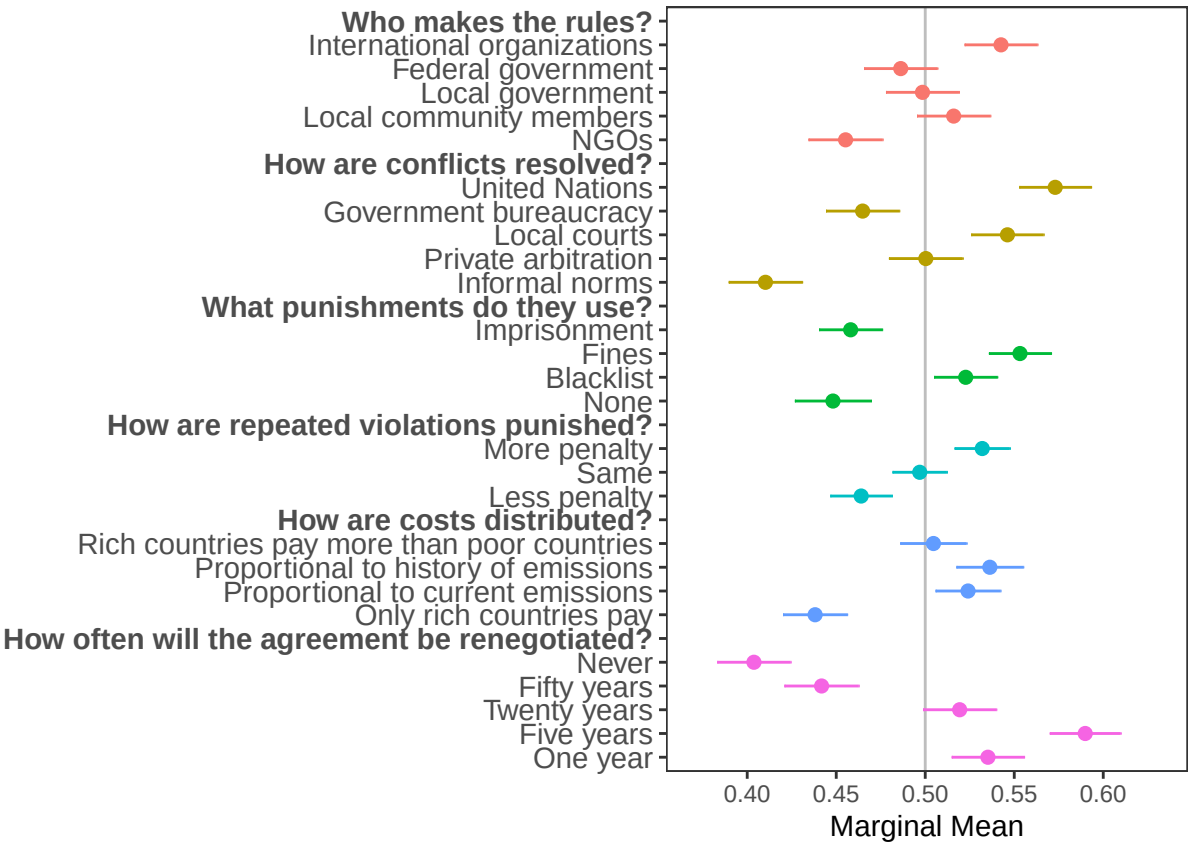
Two remarkable issues in our data are the low frequency of *Less penalty* in the attribute *How are repeated violations punished?* and the low frequency of *None* for the attribute *What punishments do they use?*. This because when we draw the level none for the attribute *What punishments do they use?* or the level less penalty for *How are repeated violations punished?*, then it makes no sense to have less penalty than the minimum possible.

6 Code for the Main Paper

The code for Figure 2 of the paper follows below. We also include the point estimates in companion tables.

```
## Main plot

# Main estimation equation

fm <- selected ~ `Who makes the rules?` +

  `How are conflicts resolved?` +

  `What punishments do they use?` +

  `How are repeated violations punished?` +

  `How are costs distributed?` +
```

```
  `How often will the agreement be renegotiated?`


# Plot
mms <- mm(cj, fm, id = ~Response.ID, alpha = .1, h0 = 0.5)


myFaces <- c(rep('plain', 5), "bold",
             rep('plain', 4), "bold",
             rep('plain', 3), "bold",
             rep('plain', 4), "bold",
             rep('plain', 5), "bold",
             rep('plain', 5), "bold")


p <- plot(mms, vline = 0.5, header_fmt = "%s", size = 2) +
  ggplot2::theme(
    legend.position = "none",
    panel.grid.major = ggplot2::element_blank(),
    panel.grid.minor = ggplot2::element_blank(),
    axis.text.y = element_text(face=myFaces, size = 11)) +
    ggplot2::geom_errorbarh(ggplot2::aes_string(xmin = "lower",
                                                xmax = "upper"),
                            size = 0.5, height = 0, na.rm = TRUE)
p
```




```
ggsave(filename = 'MM_all.pdf', plot = p, width = 6, height = 5)


# Table
table_mm <- function(mms, capt) {
  dfr <- data.frame(feature = mms[,c(4)],
             round(mms[,c(5,6,8,9,10)], digits=3))
  names(dfr) <- c('Feature', 'Estimate', 'Std.Error',
                'P-Value', 'Lower', 'Upper')
  return(kable(dfr, "latex", caption = capt, booktabs = T) %>%
    kable_styling(font_size = 10) %>%
    group_rows('Who makes the rules?', 1, 5) %>%
    group_rows('How are conflicts resolved?', 6, 10) %>%
    group_rows('What punishments do they use?', 11, 14) %>%
    group_rows('How are repeated violations punished?', 15, 17) %>%
    group_rows('How are costs distributed?', 18, 21) %>%
    group_rows('How often will the agreement be renegotiated?', 22, 26))
```

Table 1: Marginal Means – Full Dataset

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.455	0.013	0.000	0.434	0.476
Local community members	0.516	0.013	0.202	0.495	0.537
Local government	0.498	0.012	0.901	0.478	0.519
Federal government	0.486	0.013	0.271	0.466	0.507
International organizations	0.543	0.012	0.001	0.522	0.563
How are conflicts resolved?					
Informal norms	0.410	0.013	0.000	0.390	0.431
Private arbitration	0.500	0.013	0.980	0.480	0.521
Local courts	0.546	0.012	0.000	0.526	0.567
Government bureaucracy	0.465	0.013	0.005	0.444	0.485
United Nations	0.573	0.012	0.000	0.553	0.593
What punishments do they use?					
None	0.448	0.013	0.000	0.427	0.470
Blacklist	0.523	0.011	0.035	0.505	0.540
Fines	0.553	0.011	0.000	0.536	0.571
Imprisonment	0.458	0.011	0.000	0.440	0.476
How are repeated violations punished?					
Less penalty	0.464	0.011	0.001	0.447	0.481
Same	0.497	0.009	0.739	0.482	0.512
More penalty	0.532	0.009	0.001	0.517	0.548
How are costs distributed?					
Only rich countries pay	0.438	0.011	0.000	0.420	0.456
Proportional to current emissions	0.524	0.011	0.030	0.506	0.542
Proportional to history of emissions	0.536	0.011	0.001	0.518	0.555
Rich countries pay more than poor countries	0.505	0.011	0.684	0.486	0.523
How often will the agreement be renegotiated?					
One year	0.535	0.012	0.004	0.515	0.556
Five years	0.590	0.012	0.000	0.570	0.610
Twenty years	0.519	0.012	0.121	0.499	0.540
Fifty years	0.442	0.013	0.000	0.421	0.463
Never	0.404	0.013	0.000	0.383	0.424

```
}


table_mm(mms, capt = 'Marginal Means -- Full Dataset')
```

The code for Figure 3 of the paper follows below, with also the point estimates in a companion table.

Table 2: Marginal Means – Argentina Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.417	0.043	0.052	0.346	0.487
Local community members	0.449	0.044	0.246	0.376	0.521
Local government	0.503	0.042	0.933	0.435	0.572
Federal government	0.504	0.045	0.928	0.429	0.579
International organizations	0.619	0.041	0.004	0.551	0.686
How are conflicts resolved?					
Informal norms	0.377	0.043	0.004	0.307	0.447
Private arbitration	0.522	0.047	0.638	0.445	0.599
Local courts	0.574	0.042	0.074	0.506	0.643
Government bureaucracy	0.446	0.044	0.217	0.374	0.518
United Nations	0.568	0.041	0.097	0.501	0.635
What punishments do they use?					
None	0.361	0.043	0.001	0.289	0.432
Blacklist	0.514	0.037	0.710	0.453	0.575
Fines	0.587	0.037	0.019	0.526	0.647
Imprisonment	0.494	0.037	0.882	0.433	0.556
How are repeated violations punished?					
Less penalty	0.465	0.035	0.319	0.406	0.523
Same	0.516	0.032	0.608	0.464	0.569
More penalty	0.514	0.034	0.686	0.458	0.569
How are costs distributed?					
Only rich countries pay	0.408	0.035	0.009	0.350	0.466
Proportional to current emissions	0.534	0.041	0.410	0.466	0.601
Proportional to history of emissions	0.576	0.038	0.045	0.514	0.638
Rich countries pay more than poor countries	0.500	0.041	1.000	0.432	0.568
How often will the agreement be renegotiated?					
One year	0.604	0.039	0.008	0.539	0.669
Five years	0.545	0.043	0.298	0.474	0.616
Twenty years	0.438	0.044	0.157	0.367	0.510
Fifty years	0.438	0.044	0.154	0.365	0.510
Never	0.448	0.046	0.263	0.372	0.524

```
## Marginal means by Country


# Argentina

arg <- mm(subset(cj, countryOrigin=='Argentina'),

        fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(arg, capt = 'Marginal Means -- Argentina Only')
```

Table 3: Marginal Means – Bolivia Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.421	0.051	0.119	0.338	0.504
Local community members	0.575	0.053	0.159	0.488	0.662
Local government	0.560	0.054	0.272	0.470	0.649
Federal government	0.467	0.048	0.498	0.388	0.547
International organizations	0.494	0.056	0.910	0.401	0.586
How are conflicts resolved?					
Informal norms	0.369	0.053	0.013	0.282	0.456
Private arbitration	0.543	0.051	0.408	0.458	0.627
Local courts	0.538	0.052	0.467	0.453	0.623
Government bureaucracy	0.397	0.055	0.064	0.306	0.489
United Nations	0.612	0.048	0.020	0.533	0.691
What punishments do they use?					
None	0.442	0.054	0.278	0.354	0.530
Blacklist	0.466	0.044	0.431	0.394	0.537
Fines	0.570	0.044	0.108	0.498	0.642
Imprisonment	0.505	0.048	0.923	0.425	0.584
How are repeated violations punished?					
Less penalty	0.451	0.042	0.238	0.382	0.519
Same	0.534	0.038	0.362	0.472	0.597
More penalty	0.507	0.043	0.864	0.437	0.578
How are costs distributed?					
Only rich countries pay	0.424	0.045	0.094	0.349	0.499
Proportional to current emissions	0.593	0.047	0.050	0.515	0.670
Proportional to history of emissions	0.427	0.046	0.112	0.352	0.503
Rich countries pay more than poor countries	0.569	0.047	0.147	0.491	0.647
How often will the agreement be renegotiated?					
One year	0.485	0.050	0.763	0.402	0.567
Five years	0.624	0.048	0.010	0.544	0.703
Twenty years	0.575	0.053	0.159	0.488	0.662
Fifty years	0.385	0.055	0.036	0.294	0.475
Never	0.402	0.053	0.063	0.316	0.489

```r
# Bolivia

bol <- mm(subset(cj, countryOrigin=='Bolivia'),

        fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(bol, capt = 'Marginal Means -- Bolivia Only')
```

Table 4: Marginal Means – Brazil Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.492	0.036	0.829	0.433	0.551
Local community members	0.495	0.036	0.886	0.436	0.554
Local government	0.456	0.036	0.219	0.397	0.515
Federal government	0.481	0.036	0.610	0.422	0.541
International organizations	0.563	0.033	0.053	0.509	0.617
How are conflicts resolved?					
Informal norms	0.434	0.037	0.079	0.373	0.496
Private arbitration	0.475	0.035	0.477	0.416	0.533
Local courts	0.556	0.035	0.114	0.498	0.615
Government bureaucracy	0.476	0.035	0.485	0.418	0.533
United Nations	0.547	0.033	0.160	0.492	0.601
What punishments do they use?					
None	0.465	0.038	0.356	0.402	0.528
Blacklist	0.523	0.031	0.461	0.472	0.573
Fines	0.569	0.030	0.021	0.520	0.618
Imprisonment	0.434	0.029	0.024	0.386	0.482
How are repeated violations punished?					
Less penalty	0.416	0.029	0.004	0.368	0.464
Same	0.518	0.027	0.490	0.475	0.562
More penalty	0.549	0.026	0.063	0.506	0.592
How are costs distributed?					
Only rich countries pay	0.429	0.033	0.028	0.375	0.482
Proportional to current emissions	0.496	0.031	0.901	0.445	0.547
Proportional to history of emissions	0.546	0.032	0.152	0.493	0.599
Rich countries pay more than poor countries	0.524	0.030	0.431	0.474	0.574
How often will the agreement be renegotiated?					
One year	0.535	0.034	0.305	0.479	0.591
Five years	0.568	0.036	0.064	0.508	0.627
Twenty years	0.537	0.034	0.275	0.481	0.593
Fifty years	0.469	0.035	0.368	0.412	0.526
Never	0.377	0.037	0.001	0.317	0.437

```
# Brazil

bra <- mm(subset(cj, countryOrigin=='Brazil'),

        fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(bra, capt = 'Marginal Means -- Brazil Only')
```

Table 5: Marginal Means – Chile Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.400	0.043	0.020	0.329	0.471
Local community members	0.630	0.039	0.001	0.566	0.694
Local government	0.538	0.040	0.335	0.473	0.604
Federal government	0.403	0.043	0.025	0.332	0.474
International organizations	0.496	0.043	0.932	0.426	0.567
How are conflicts resolved?					
Informal norms	0.403	0.042	0.022	0.333	0.473
Private arbitration	0.480	0.045	0.652	0.406	0.554
Local courts	0.606	0.039	0.006	0.543	0.670
Government bureaucracy	0.445	0.041	0.183	0.378	0.513
United Nations	0.545	0.042	0.275	0.477	0.614
What punishments do they use?					
None	0.425	0.043	0.081	0.355	0.496
Blacklist	0.607	0.036	0.003	0.547	0.666
Fines	0.512	0.035	0.726	0.455	0.570
Imprisonment	0.435	0.036	0.076	0.376	0.495
How are repeated violations punished?					
Less penalty	0.476	0.036	0.512	0.416	0.536
Same	0.438	0.030	0.041	0.388	0.488
More penalty	0.583	0.031	0.007	0.532	0.634
How are costs distributed?					
Only rich countries pay	0.462	0.040	0.338	0.397	0.527
Proportional to current emissions	0.524	0.037	0.508	0.464	0.585
Proportional to history of emissions	0.497	0.037	0.940	0.436	0.559
Rich countries pay more than poor countries	0.511	0.037	0.768	0.450	0.571
How often will the agreement be renegotiated?					
One year	0.418	0.042	0.050	0.350	0.487
Five years	0.645	0.038	0.000	0.582	0.708
Twenty years	0.503	0.042	0.934	0.435	0.572
Fifty years	0.489	0.043	0.795	0.417	0.560
Never	0.424	0.043	0.078	0.353	0.495

```r
# Chile

chi <- mm(subset(cj, countryOrigin=='Chile'),

        fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(chi, capt = 'Marginal Means -- Chile Only')
```

Table 6: Marginal Means – Colombia Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.430	0.042	0.090	0.361	0.498
Local community members	0.595	0.038	0.012	0.533	0.658
Local government	0.465	0.038	0.359	0.403	0.528
Federal government	0.463	0.037	0.327	0.402	0.525
International organizations	0.544	0.041	0.285	0.476	0.611
How are conflicts resolved?					
Informal norms	0.410	0.038	0.018	0.347	0.472
Private arbitration	0.510	0.040	0.808	0.443	0.576
Local courts	0.533	0.039	0.394	0.469	0.596
Government bureaucracy	0.466	0.039	0.385	0.401	0.531
United Nations	0.584	0.039	0.031	0.520	0.648
What punishments do they use?					
None	0.497	0.038	0.939	0.434	0.560
Blacklist	0.531	0.034	0.370	0.474	0.587
Fines	0.551	0.033	0.123	0.497	0.606
Imprisonment	0.414	0.035	0.013	0.357	0.471
How are repeated violations punished?					
Less penalty	0.479	0.034	0.537	0.423	0.535
Same	0.492	0.029	0.772	0.444	0.539
More penalty	0.523	0.029	0.417	0.476	0.571
How are costs distributed?					
Only rich countries pay	0.475	0.034	0.459	0.420	0.530
Proportional to current emissions	0.516	0.034	0.633	0.460	0.572
Proportional to history of emissions	0.538	0.035	0.286	0.480	0.596
Rich countries pay more than poor countries	0.468	0.038	0.402	0.406	0.531
How often will the agreement be renegotiated?					
One year	0.547	0.038	0.221	0.484	0.609
Five years	0.558	0.039	0.137	0.494	0.621
Twenty years	0.547	0.039	0.232	0.482	0.612
Fifty years	0.423	0.042	0.069	0.354	0.493
Never	0.417	0.037	0.026	0.356	0.478

```
# Colombia

col <- mm(subset(cj, countryOrigin=='Colombia'),

        fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(col, capt = 'Marginal Means -- Colombia Only')
```

Table 7: Marginal Means – Costa Rica Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.524	0.044	0.593	0.451	0.597
Local community members	0.439	0.042	0.146	0.370	0.508
Local government	0.565	0.043	0.134	0.494	0.636
Federal government	0.511	0.043	0.798	0.441	0.581
International organizations	0.459	0.048	0.387	0.380	0.537
How are conflicts resolved?					
Informal norms	0.402	0.043	0.021	0.331	0.472
Private arbitration	0.496	0.044	0.930	0.424	0.569
Local courts	0.497	0.042	0.934	0.428	0.565
Government bureaucracy	0.500	0.048	1.000	0.421	0.579
United Nations	0.609	0.043	0.011	0.538	0.680
What punishments do they use?					
None	0.383	0.045	0.010	0.308	0.457
Blacklist	0.477	0.038	0.541	0.414	0.539
Fines	0.588	0.036	0.014	0.529	0.647
Imprisonment	0.506	0.039	0.877	0.442	0.569
How are repeated violations punished?					
Less penalty	0.461	0.035	0.261	0.403	0.518
Same	0.481	0.034	0.584	0.425	0.537
More penalty	0.554	0.033	0.107	0.499	0.608
How are costs distributed?					
Only rich countries pay	0.396	0.039	0.007	0.332	0.460
Proportional to current emissions	0.582	0.040	0.041	0.516	0.647
Proportional to history of emissions	0.515	0.039	0.695	0.451	0.580
Rich countries pay more than poor countries	0.509	0.039	0.816	0.445	0.573
How often will the agreement be renegotiated?					
One year	0.598	0.046	0.034	0.522	0.674
Five years	0.674	0.040	0.000	0.608	0.740
Twenty years	0.471	0.042	0.498	0.402	0.541
Fifty years	0.381	0.042	0.004	0.312	0.450
Never	0.380	0.044	0.007	0.308	0.453

```r
# Costa Rica

cri <- mm(subset(cj, countryOrigin=='Costa Rica'),

        fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(cri, capt = 'Marginal Means -- Costa Rica Only')
```

Table 8: Marginal Means – Ecuador Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.427	0.038	0.053	0.365	0.489
Local community members	0.548	0.038	0.215	0.484	0.611
Local government	0.518	0.039	0.643	0.454	0.581
Federal government	0.475	0.039	0.529	0.411	0.540
International organizations	0.531	0.038	0.405	0.469	0.593
How are conflicts resolved?					
Informal norms	0.420	0.039	0.039	0.356	0.484
Private arbitration	0.500	0.036	1.000	0.440	0.560
Local courts	0.556	0.037	0.131	0.495	0.617
Government bureaucracy	0.424	0.039	0.053	0.359	0.489
United Nations	0.596	0.039	0.014	0.532	0.661
What punishments do they use?					
None	0.490	0.040	0.810	0.424	0.556
Blacklist	0.572	0.033	0.030	0.517	0.627
Fines	0.544	0.033	0.184	0.490	0.598
Imprisonment	0.397	0.032	0.001	0.345	0.450
How are repeated violations punished?					
Less penalty	0.468	0.032	0.329	0.415	0.522
Same	0.480	0.029	0.490	0.433	0.527
More penalty	0.544	0.029	0.121	0.497	0.591
How are costs distributed?					
Only rich countries pay	0.412	0.033	0.007	0.359	0.466
Proportional to current emissions	0.581	0.034	0.016	0.526	0.637
Proportional to history of emissions	0.546	0.036	0.197	0.487	0.604
Rich countries pay more than poor countries	0.468	0.035	0.363	0.411	0.526
How often will the agreement be renegotiated?					
One year	0.465	0.040	0.379	0.399	0.530
Five years	0.554	0.038	0.149	0.492	0.616
Twenty years	0.531	0.038	0.405	0.469	0.593
Fifty years	0.447	0.038	0.165	0.384	0.510
Never	0.497	0.039	0.938	0.433	0.561

```
# Ecuador

ecu <- mm(subset(cj, countryOrigin=='Ecuador'),

        fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(ecu, capt = 'Marginal Means -- Ecuador Only')
```

Table 9: Marginal Means – Mexico Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.457	0.042	0.309	0.388	0.526
Local community members	0.470	0.043	0.489	0.399	0.541
Local government	0.438	0.040	0.122	0.372	0.504
Federal government	0.497	0.040	0.937	0.432	0.562
International organizations	0.620	0.038	0.001	0.559	0.682
How are conflicts resolved?					
Informal norms	0.405	0.040	0.019	0.339	0.472
Private arbitration	0.520	0.041	0.626	0.453	0.586
Local courts	0.507	0.042	0.867	0.438	0.576
Government bureaucracy	0.461	0.040	0.329	0.394	0.527
United Nations	0.601	0.039	0.009	0.537	0.665
What punishments do they use?					
None	0.472	0.044	0.534	0.400	0.545
Blacklist	0.478	0.035	0.531	0.421	0.535
Fines	0.571	0.035	0.040	0.514	0.629
Imprisonment	0.470	0.034	0.374	0.414	0.526
How are repeated violations punished?					
Less penalty	0.505	0.035	0.888	0.447	0.563
Same	0.503	0.029	0.908	0.456	0.551
More penalty	0.492	0.031	0.802	0.441	0.544
How are costs distributed?					
Only rich countries pay	0.429	0.036	0.047	0.369	0.488
Proportional to current emissions	0.500	0.035	1.000	0.442	0.558
Proportional to history of emissions	0.620	0.038	0.001	0.559	0.682
Rich countries pay more than poor countries	0.466	0.036	0.348	0.407	0.525
How often will the agreement be renegotiated?					
One year	0.507	0.041	0.871	0.440	0.573
Five years	0.616	0.038	0.002	0.553	0.678
Twenty years	0.487	0.041	0.746	0.420	0.554
Fifty years	0.493	0.043	0.864	0.422	0.563
Never	0.385	0.040	0.004	0.319	0.451

```
# Mexico

mex <- mm(subset(cj, countryOrigin=='Mexico'),

        fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(mex, capt = 'Marginal Means -- Mexico Only')
```

Table 10: Marginal Means – Panama Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.478	0.040	0.578	0.413	0.543
Local community members	0.526	0.040	0.521	0.460	0.591
Local government	0.477	0.041	0.566	0.409	0.544
Federal government	0.497	0.040	0.936	0.431	0.563
International organizations	0.522	0.040	0.576	0.457	0.588
How are conflicts resolved?					
Informal norms	0.439	0.040	0.127	0.374	0.505
Private arbitration	0.488	0.039	0.756	0.424	0.552
Local courts	0.549	0.041	0.241	0.480	0.617
Government bureaucracy	0.477	0.040	0.571	0.411	0.544
United Nations	0.551	0.040	0.198	0.486	0.617
What punishments do they use?					
None	0.455	0.042	0.275	0.386	0.523
Blacklist	0.522	0.035	0.531	0.465	0.579
Fines	0.531	0.033	0.349	0.476	0.586
Imprisonment	0.475	0.035	0.481	0.417	0.533
How are repeated violations punished?					
Less penalty	0.432	0.033	0.042	0.378	0.487
Same	0.466	0.030	0.253	0.416	0.515
More penalty	0.588	0.030	0.003	0.540	0.637
How are costs distributed?					
Only rich countries pay	0.473	0.035	0.442	0.416	0.531
Proportional to current emissions	0.497	0.036	0.942	0.438	0.557
Proportional to history of emissions	0.513	0.037	0.715	0.453	0.573
Rich countries pay more than poor countries	0.518	0.036	0.614	0.459	0.577
How often will the agreement be renegotiated?					
One year	0.605	0.040	0.008	0.540	0.670
Five years	0.552	0.038	0.170	0.490	0.614
Twenty years	0.573	0.040	0.069	0.507	0.640
Fifty years	0.418	0.041	0.044	0.351	0.485
Never	0.344	0.038	0.000	0.281	0.407

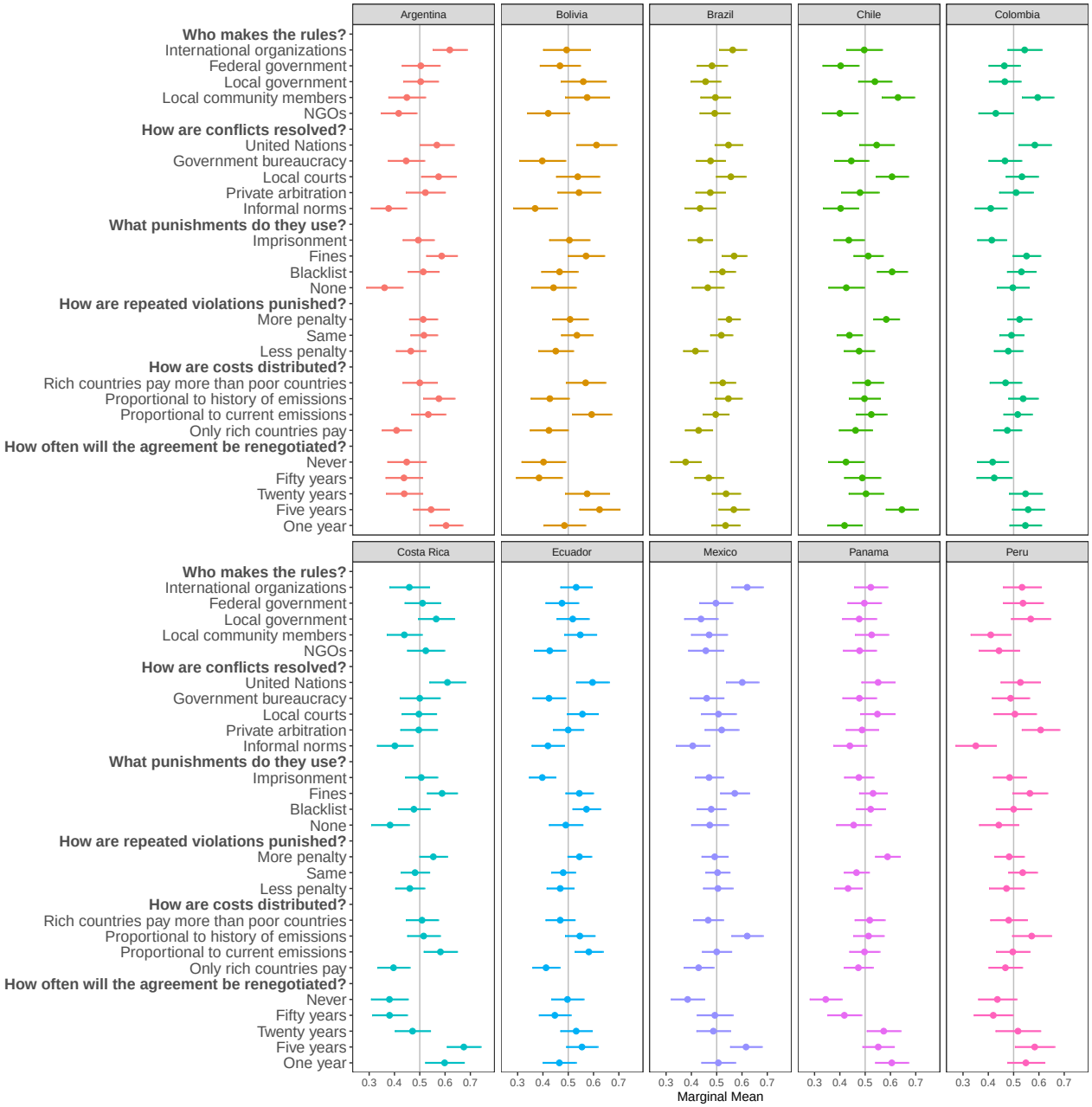
```
# Panama

pan <- mm(subset(cj, countryOrigin=='Panama'),

        fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(pan, capt = 'Marginal Means -- Panama Only')
```

Table 11: Marginal Means – Peru Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.442	0.049	0.236	0.362	0.522
Local community members	0.410	0.048	0.059	0.331	0.488
Local government	0.568	0.047	0.151	0.490	0.645
Federal government	0.537	0.048	0.440	0.458	0.616
International organizations	0.533	0.046	0.464	0.458	0.608
How are conflicts resolved?					
Informal norms	0.351	0.048	0.002	0.271	0.430
Private arbitration	0.607	0.045	0.018	0.533	0.681
Local courts	0.505	0.051	0.919	0.422	0.589
Government bureaucracy	0.488	0.045	0.788	0.414	0.562
United Nations	0.527	0.047	0.570	0.449	0.604
What punishments do they use?					
None	0.441	0.047	0.214	0.364	0.519
Blacklist	0.500	0.043	1.000	0.430	0.570
Fines	0.564	0.042	0.125	0.495	0.633
Imprisonment	0.484	0.040	0.692	0.419	0.549
How are repeated violations punished?					
Less penalty	0.472	0.042	0.501	0.403	0.541
Same	0.536	0.035	0.298	0.479	0.593
More penalty	0.482	0.036	0.618	0.424	0.541
How are costs distributed?					
Only rich countries pay	0.468	0.040	0.419	0.401	0.534
Proportional to current emissions	0.497	0.040	0.936	0.430	0.563
Proportional to history of emissions	0.571	0.047	0.127	0.495	0.648
Rich countries pay more than poor countries	0.481	0.044	0.660	0.408	0.553
How often will the agreement be renegotiated?					
One year	0.548	0.045	0.279	0.475	0.622
Five years	0.583	0.047	0.079	0.505	0.661
Twenty years	0.517	0.054	0.748	0.429	0.605
Fifty years	0.420	0.047	0.085	0.343	0.496
Never	0.436	0.046	0.162	0.360	0.511

```
# Peru

per <- mm(subset(cj, countryOrigin=='Peru'),

        fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(per, capt = 'Marginal Means -- Peru Only')
```

```r
# Changing country labels
arg$country <- 'Argentina'
bol$country <- 'Bolivia'
bra$country <- 'Brazil'
chi$country <- 'Chile'
col$country <- 'Colombia'
cri$country <- 'Costa Rica'
ecu$country <- 'Ecuador'
mex$country <- 'Mexico'
pan$country <- 'Panama'
per$country <- 'Peru'
# Plot by country
p <- plot(rbind(arg, bol, bra, chi, col,
                cri, ecu, mex, pan, per),
          group = 'country', vline = 0.5, nr = 10,
          header_fmt = "%s", size = 2) +
  facet_wrap( ~ country, ncol = 5) +
  ggplot2::theme(
    axis.text.y = element_text(face=myFaces, size = 13)) +
    ggplot2::geom_errorbarh(ggplot2::aes_string(xmin = "lower",
                                                xmax = "upper"),
                            size = 0.75, height = 0, na.rm = TRUE)


p
```




```
ggsave(filename = 'MM_country.pdf',
       plot = p, width = 10, height = 12)
```

The code for Figure 4 of the paper is available below. Tables displaying the point estimates are also included.

```
## Elite type graphs and estimates


# Table for the Executive

res1 <- mm(subset(cj, groupOrigin=='Executive'),
```

Table 12: Marginal Means – Executive Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.392	0.034	0.001	0.336	0.447
Local community members	0.516	0.031	0.618	0.464	0.567
Local government	0.502	0.030	0.952	0.452	0.552
Federal government	0.529	0.032	0.365	0.476	0.582
International organizations	0.545	0.031	0.150	0.494	0.596
How are conflicts resolved?					
Informal norms	0.429	0.034	0.037	0.373	0.485
Private arbitration	0.508	0.032	0.797	0.455	0.561
Local courts	0.523	0.031	0.456	0.472	0.574
Government bureaucracy	0.462	0.031	0.214	0.411	0.512
United Nations	0.564	0.030	0.036	0.514	0.614
What punishments do they use?					
None	0.480	0.034	0.545	0.424	0.535
Blacklist	0.541	0.028	0.144	0.495	0.587
Fines	0.568	0.026	0.010	0.524	0.611
Imprisonment	0.406	0.026	0.000	0.363	0.450
How are repeated violations punished?					
Less penalty	0.447	0.026	0.039	0.405	0.489
Same	0.501	0.023	0.963	0.463	0.539
More penalty	0.549	0.025	0.050	0.508	0.590
How are costs distributed?					
Only rich countries pay	0.442	0.029	0.043	0.395	0.489
Proportional to current emissions	0.550	0.028	0.072	0.504	0.596
Proportional to history of emissions	0.524	0.028	0.396	0.478	0.570
Rich countries pay more than poor countries	0.480	0.029	0.491	0.433	0.527
How often will the agreement be renegotiated?					
One year	0.543	0.030	0.159	0.493	0.593
Five years	0.586	0.030	0.005	0.536	0.636
Twenty years	0.500	0.032	1.000	0.448	0.552
Fifty years	0.438	0.032	0.052	0.386	0.490
Never	0.414	0.033	0.009	0.359	0.468

```
          fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(res1, capt = 'Marginal Means -- Executive Only')
```

Table 13: Marginal Means – Legislative Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.400	0.038	0.008	0.338	0.462
Local community members	0.519	0.039	0.637	0.454	0.583
Local government	0.549	0.039	0.209	0.485	0.613
Federal government	0.517	0.041	0.680	0.449	0.585
International organizations	0.524	0.042	0.558	0.456	0.593
How are conflicts resolved?					
Informal norms	0.420	0.037	0.032	0.358	0.481
Private arbitration	0.506	0.039	0.876	0.442	0.570
Local courts	0.547	0.039	0.235	0.482	0.611
Government bureaucracy	0.500	0.041	1.000	0.432	0.568
United Nations	0.539	0.042	0.353	0.470	0.608
What punishments do they use?					
None	0.438	0.042	0.143	0.368	0.508
Blacklist	0.546	0.034	0.172	0.491	0.602
Fines	0.581	0.033	0.013	0.528	0.635
Imprisonment	0.403	0.034	0.005	0.347	0.459
How are repeated violations punished?					
Less penalty	0.455	0.033	0.178	0.400	0.510
Same	0.521	0.029	0.481	0.472	0.569
More penalty	0.515	0.030	0.629	0.465	0.564
How are costs distributed?					
Only rich countries pay	0.411	0.033	0.007	0.357	0.465
Proportional to current emissions	0.475	0.035	0.481	0.417	0.533
Proportional to history of emissions	0.552	0.039	0.181	0.488	0.616
Rich countries pay more than poor countries	0.584	0.035	0.017	0.526	0.642
How often will the agreement be renegotiated?					
One year	0.533	0.040	0.416	0.466	0.599
Five years	0.557	0.038	0.139	0.494	0.620
Twenty years	0.526	0.040	0.519	0.460	0.592
Fifty years	0.485	0.039	0.695	0.420	0.549
Never	0.393	0.040	0.007	0.328	0.459

```
# Legislative

res2 <- mm(subset(cj, groupOrigin=='Legislative'),

           fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(res2, capt = 'Marginal Means -- Legislative Only')
```

Table 14: Marginal Means – Civil Society Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.500	0.023	1.000	0.463	0.537
Local community members	0.520	0.022	0.368	0.483	0.557
Local government	0.462	0.023	0.093	0.425	0.499
Federal government	0.478	0.022	0.309	0.441	0.514
International organizations	0.538	0.022	0.080	0.502	0.574
How are conflicts resolved?					
Informal norms	0.410	0.022	0.000	0.373	0.446
Private arbitration	0.503	0.023	0.892	0.466	0.540
Local courts	0.551	0.022	0.021	0.515	0.587
Government bureaucracy	0.430	0.022	0.002	0.393	0.467
United Nations	0.594	0.021	0.000	0.559	0.629
What punishments do they use?					
None	0.453	0.023	0.036	0.416	0.490
Blacklist	0.518	0.020	0.364	0.485	0.550
Fines	0.548	0.019	0.011	0.517	0.579
Imprisonment	0.467	0.019	0.089	0.436	0.499
How are repeated violations punished?					
Less penalty	0.469	0.019	0.112	0.437	0.501
Same	0.479	0.016	0.203	0.452	0.506
More penalty	0.545	0.017	0.007	0.517	0.572
How are costs distributed?					
Only rich countries pay	0.449	0.019	0.008	0.417	0.481
Proportional to current emissions	0.520	0.020	0.315	0.487	0.553
Proportional to history of emissions	0.560	0.020	0.003	0.527	0.593
Rich countries pay more than poor countries	0.476	0.020	0.230	0.443	0.509
How often will the agreement be renegotiated?					
One year	0.548	0.022	0.026	0.513	0.584
Five years	0.595	0.022	0.000	0.559	0.630
Twenty years	0.493	0.022	0.757	0.457	0.530
Fifty years	0.448	0.023	0.026	0.409	0.486
Never	0.404	0.022	0.000	0.368	0.441

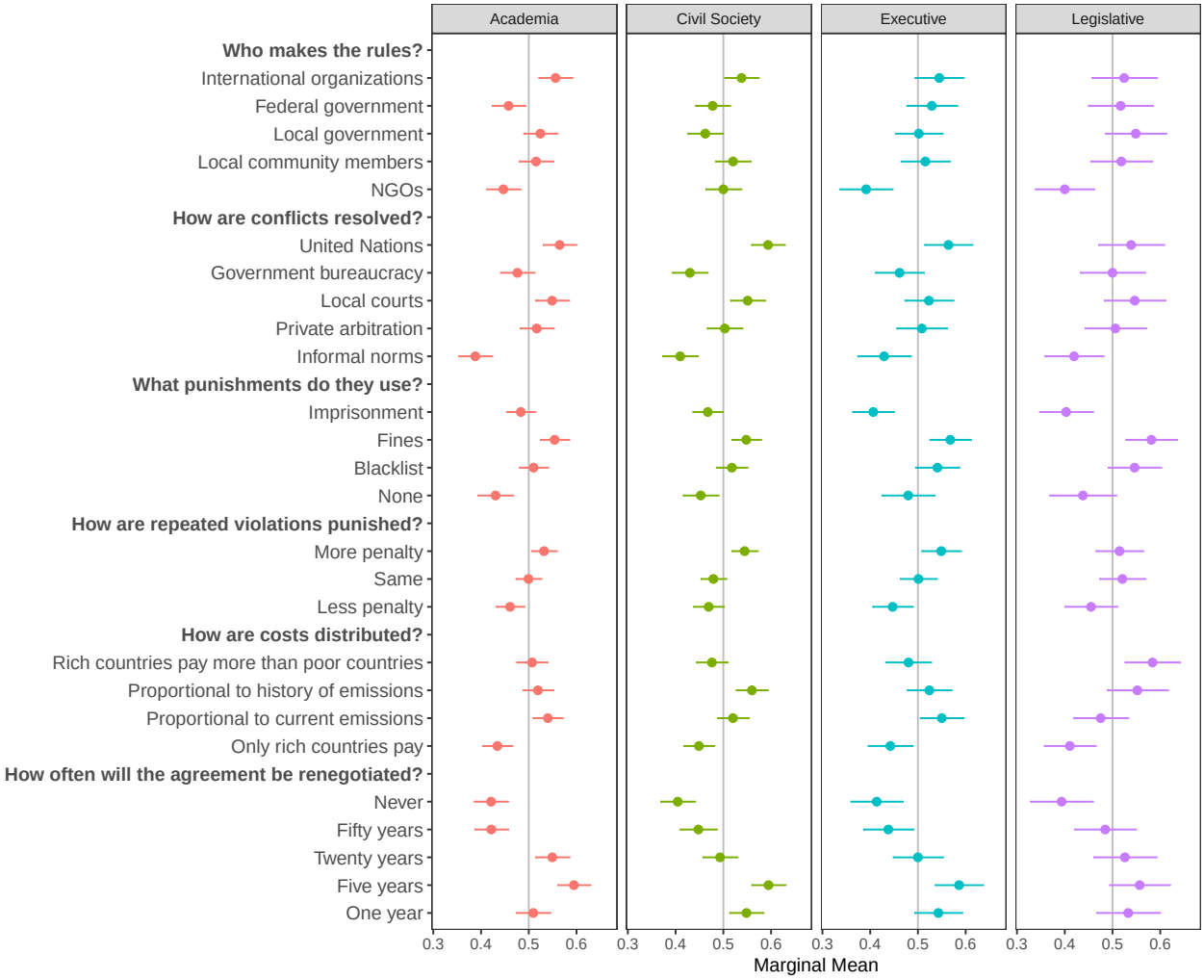
```
# Civil Society

res3 <- mm(subset(cj, groupOrigin=='Civil Society'),

           fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(res3, capt = 'Marginal Means -- Civil Society Only')
```

Table 15: Marginal Means – Academia Only

Feature	Estimate	Std.Error	P-Value	Lower	Upper
Who makes the rules?					
NGOs	0.447	0.022	0.014	0.411	0.483
Local community members	0.515	0.022	0.483	0.479	0.551
Local government	0.524	0.022	0.260	0.489	0.560
Federal government	0.458	0.021	0.048	0.423	0.493
International organizations	0.556	0.021	0.009	0.521	0.591
How are conflicts resolved?					
Informal norms	0.388	0.021	0.000	0.353	0.423
Private arbitration	0.517	0.022	0.437	0.481	0.552
Local courts	0.549	0.022	0.023	0.513	0.584
Government bureaucracy	0.476	0.022	0.275	0.440	0.512
United Nations	0.565	0.021	0.002	0.530	0.599
What punishments do they use?					
None	0.430	0.022	0.002	0.393	0.467
Blacklist	0.510	0.018	0.582	0.480	0.540
Fines	0.554	0.019	0.004	0.523	0.585
Imprisonment	0.483	0.019	0.371	0.453	0.514
How are repeated violations punished?					
Less penalty	0.461	0.018	0.030	0.431	0.490
Same	0.499	0.016	0.974	0.473	0.526
More penalty	0.532	0.016	0.048	0.505	0.559
How are costs distributed?					
Only rich countries pay	0.434	0.019	0.001	0.403	0.466
Proportional to current emissions	0.540	0.019	0.036	0.509	0.571
Proportional to history of emissions	0.519	0.020	0.327	0.487	0.551
Rich countries pay more than poor countries	0.507	0.020	0.723	0.475	0.539
How often will the agreement be renegotiated?					
One year	0.509	0.022	0.664	0.474	0.545
Five years	0.595	0.021	0.000	0.560	0.629
Twenty years	0.549	0.022	0.023	0.514	0.585
Fifty years	0.422	0.021	0.000	0.386	0.457
Never	0.421	0.022	0.000	0.386	0.456

```
# Academia

res4 <- mm(subset(cj, groupOrigin=='Academia'),

           fm, id = ~Response.ID, alpha = 0.1, h0 = 0.5)

table_mm(res4, capt = 'Marginal Means -- Academia Only')
```

```r
# Changing labels
res1$MemberType <- 'Executive'
res2$MemberType <- 'Legislative'
res3$MemberType <- 'Civil Society'
res4$MemberType <- 'Academia'


# Plot by Elite Type
p <- plot(rbind(res1, res2, res3, res4),
     group = 'MemberType', vline = 0.5, nr = 4,
        header_fmt = "%s", size = 2) +
  facet_wrap( ~ MemberType, ncol = 4) +
  ggplot2::theme(
    axis.text.y = element_text(face=myFaces, size = 11)) +
    ggplot2::geom_errorbarh(ggplot2::aes_string(xmin = "lower",
                                                xmax = "upper"),
                            size = 0.5, height = 0, na.rm = TRUE,
                            position = ggstance::position_dodgev(height = 1))
p
```




```
ggsave(filename = 'MM_membertype.pdf', plot = p,
       width = 8, height = 6)
```

7 Average Marginal Component Effect (AMCE) Estimator

This estimator fixes one category and look at changes from this baseline category. Below follows the plots for the main model and the country and elite type subsamples.

```
## Main model
rm(cj)
load('data.RData')


# Set conjoint baselines
baselines <- list()
```

```r
baselines$`How often will the agreement be renegotiated?` <- "One year"
baselines$`What punishments do they use?` <- 'None'
baselines$`How are conflicts resolved?` <- 'Government bureaucracy'
baselines$`How are costs distributed?` <- 'Rich countries pay more than poor countries'
baselines$`Who makes the rules?` <- 'Federal government'

attrs <- c("Who makes the rules?",
           "How are conflicts resolved?",
           "What punishments do they use?",
           "How are repeated violations punished?",
           "How are costs distributed?",
           "How often will the agreement be renegotiated?")

results <- cjoint::amce(fm, data = cj, cluster = TRUE,
                        respondent.id = "Response.ID",
                        design = conjDesign,
                        baselines = baselines, na.ignore = T)

# Table AMCE -- Full Model
tableAMCE <- function(results, capt = 'Main Model') {
  aux <- plotAMCE(results, ci = 0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Full Model',
     attribute.names = attrs, tblfy = T)
  aux <- aux %>%
    filter(!is.na(group)) %>%
    select(printvar, pe, se, lower, upper)
  indx <- grep('Baseline =', aux$printvar)
  aux$pe <- round(aux$pe, digits = 3)
  aux$se <- round(aux$se, digits = 3)
  aux$lower <- round(aux$lower, digits = 3)
```

```
  aux$upper <- round(aux$upper, digits = 3)
  aux$pe[indx] = ''
  aux$se[indx] = ''
  aux$lower[indx] = ''
  aux$upper[indx] = ''
  names(aux) <- c('Feature', 'Estimate', 'Std.Error',
                  'Lower', 'Upper')
  return(kable(aux, "latex", caption = capt, booktabs = T, align = c('l', rep('c', 4))) %>%
    kable_styling(font_size = 10) %>%
    group_rows('How are conflicts resolved?', 1, 5) %>%
    group_rows('How are costs distributed?', 6, 9) %>%
    group_rows('How are repeated violations punished?', 10, 12) %>%
    group_rows('How often will the agreement be renegotiated?', 13, 17) %>%
    group_rows('What punishments do they use?', 18, 21) %>%
    group_rows('Who makes the rules?', 22, 26))
}


tableAMCE(results, capt = 'AMCE -- Full Model')
```

Table 16: AMCE – Full Model

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.054	0.018	-0.083	-0.025
Private arbitration	0.043	0.018	0.014	0.072
Local courts	0.088	0.017	0.059	0.116
United Nations	0.111	0.019	0.081	0.142
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.071	0.016	-0.098	-0.044
Proportional to current emissions	0.018	0.016	-0.008	0.044
Proportional to history of emissions	0.029	0.017	0.002	0.056
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.058	0.015	0.034	0.082
More penalty	0.096	0.015	0.072	0.121
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.052	0.018	0.023	0.082
Twenty years	-0.012	0.018	-0.041	0.017
Fifty years	-0.093	0.018	-0.124	-0.063
Never	-0.132	0.018	-0.162	-0.102
What punishments do they use?				
(Baseline = None)				
Blacklist	0.102	0.017	0.074	0.13
Fines	0.132	0.016	0.105	0.158
Imprisonment	0.035	0.018	0.006	0.065
Who makes the rules?				
(Baseline = Federal government)				
NGOs	-0.031	0.019	-0.062	0
Local community members	0.024	0.019	-0.008	0.055
Local government	0.011	0.018	-0.019	0.041
International organisations	0.058	0.018	0.029	0.088

```r
# Plot AMCE -- Full Model

plot(results, ci = 0.9, point.size = .8, dodge.size = 1,

     text.size = 10, main = 'AMCE -- Full Model',

     attribute.names = attrs)
```

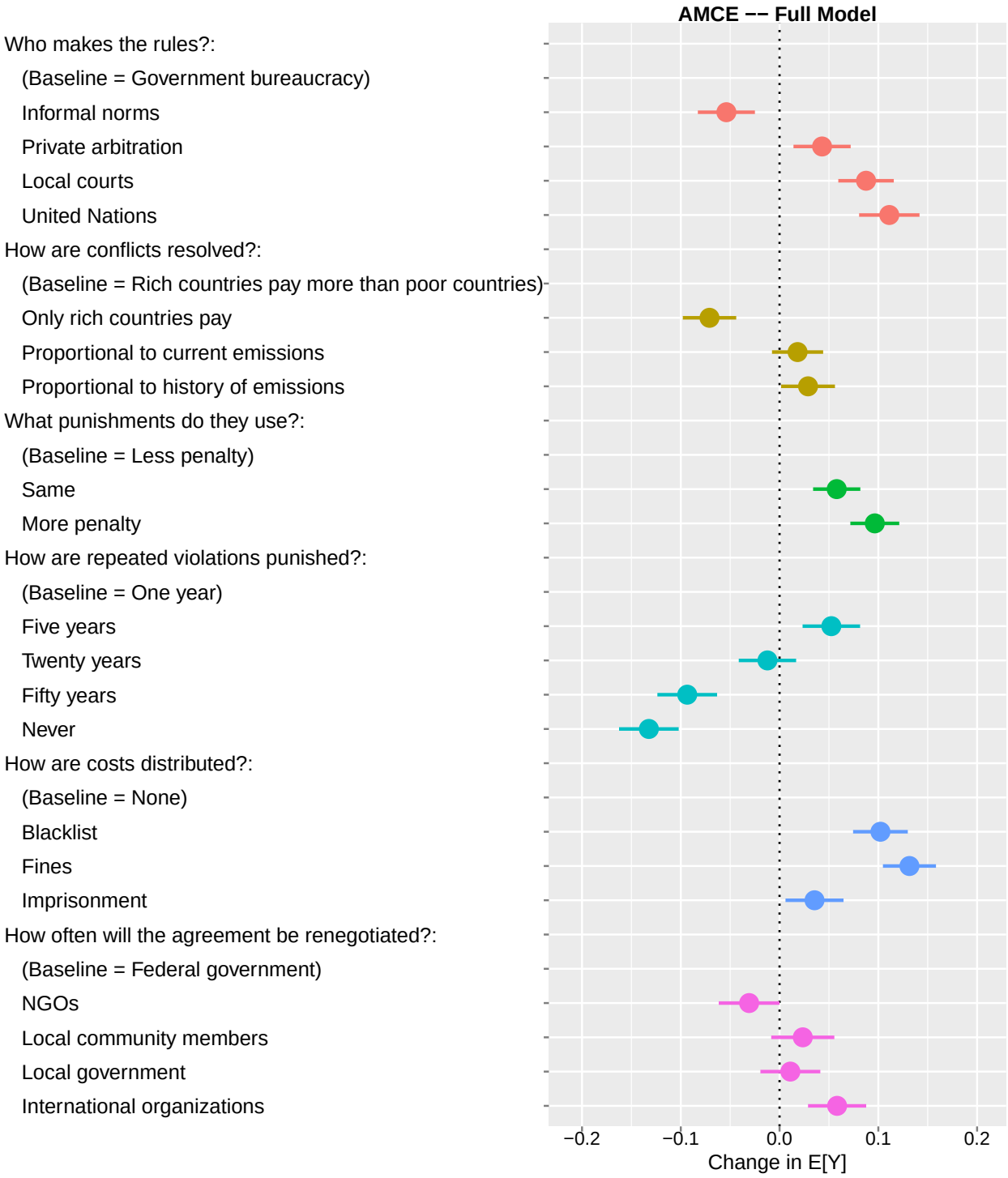


Table 17: AMCE – Argentina Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.09	0.061	-0.191	0.01
Private arbitration	0.055	0.068	-0.056	0.167
Local courts	0.103	0.062	0.001	0.204
United Nations	0.125	0.067	0.016	0.235
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.078	0.054	-0.166	0.01
Proportional to current emissions	0.031	0.056	-0.062	0.124
Proportional to history of emissions	0.09	0.048	0.011	0.169
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.095	0.046	0.018	0.171
More penalty	0.122	0.055	0.031	0.213
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	-0.061	0.06	-0.159	0.037
Twenty years	-0.132	0.068	-0.243	-0.021
Fifty years	-0.166	0.068	-0.278	-0.054
Never	-0.171	0.061	-0.271	-0.071
What punishments do they use?				
(Baseline = None)				
Blacklist	0.185	0.056	0.093	0.278
Fines	0.262	0.053	0.174	0.35
Imprisonment	0.154	0.062	0.052	0.256
Who makes the rules?				
(Baseline = Federal government)				
NGOs	-0.118	0.069	-0.23	-0.005
Local community members	-0.074	0.068	-0.185	0.038
Local government	0.003	0.067	-0.108	0.114
International organisations	0.08	0.06	-0.018	0.178

```
## Country subsample


## Argentina

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$countryOrigin == 'Argentina')

# AMCE -- Argentina Only

tableAMCE(results, capt = 'AMCE -- Argentina Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Argentina Only',
     attribute.names = attrs)
```

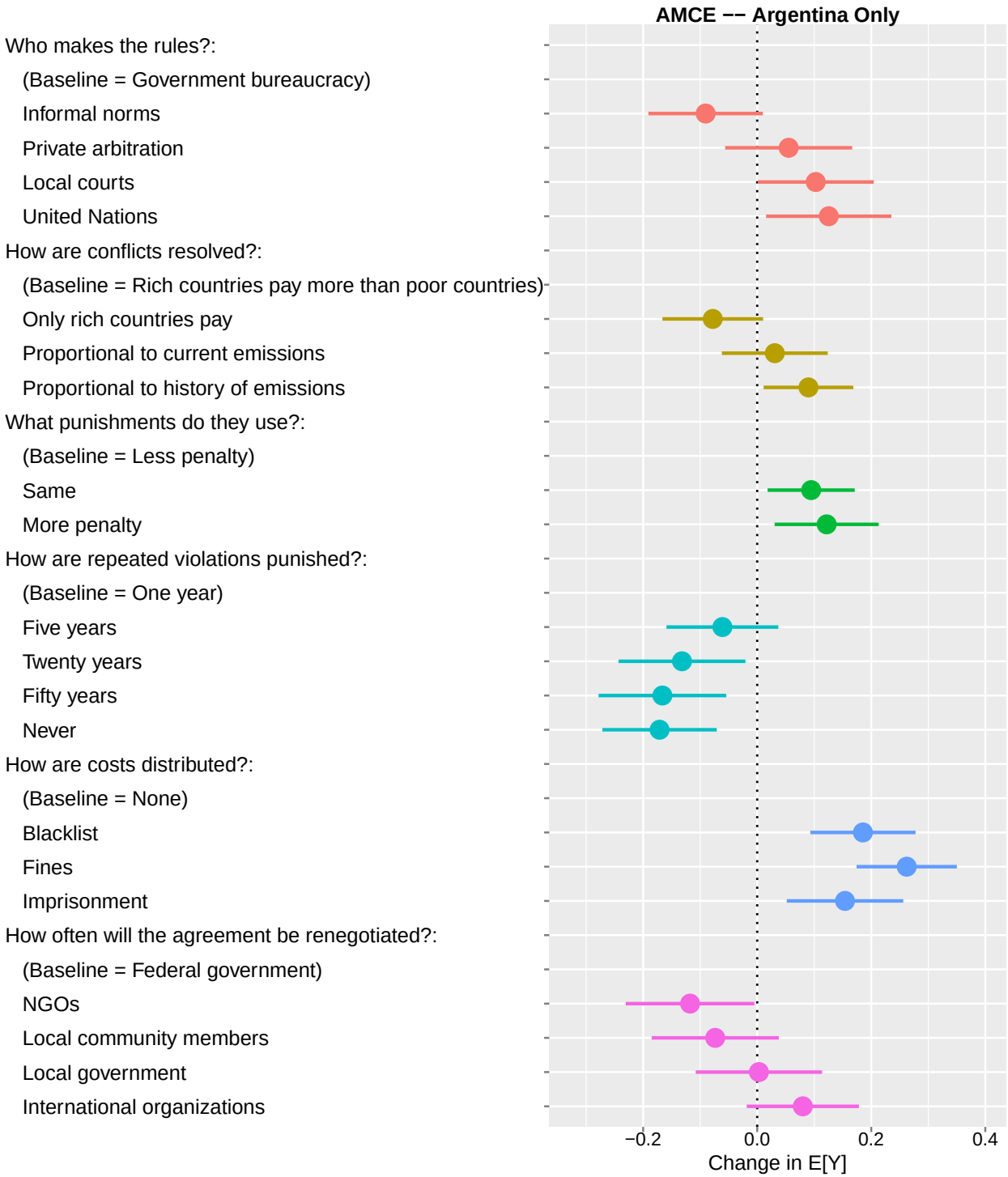


Table 18: AMCE – Bolivia Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.056	0.067	-0.167	0.054
Private arbitration	0.127	0.074	0.005	0.249
Local courts	0.093	0.057	-0.001	0.186
United Nations	0.17	0.08	0.038	0.302
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.142	0.068	-0.254	-0.029
Proportional to current emissions	0.012	0.066	-0.097	0.12
Proportional to history of emissions	-0.149	0.058	-0.245	-0.054
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.126	0.052	0.039	0.212
More penalty	0.117	0.061	0.016	0.218
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.125	0.072	0.006	0.244
Twenty years	0.075	0.077	-0.052	0.202
Fifty years	-0.116	0.065	-0.223	-0.008
Never	-0.114	0.078	-0.243	0.015
What punishments do they use?				
(Baseline = None)				
Blacklist	0.037	0.075	-0.086	0.16
Fines	0.155	0.056	0.063	0.247
Imprisonment	0.069	0.074	-0.052	0.19
Who makes the rules?				
(Baseline = Federal government)				
NGOs	-0.033	0.071	-0.15	0.084
Local community members	0.122	0.08	-0.009	0.253
Local government	0.061	0.07	-0.055	0.176
International organisations	0.061	0.076	-0.065	0.186

```
## Bolivia

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$countryOrigin == 'Bolivia')

# Table AMCE -- Full Model

tableAMCE(results, capt = 'AMCE -- Bolivia Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Bolivia Only',
     attribute.names = attrs)
```

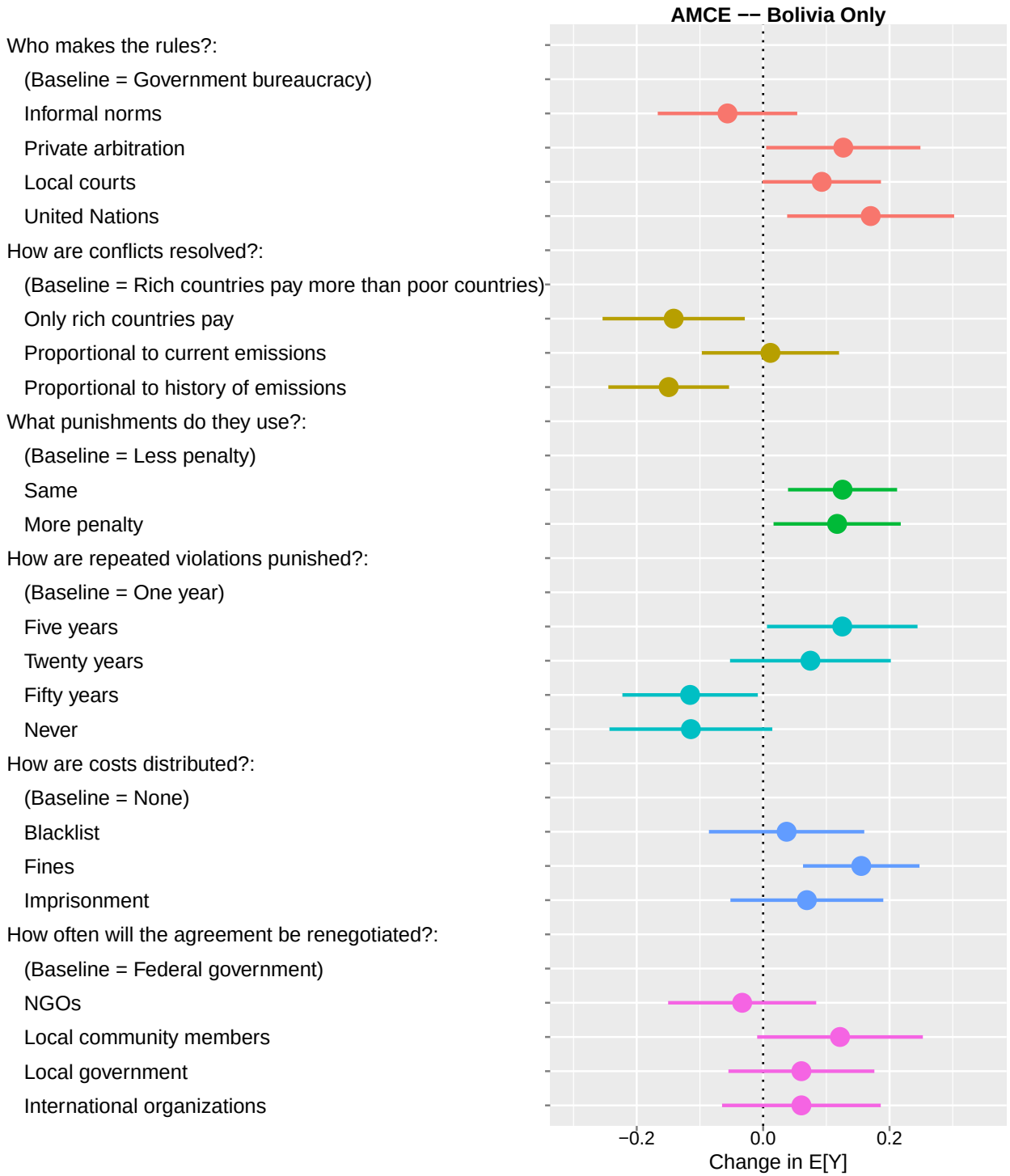


Table 19: AMCE – Brazil Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.03	0.054	-0.118	0.058
Private arbitration	0.021	0.044	-0.052	0.093
Local courts	0.091	0.05	0.009	0.174
United Nations	0.082	0.047	0.004	0.16
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.107	0.051	-0.191	-0.023
Proportional to current emissions	-0.022	0.05	-0.104	0.06
Proportional to history of emissions	0.021	0.049	-0.059	0.101
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.134	0.039	0.069	0.199
More penalty	0.169	0.044	0.097	0.241
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.025	0.044	-0.048	0.098
Twenty years	-0.012	0.047	-0.09	0.065
Fifty years	-0.087	0.057	-0.181	0.007
Never	-0.166	0.054	-0.256	-0.077
What punishments do they use?				
(Baseline = None)				
Blacklist	0.13	0.045	0.055	0.205
Fines	0.169	0.042	0.1	0.238
Imprisonment	0.032	0.055	-0.058	0.122
Who makes the rules?				
(Baseline = Federal government)				
NGOs	0.001	0.051	-0.083	0.086
Local community members	0.003	0.054	-0.086	0.092
Local government	-0.017	0.053	-0.105	0.071
International organisations	0.087	0.049	0.008	0.167

```
## Brazil

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$countryOrigin == 'Brazil')

# Table AMCE -- Brazil Only

tableAMCE(results, capt = 'AMCE -- Brazil Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Brazil Only',
     attribute.names = attrs)
```

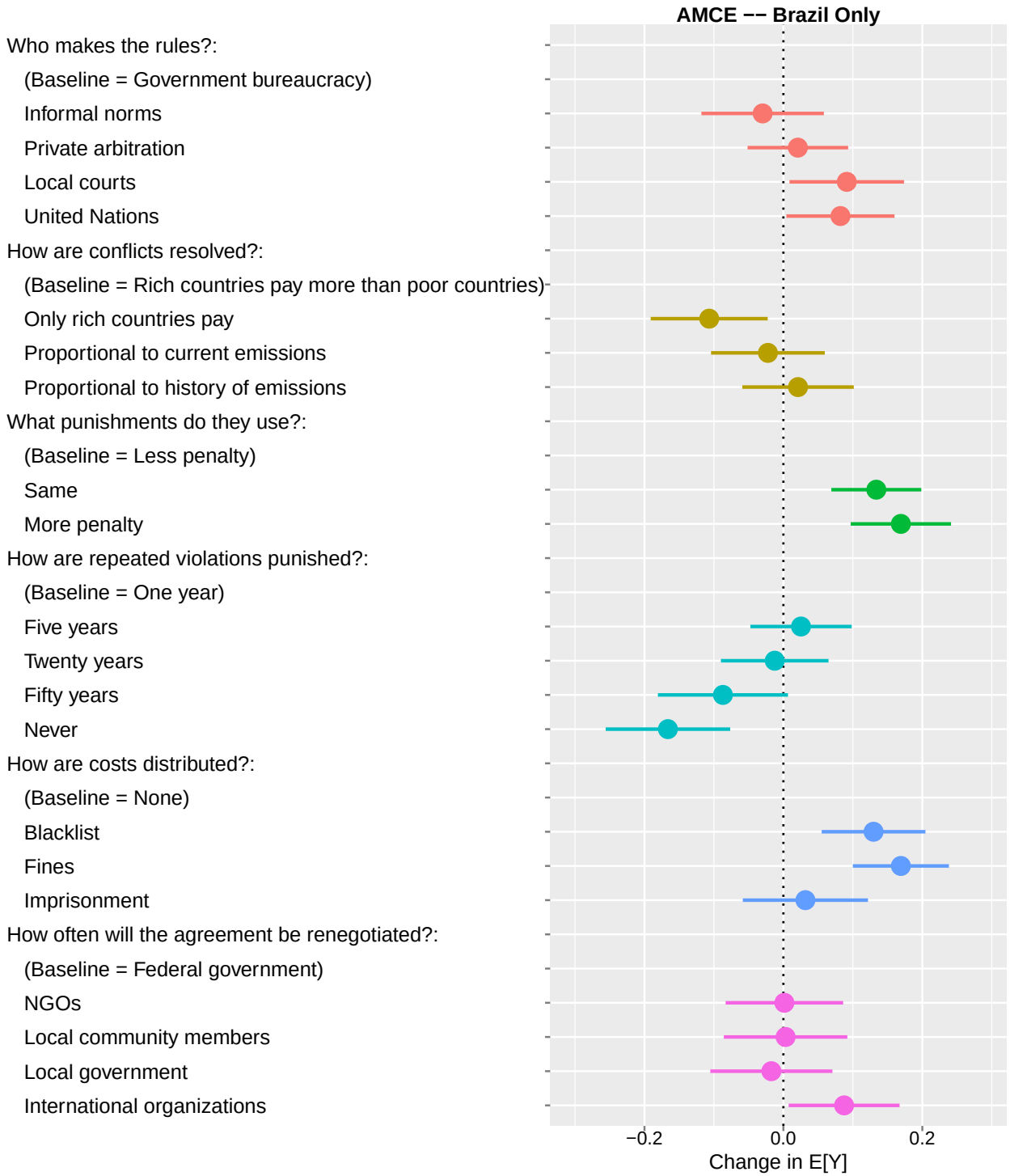


Table 20: AMCE – Chile Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.021	0.063	-0.125	0.083
Private arbitration	0.055	0.049	-0.026	0.136
Local courts	0.166	0.062	0.064	0.268
United Nations	0.089	0.07	-0.026	0.204
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	0.001	0.052	-0.084	0.086
Proportional to current emissions	0.054	0.045	-0.021	0.128
Proportional to history of emissions	0.003	0.054	-0.086	0.092
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	-0.022	0.045	-0.096	0.052
More penalty	0.106	0.05	0.024	0.188
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.207	0.053	0.12	0.294
Twenty years	0.083	0.049	0.003	0.163
Fifty years	0.057	0.066	-0.052	0.165
Never	-0.029	0.062	-0.13	0.072
What punishments do they use?				
(Baseline = None)				
Blacklist	0.193	0.049	0.112	0.274
Fines	0.103	0.044	0.03	0.176
Imprisonment	0.013	0.052	-0.073	0.099
Who makes the rules?				
(Baseline = Federal government)				
NGOs	0.001	0.066	-0.107	0.11
Local community members	0.196	0.063	0.092	0.301
Local government	0.119	0.058	0.024	0.215
International organisations	0.069	0.061	-0.03	0.169

```
## Chile

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$countryOrigin == 'Chile')

# Table AMCE -- Chile Only

tableAMCE(results, capt = 'AMCE -- Chile Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Chile Only',
     attribute.names = attrs)
```

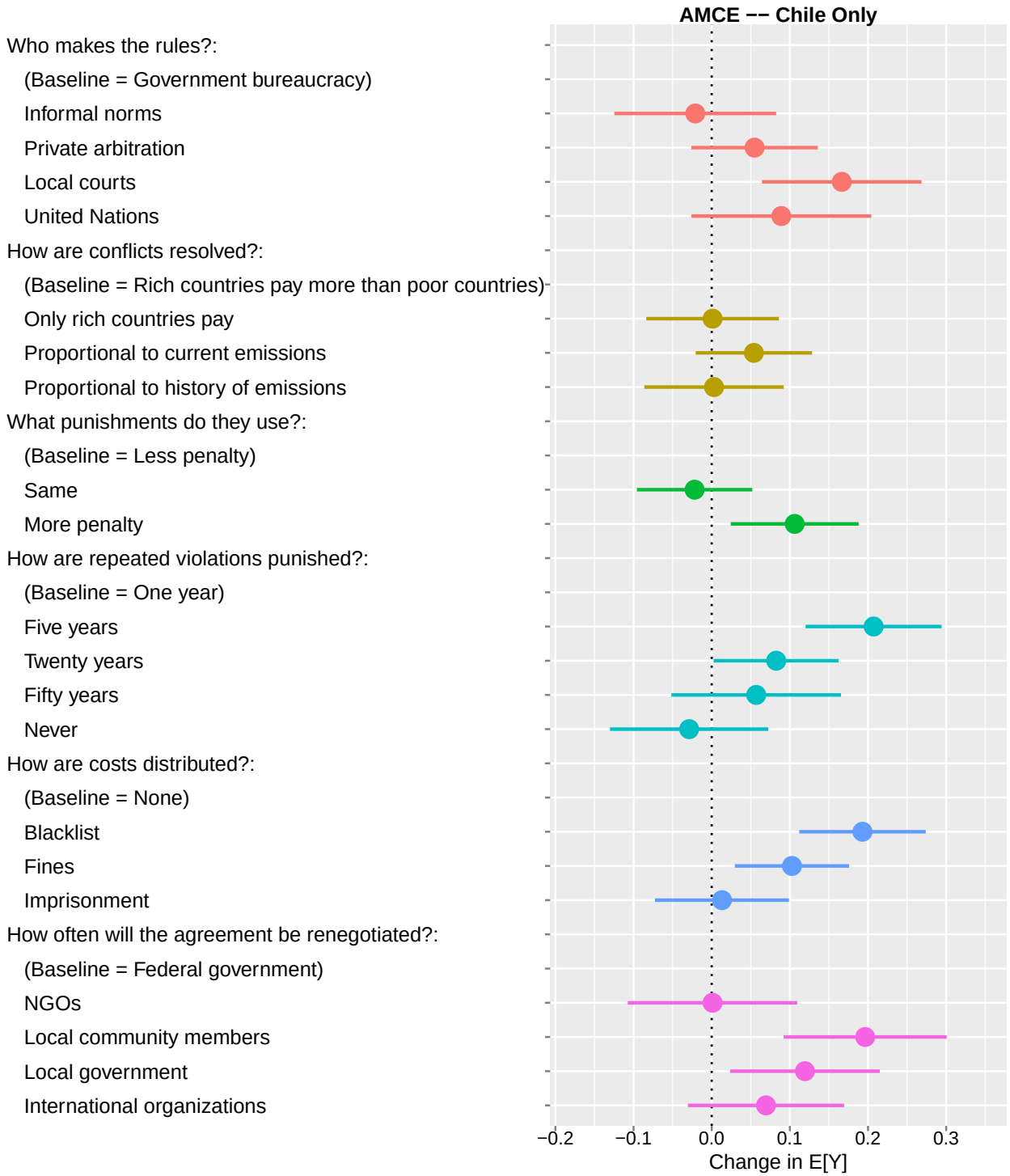


Table 21: AMCE – Colombia Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.054	0.05	-0.137	0.029
Private arbitration	0.057	0.053	-0.03	0.144
Local courts	0.078	0.051	-0.005	0.162
United Nations	0.132	0.054	0.043	0.221
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.017	0.053	-0.105	0.07
Proportional to current emissions	0.046	0.052	-0.04	0.131
Proportional to history of emissions	0.059	0.06	-0.039	0.158
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.014	0.046	-0.06	0.089
More penalty	0.051	0.044	-0.021	0.124
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.001	0.046	-0.075	0.077
Twenty years	0.005	0.052	-0.081	0.091
Fifty years	-0.126	0.051	-0.21	-0.041
Never	-0.122	0.048	-0.201	-0.043
What punishments do they use?				
(Baseline = None)				
Blacklist	0.037	0.059	-0.059	0.133
Fines	0.068	0.052	-0.019	0.154
Imprisonment	-0.072	0.053	-0.159	0.015
Who makes the rules?				
(Baseline = Federal government)				
NGOs	-0.023	0.059	-0.12	0.074
Local community members	0.131	0.06	0.032	0.229
Local government	-0.003	0.049	-0.083	0.078
International organisations	0.094	0.051	0.009	0.178

```
## Colombia

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$countryOrigin == 'Colombia')

# Table AMCE -- Colombia Only

tableAMCE(results, capt = 'AMCE -- Colombia Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Colombia Only',
     attribute.names = attrs)
```

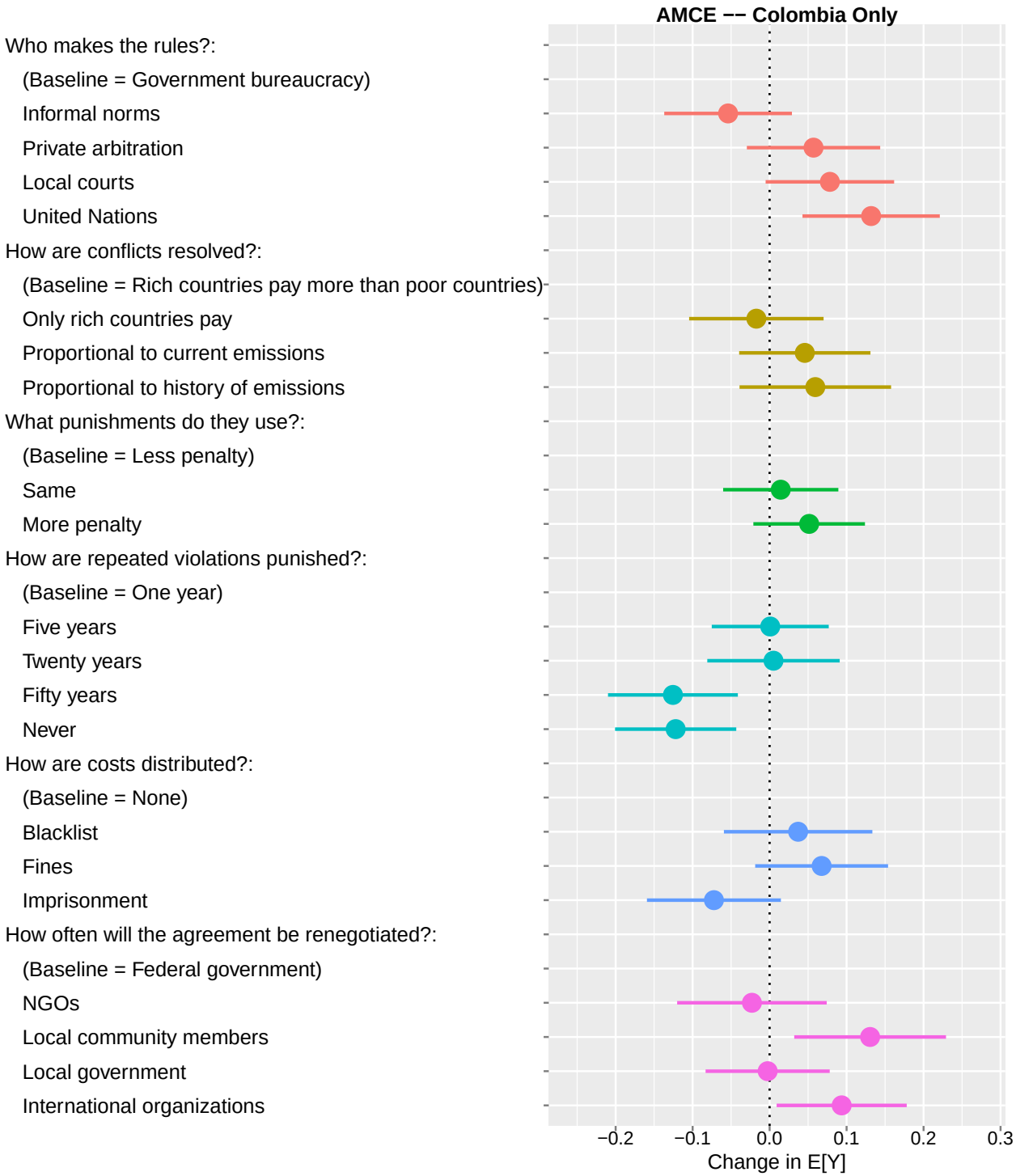


Table 22: AMCE – Costa Rica Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.085	0.066	-0.193	0.023
Private arbitration	-0.018	0.064	-0.123	0.087
Local courts	0.013	0.066	-0.095	0.121
United Nations	0.094	0.071	-0.022	0.21
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.106	0.06	-0.205	-0.007
Proportional to current emissions	0.058	0.054	-0.031	0.146
Proportional to history of emissions	0.015	0.066	-0.094	0.123
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.083	0.044	0.01	0.155
More penalty	0.135	0.042	0.066	0.204
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.108	0.063	0.004	0.211
Twenty years	-0.115	0.063	-0.219	-0.011
Fifty years	-0.183	0.06	-0.282	-0.084
Never	-0.201	0.061	-0.303	-0.1
What punishments do they use?				
(Baseline = None)				
Blacklist	0.139	0.051	0.055	0.223
Fines	0.245	0.051	0.161	0.328
Imprisonment	0.167	0.057	0.074	0.261
Who makes the rules?				
(Baseline = Federal government)				
NGOs	0.032	0.063	-0.071	0.136
Local community members	-0.081	0.074	-0.203	0.042
Local government	0.087	0.059	-0.01	0.184
International organisations	-0.042	0.068	-0.154	0.069

```
## Costa Rica

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$countryOrigin == 'Costa Rica')

# Table AMCE -- Costa Rica Only

tableAMCE(results, capt = 'AMCE -- Costa Rica Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Costa Rica Only',
     attribute.names = attrs)
```

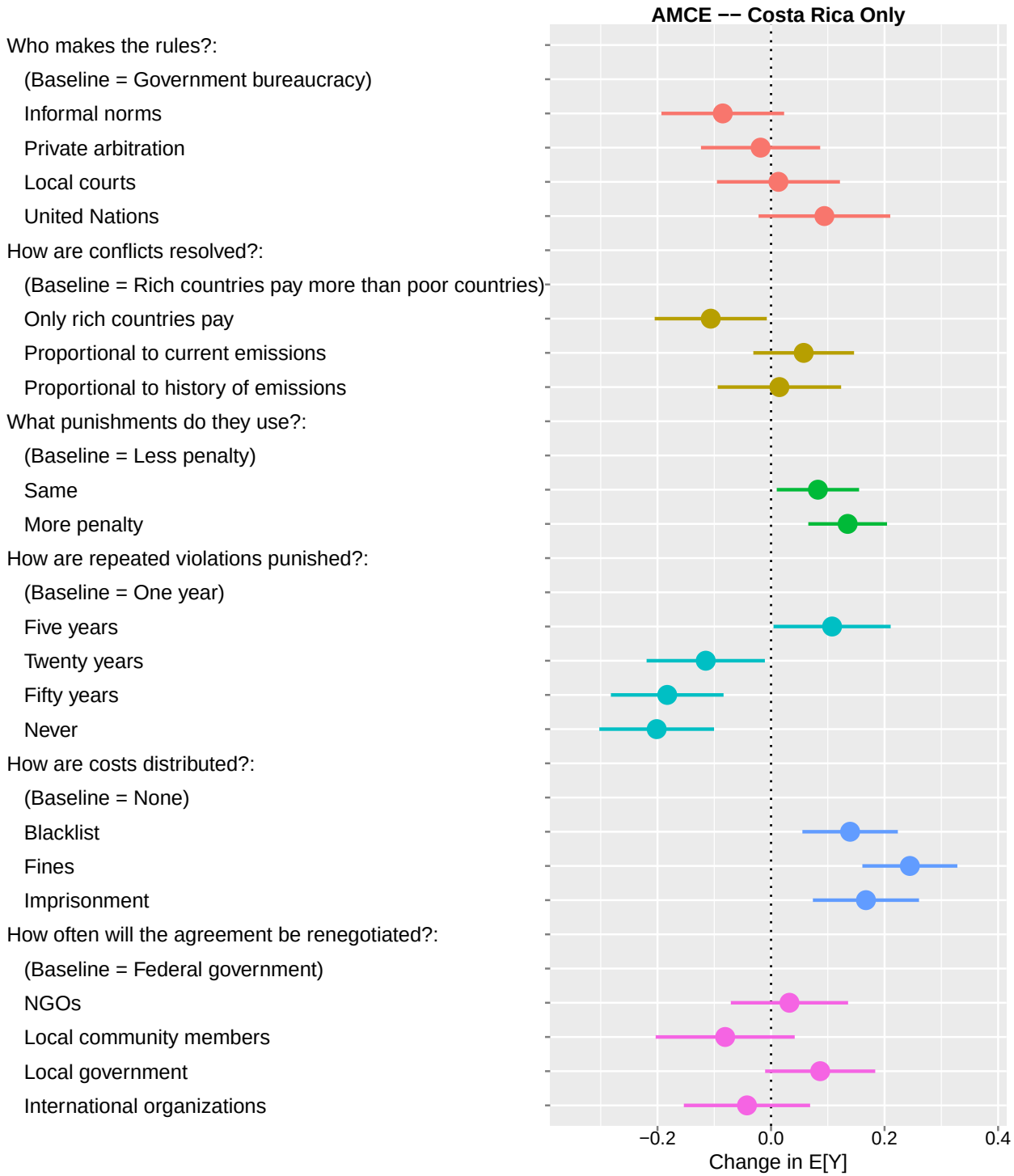


Table 23: AMCE – Ecuador Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.007	0.055	-0.098	0.084
Private arbitration	0.068	0.052	-0.018	0.154
Local courts	0.122	0.049	0.042	0.203
United Nations	0.151	0.058	0.057	0.246
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.044	0.054	-0.134	0.045
Proportional to current emissions	0.114	0.05	0.032	0.196
Proportional to history of emissions	0.085	0.055	-0.005	0.175
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.01	0.052	-0.075	0.095
More penalty	0.085	0.05	0.003	0.167
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.085	0.063	-0.018	0.188
Twenty years	0.076	0.05	-0.006	0.159
Fifty years	-0.017	0.05	-0.1	0.065
Never	0.036	0.066	-0.073	0.144
What punishments do they use?				
(Baseline = None)				
Blacklist	0.079	0.049	-0.002	0.16
Fines	0.062	0.055	-0.029	0.153
Imprisonment	-0.087	0.055	-0.178	0.003
Who makes the rules?				
(Baseline = Federal government)				
NGOs	-0.037	0.054	-0.125	0.051
Local community members	0.063	0.055	-0.027	0.153
Local government	0.043	0.061	-0.057	0.142
International organisations	0.051	0.055	-0.04	0.141

```
## Ecuador

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$countryOrigin == 'Ecuador')

# Table AMCE -- Ecuador Only

tableAMCE(results, capt = 'AMCE -- Ecuador Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Ecuador Only',
     attribute.names = attrs)
```

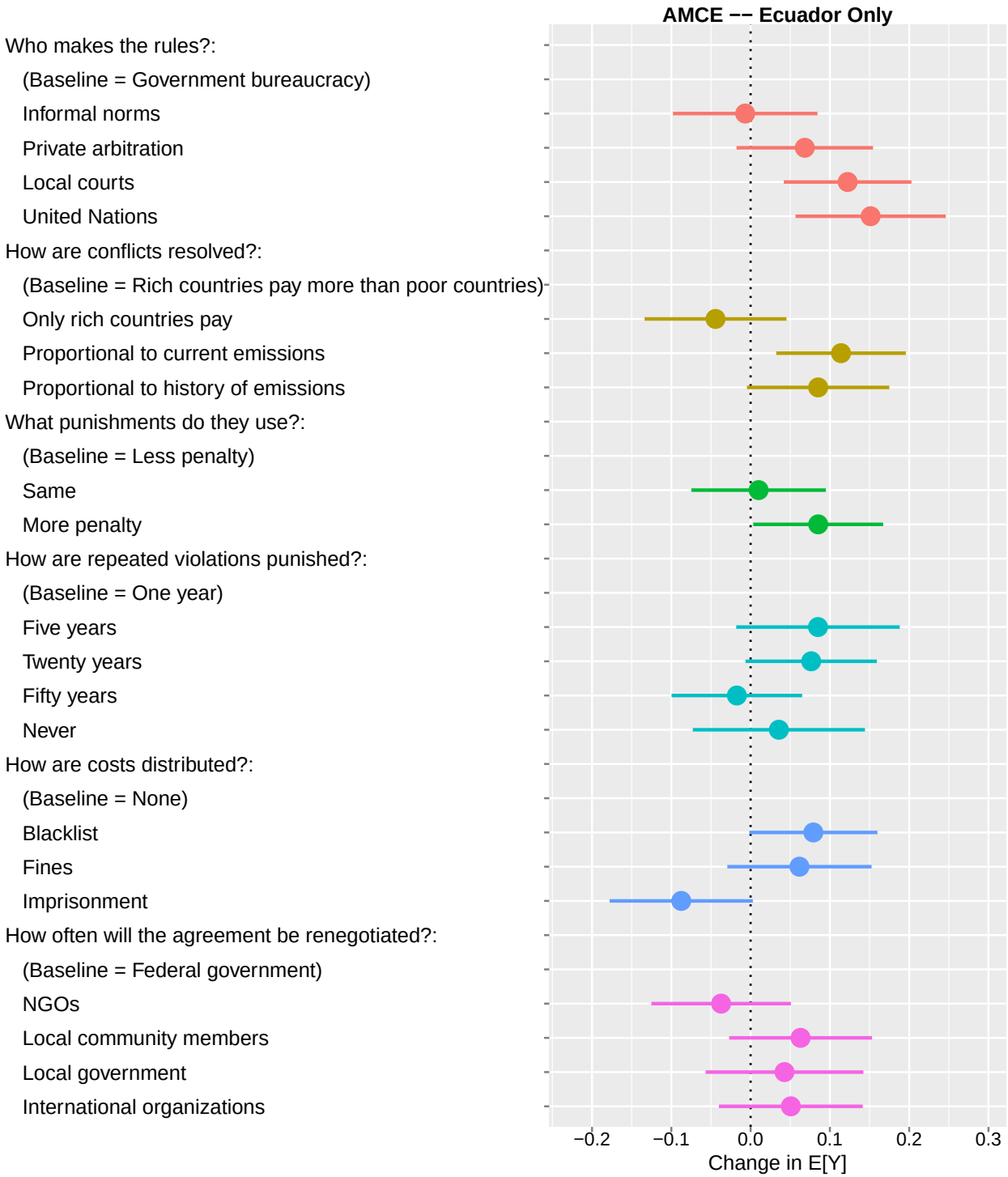


Table 24: AMCE – Mexico Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.048	0.057	-0.142	0.047
Private arbitration	0.066	0.054	-0.023	0.154
Local courts	0.036	0.056	-0.056	0.127
United Nations	0.137	0.063	0.033	0.242
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.059	0.053	-0.146	0.028
Proportional to current emissions	0.039	0.052	-0.046	0.123
Proportional to history of emissions	0.132	0.057	0.038	0.227
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.017	0.055	-0.073	0.107
More penalty	0.011	0.052	-0.074	0.096
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.107	0.059	0.011	0.204
Twenty years	-0.023	0.06	-0.122	0.077
Fifty years	-0.032	0.058	-0.127	0.063
Never	-0.137	0.062	-0.24	-0.035
What punishments do they use?				
(Baseline = None)				
Blacklist	0.033	0.054	-0.056	0.122
Fines	0.109	0.056	0.018	0.201
Imprisonment	-0.016	0.053	-0.103	0.071
Who makes the rules?				
(Baseline = Federal government)				
NGOs	-0.038	0.068	-0.15	0.074
Local community members	-0.038	0.062	-0.141	0.064
Local government	-0.063	0.065	-0.17	0.043
International organisations	0.136	0.056	0.044	0.229

```
## Mexico

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$countryOrigin == 'Mexico')

# Table AMCE -- Full Model

tableAMCE(results, capt = 'AMCE -- Mexico Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Mexico Only',
     attribute.names = attrs)
```

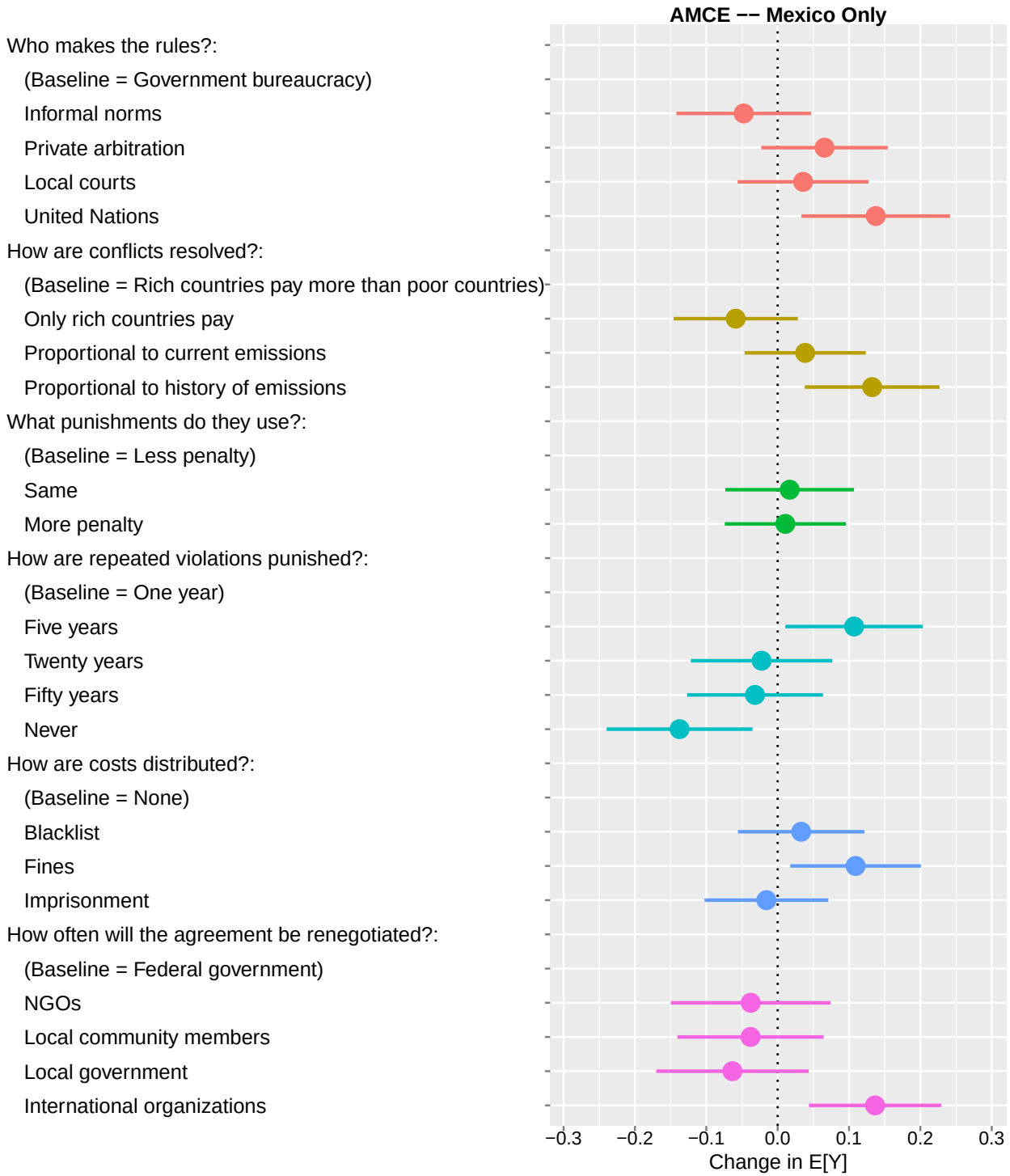


Table 25: AMCE – Panama Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.049	0.062	-0.151	0.054
Private arbitration	0.013	0.065	-0.095	0.12
Local courts	0.079	0.057	-0.014	0.173
United Nations	0.082	0.065	-0.026	0.189
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.085	0.055	-0.175	0.006
Proportional to current emissions	-0.043	0.05	-0.124	0.039
Proportional to history of emissions	-0.038	0.051	-0.122	0.046
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.065	0.05	-0.017	0.147
More penalty	0.189	0.052	0.104	0.274
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	-0.067	0.058	-0.162	0.028
Twenty years	-0.045	0.064	-0.151	0.06
Fifty years	-0.196	0.064	-0.301	-0.092
Never	-0.269	0.057	-0.363	-0.175
What punishments do they use?				
(Baseline = None)				
Blacklist	0.112	0.057	0.018	0.205
Fines	0.129	0.051	0.045	0.214
Imprisonment	0.072	0.061	-0.028	0.172
Who makes the rules?				
(Baseline = Federal government)				
NGOs	0.002	0.057	-0.092	0.096
Local community members	0.039	0.06	-0.06	0.137
Local government	-0.001	0.059	-0.099	0.097
International organisations	0.034	0.059	-0.064	0.131

```
## Panama

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$countryOrigin == 'Panama')

# Table AMCE -- Panama Only

tableAMCE(results, capt = 'AMCE -- Panama Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Panama Only',
     attribute.names = attrs)
```

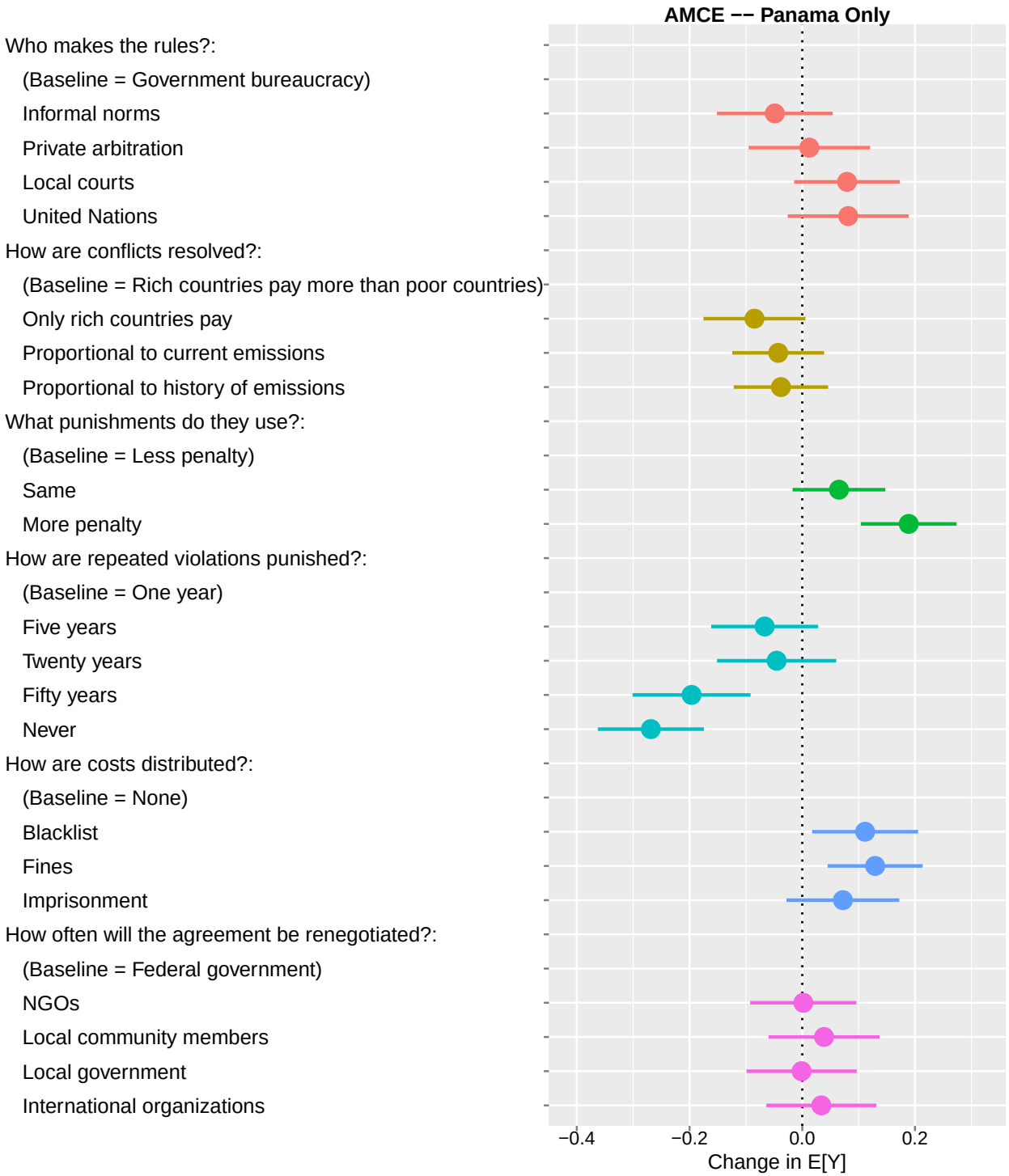


Table 26: AMCE – Peru Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.121	0.065	-0.228	-0.014
Private arbitration	0.123	0.069	0.01	0.236
Local courts	0.033	0.065	-0.074	0.14
United Nations	0.05	0.066	-0.058	0.158
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.026	0.047	-0.103	0.052
Proportional to current emissions	0.013	0.055	-0.077	0.103
Proportional to history of emissions	0.086	0.057	-0.008	0.18
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.079	0.052	-0.006	0.164
More penalty	0.044	0.05	-0.037	0.126
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.014	0.071	-0.104	0.131
Twenty years	-0.023	0.077	-0.15	0.104
Fifty years	-0.12	0.07	-0.235	-0.006
Never	-0.12	0.062	-0.222	-0.018
What punishments do they use?				
(Baseline = None)				
Blacklist	0.093	0.075	-0.03	0.215
Fines	0.128	0.069	0.014	0.243
Imprisonment	0.075	0.071	-0.042	0.191
Who makes the rules?				
(Baseline = Federal government)				
NGOs	-0.099	0.063	-0.202	0.004
Local community members	-0.119	0.068	-0.232	-0.007
Local government	0.029	0.075	-0.095	0.153
International organisations	0.004	0.067	-0.106	0.114

```
## Peru

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$countryOrigin == 'Peru')

# Table AMCE -- Peru Only

tableAMCE(results, capt = 'AMCE -- Peru Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Peru Only',
     attribute.names = attrs)
```

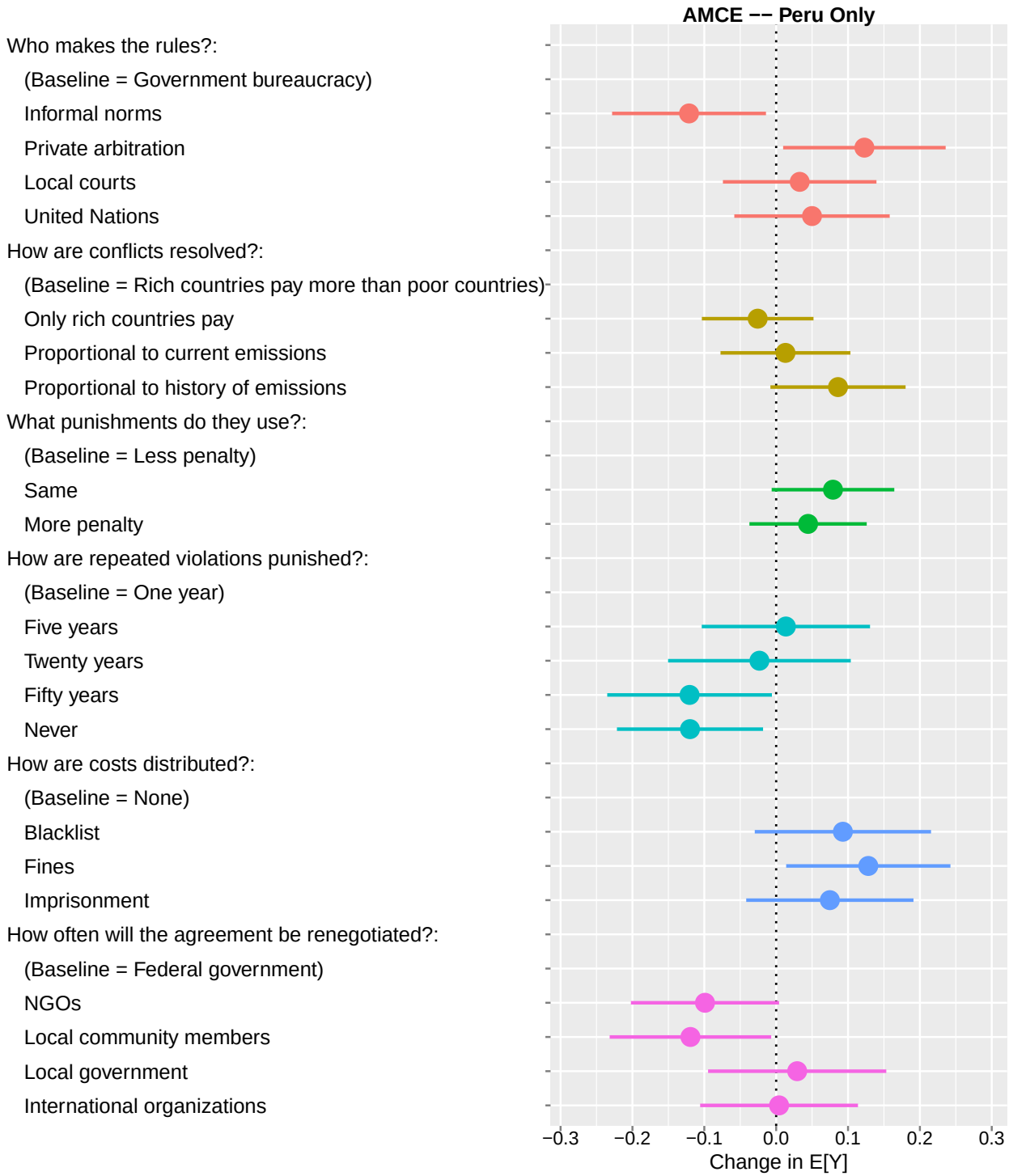


Table 27: AMCE – Executive Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.034	0.05	-0.116	0.049
Private arbitration	0.057	0.039	-0.008	0.121
Local courts	0.067	0.043	-0.003	0.137
United Nations	0.096	0.047	0.019	0.174
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.036	0.039	-0.101	0.028
Proportional to current emissions	0.08	0.04	0.014	0.146
Proportional to history of emissions	0.055	0.044	-0.017	0.127
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.081	0.038	0.018	0.144
More penalty	0.125	0.039	0.061	0.188
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.06	0.049	-0.02	0.14
Twenty years	-0.023	0.048	-0.102	0.056
Fifty years	-0.096	0.045	-0.171	-0.022
Never	-0.119	0.045	-0.193	-0.045
What punishments do they use?				
(Baseline = None)				
Blacklist	0.103	0.037	0.043	0.163
Fines	0.125	0.044	0.053	0.197
Imprisonment	-0.054	0.04	-0.12	0.013
Who makes the rules?				
(Baseline = Federal government)				
NGOs	-0.159	0.051	-0.243	-0.076
Local community members	-0.027	0.052	-0.113	0.058
Local government	-0.03	0.045	-0.104	0.044
International organisations	0.021	0.043	-0.048	0.091

```
## Elite Subsample


# Executive

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$groupOrigin == 'Executive')

# Table AMCE -- Executive Only

tableAMCE(results, capt = 'AMCE -- Executive Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Executive Only',
     attribute.names = attrs)
```

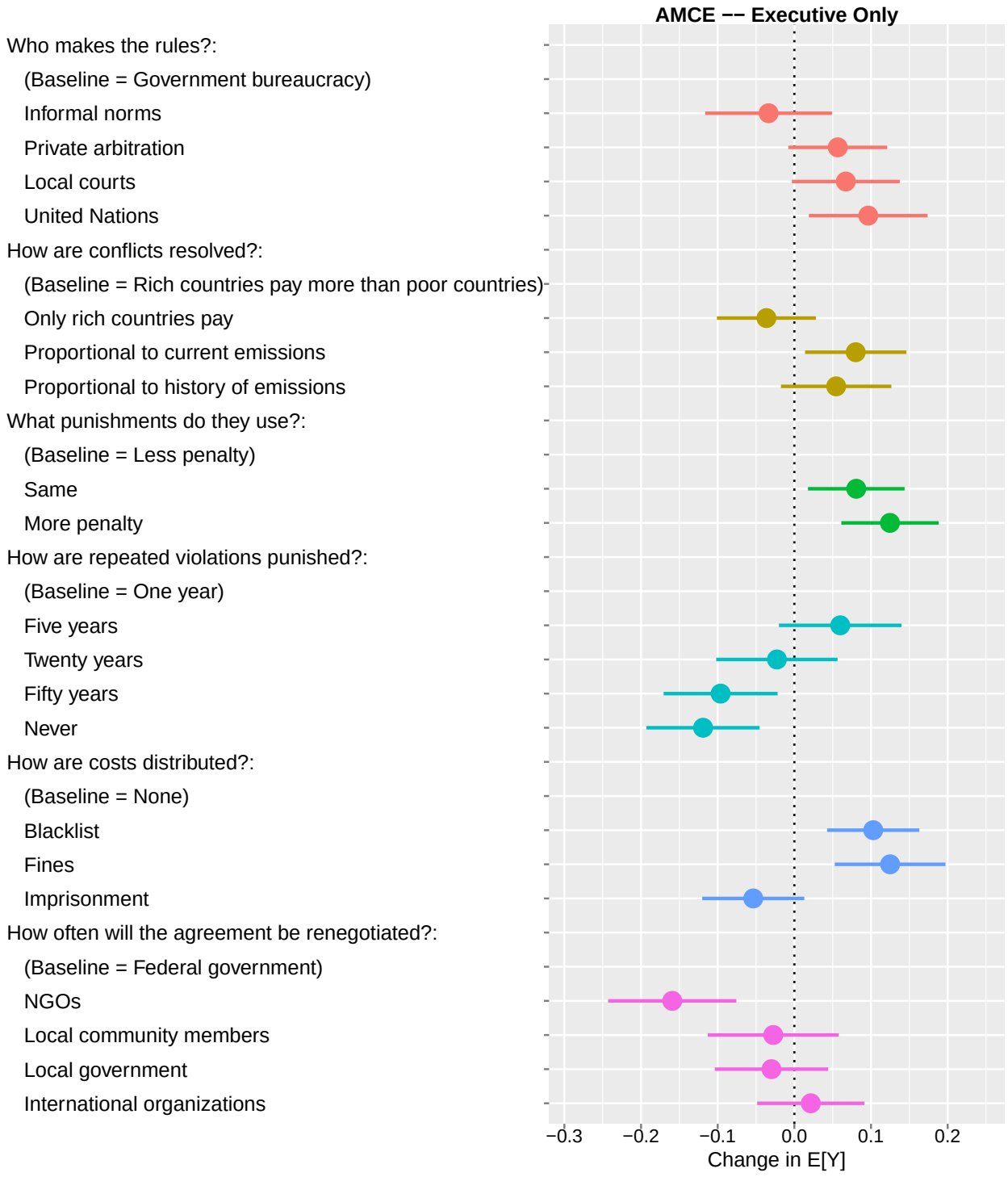


Table 28: AMCE – Legislative Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.069	0.054	-0.157	0.02
Private arbitration	0.018	0.065	-0.09	0.126
Local courts	0.044	0.062	-0.058	0.147
United Nations	0.065	0.06	-0.034	0.164
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.158	0.052	-0.243	-0.073
Proportional to current emissions	-0.08	0.052	-0.166	0.005
Proportional to history of emissions	-0.019	0.049	-0.099	0.062
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.074	0.044	0.002	0.147
More penalty	0.071	0.044	-0.001	0.143
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.003	0.059	-0.095	0.101
Twenty years	0.002	0.058	-0.093	0.097
Fifty years	-0.043	0.061	-0.143	0.057
Never	-0.129	0.066	-0.237	-0.02
What punishments do they use?				
(Baseline = None)				
Blacklist	0.113	0.055	0.022	0.204
Fines	0.145	0.054	0.056	0.233
Imprisonment	-0.021	0.058	-0.116	0.075
Who makes the rules?				
(Baseline = Federal government)				
NGOs	-0.116	0.064	-0.22	-0.011
Local community members	-0.003	0.068	-0.115	0.108
Local government	0.024	0.063	-0.08	0.128
International organisations	-0.001	0.065	-0.108	0.105

```
## Legislative

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$groupOrigin == 'Legislative')

# Table AMCE -- Legislative Only

tableAMCE(results, capt = 'AMCE -- Legislative Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Legislative Only',
     attribute.names = attrs)
```

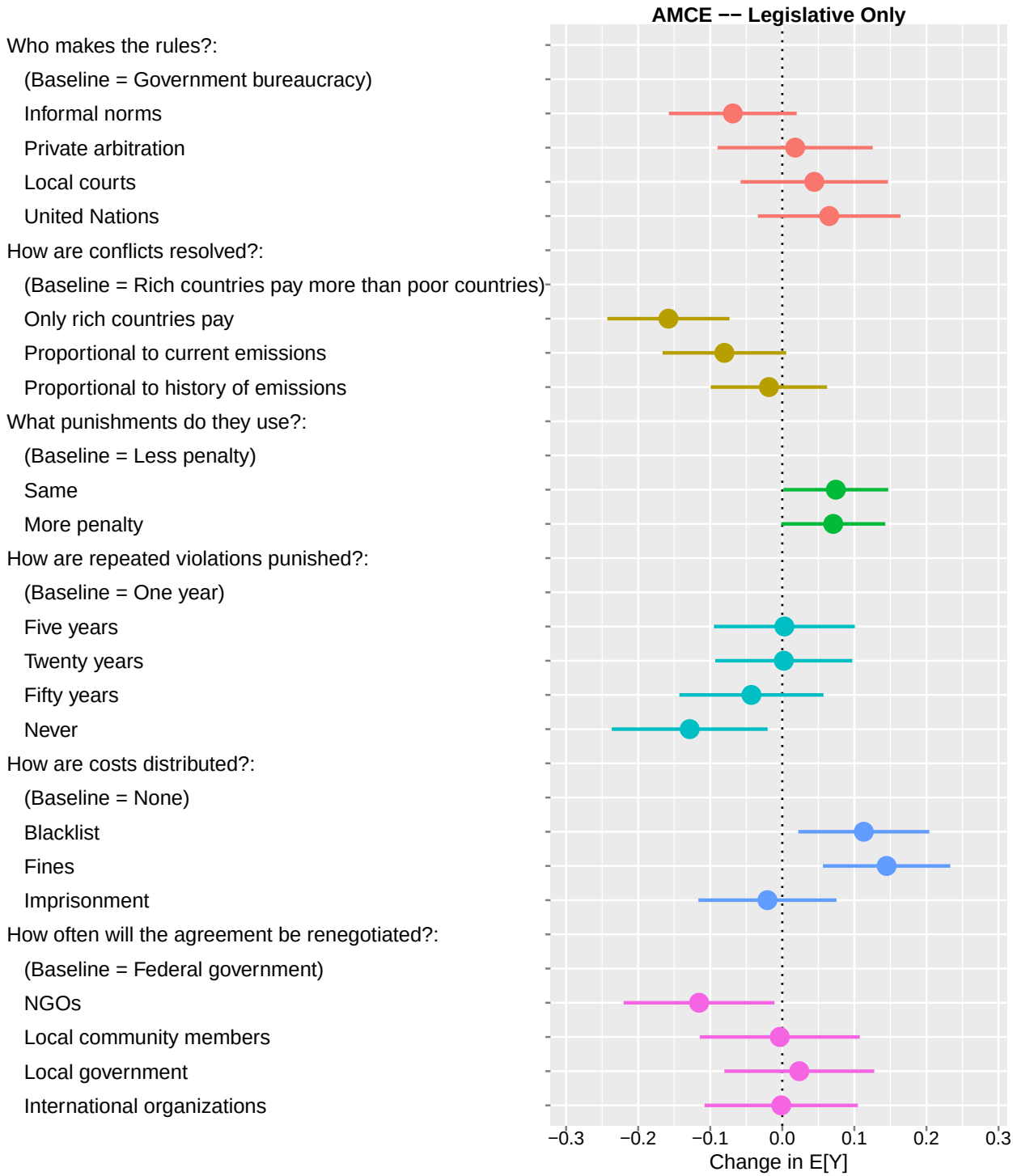


Table 29: AMCE – Civil Society Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.02	0.031	-0.071	0.032
Private arbitration	0.073	0.032	0.021	0.126
Local courts	0.127	0.031	0.076	0.179
United Nations	0.166	0.031	0.115	0.218
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.043	0.031	-0.093	0.007
Proportional to current emissions	0.038	0.03	-0.011	0.087
Proportional to history of emissions	0.069	0.029	0.022	0.117
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.035	0.025	-0.006	0.077
More penalty	0.101	0.026	0.059	0.143
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.044	0.031	-0.007	0.095
Twenty years	-0.053	0.031	-0.103	-0.003
Fifty years	-0.102	0.034	-0.158	-0.047
Never	-0.147	0.034	-0.203	-0.09
What punishments do they use?				
(Baseline = None)				
Blacklist	0.097	0.03	0.047	0.146
Fines	0.13	0.028	0.085	0.176
Imprisonment	0.049	0.03	-0.002	0.099
Who makes the rules?				
(Baseline = Federal government)				
NGOs	0.026	0.031	-0.025	0.077
Local community members	0.037	0.034	-0.019	0.094
Local government	-0.008	0.033	-0.063	0.047
International organisations	0.066	0.029	0.019	0.113

```
## Civil society

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$groupOrigin == 'Civil Society')

# Table AMCE -- Civil Society Only

tableAMCE(results, capt = 'AMCE -- Civil Society Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Civil Society Only',
     attribute.names = attrs)
```

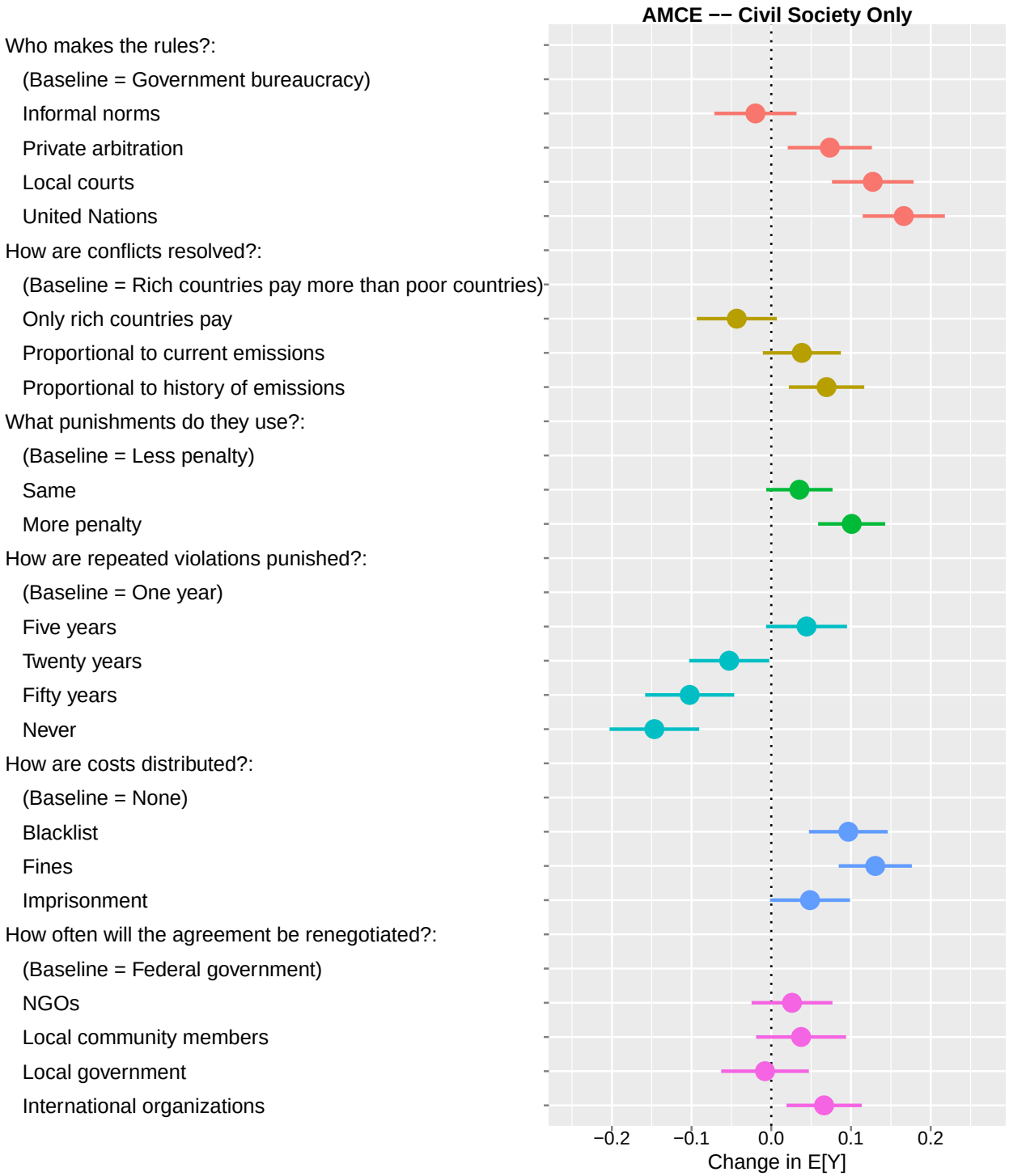
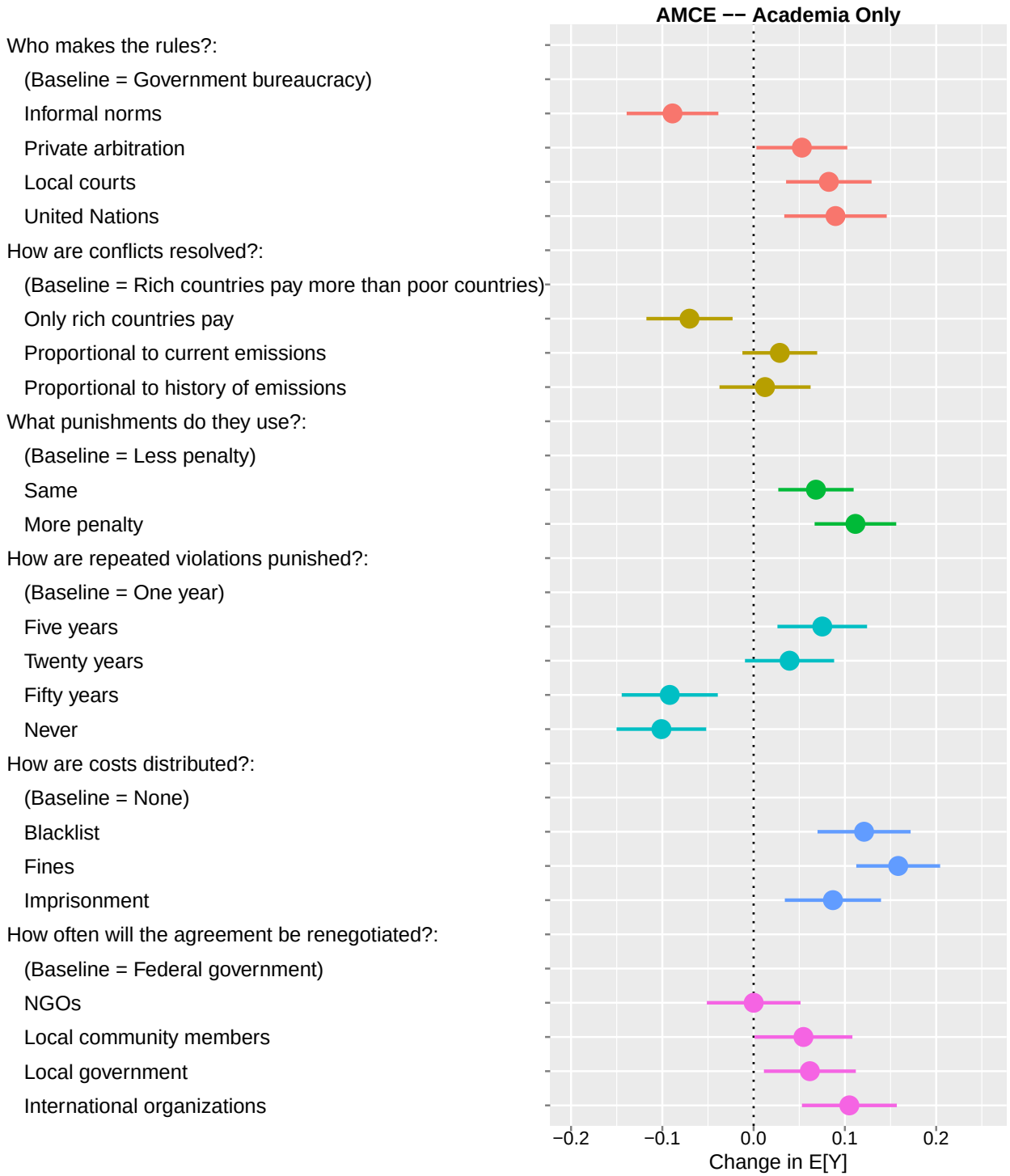


Table 30: AMCE – Academia Only

Feature	Estimate	Std.Error	Lower	Upper
How are conflicts resolved?				
(Baseline = Government bureaucracy)				
Informal norms	-0.089	0.031	-0.139	-0.039
Private arbitration	0.053	0.03	0.003	0.103
Local courts	0.082	0.028	0.036	0.129
United Nations	0.09	0.034	0.034	0.146
How are costs distributed?				
(Baseline = Rich countries pay more than poor countries)				
Only rich countries pay	-0.07	0.029	-0.117	-0.023
Proportional to current emissions	0.029	0.025	-0.012	0.07
Proportional to history of emissions	0.013	0.03	-0.037	0.062
How are repeated violations punished?				
(Baseline = Less penalty)				
Same	0.068	0.025	0.027	0.11
More penalty	0.112	0.027	0.067	0.156
How often will the agreement be renegotiated?				
(Baseline = One year)				
Five years	0.075	0.03	0.026	0.124
Twenty years	0.039	0.03	-0.009	0.088
Fifty years	-0.092	0.032	-0.145	-0.039
Never	-0.101	0.03	-0.15	-0.052
What punishments do they use?				
(Baseline = None)				
Blacklist	0.121	0.031	0.07	0.172
Fines	0.158	0.028	0.112	0.204
Imprisonment	0.087	0.032	0.034	0.14
Who makes the rules?				
(Baseline = Federal government)				
NGOs	0	0.031	-0.051	0.051
Local community members	0.055	0.033	0.001	0.108
Local government	0.062	0.031	0.011	0.112
International organisations	0.105	0.032	0.053	0.157

```r
## Academia Only

results <- cjoint::amce(fm, data = cj, cluster = TRUE,

                        respondent.id = "Response.ID",

                        design = conjDesign, baselines = baselines,

                        subset = cj$groupOrigin == 'Academia')

# Table AMCE -- Full Model

tableAMCE(results, capt = 'AMCE -- Academia Only')
```

```
plot(results, ci=0.9, point.size = .8, dodge.size = 1,
     text.size = 10, main = 'AMCE -- Academia Only',
     attribute.names = attrs)
```



8 APSA Experimental Section Standard Report for Experiments

8.1 Hypothesis

The experiment was designed to study the characteristics of the climate change mitigation treaties favored by Latin American elites.

8.2 Subjects and Context

The eligibility criteria for the research was to belong to one of the four elite profiles listed below.

1. **Executive members**: members of regulatory agencies, politicians (mayors, governors, presidents), members of ministries and secretaries at the federal and state levels.
2. **Legislative members**: legislators and staff officers from the federal and state level in the researched countries.
3. **Civil society**: environmental and energy-related NGO members; oil, renewables, and environmental solutions firm owners in the researched countries.
4. **Academics**: professors from energy and engineering departments of the most prestigious universities in the countries researched.

We decided to include these profiles based on the stakes and influence that such elites have on climate change policies. According to constructivist international relations theories, academics have notable influence on our topic of interest as they form an epistemic community around climate change policies. Civil society members that have stakes on climate policies are also influential, such as oil-extracting companies, lobby groups, and environmental NGOs. Executive and Legislative elites handle the decisions themselves, what justifies their inclusion in our sample.

We selected ten countries to our sample: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, and Peru. Our selection criteria were: 1) the impact of climate change on each nation, 2) their size and regional importance, and 3) natural resources availability. For each country, we built a dataset of potential respondents with at least:

- 150 potential legislative respondents
- 150 potential executive respondents
- 200 potential civil society respondents

- 200 potential academic respondents

These numbers represent ten times the number of respondents we were aiming to interview by the end of the survey. The dataset was build from October 5th to November 12th, 2018. We hired a team of enumerators that searched the internet for people in the countries that fulfilled our pre-determined elite profiles.

We ranked the possible respondents in two tiers. In the first tier we placed people that we had complete information about their profiles: office telephone numbers, emails, social media contacts, and so on. In the second tier we included participants that had incomplete profiles, such as those with only online information available. The dataset including the first-tier respondents was randomly divided between enumerators in Rio de Janeiro and São Paulo to avoid any eventual biases at the collecting stage. Both groups conducted the interviews by phone from November 12th to December 5th, 2018. The second tier dataset was used for the online only version of the survey.

The response rate in each of the enumeration sites and in the online only survey follows in the table below.

Table 31: Survey response rates.

Country	Enumeration Place	Type	Total	Phone	Online
Argentina	Rio de Janeiro	Online and Phone	300	33	17
Bolivia	Rio de Janeiro	Online and Phone	372	31	11
Brazil	Rio de Janeiro	Online and Phone	346	34	12
Chile	Rio de Janeiro	Online and Phone	417	35	12
Colombia	Rio de Janeiro	Online and Phone	445	35	21
Costa Rica	Rio de Janeiro	Online and Phone	409	32	11
Ecuador	Rio de Janeiro	Online and Phone	512	30	12
Mexico	Rio de Janeiro	Online and Phone	468	41	17
Panama	Rio de Janeiro	Online and Phone	291	30	14
Peru	Rio de Janeiro	Online and Phone	243	32	11
TOTAL		Online and Phone	3803	333	138
Argentina	Sao Paulo	Online and Phone	292	48	16

Country	Enumeration Place	Type	Total	Phone	Online
Bolivia	Sao Paulo	Online and Phone	373	50	13
Brazil	Sao Paulo	Online and Phone	344	43	15
Chile	Sao Paulo	Online and Phone	416	41	15
Colombia	Sao Paulo	Online and Phone	448	42	19
Costa Rica	Sao Paulo	Online and Phone	412	44	20
Ecuador	Sao Paulo	Online and Phone	507	43	18
Mexico	Sao Paulo	Online and Phone	464	41	17
Panama	Sao Paulo	Online and Phone	291	50	19
Peru	Sao Paulo	Online and Phone	248	44	9
TOTAL		Online and Phone	3803	446	161
Argentina		Online Only	517		19
Bolivia		Online Only	132		12
Brazil		Online Only	1183		52
Chile		Online Only	470		31
Colombia		Online Only	522		29
Costa Rica		Online Only	325		20
Ecuador		Online Only	460		37
Mexico		Online Only	955		29
Panama		Online Only	319		26
Peru		Online Only	540		25
TOTAL		Online Only	5569		293

The response rate was 10.24 percent of the original population in the telephone survey (779 of 7606 possible respondents). We had an attrition rate of 61.62 percent from the telephone (779) to the online survey (299). The response rate for the online only survey was 5.26 percent (293 of 5569 invited by email).

The conjoint experiment analyzed in this paper was in the online and online only dataset. Therefore, the relevant column for our data is the last one.

8.3 Allocation Methods

Random Assignment: We wrote the computer code for our experiment using a Python application provided by Strezhnev et al. (2013). We translated the original survey questions (as shown in the text) into Portuguese and Spanish, and then embedded the PHP file with the randomization parameters in a Qualtrics survey. The PHP code we used to randomize the values of the attributes is available at the project's GitHub repository: https://github.com/danilofreire/climate-governance.

For each attribute, the probability of selecting a given component follows a uniform distribution function. The table below describes the results.

Table 32: Conjoint experiment attributes and their respective probabilities.

Attribute	Values	Probabilities
Who makes the rules?	International organizations	1/5
	Federal government	1/5
	Local government	1/5
	Local community members	1/5
	Non-governmental organizations	1/5
Conflict resolution mechanism	United Nations	1/5
	Government bureaucracy	1/5
	Local courts	1/5
	Private arbitration	1/5
	Informal norms	1/5
Punishment	Imprisonment	1/4
	Fines	1/4
	Blacklist	1/4
	None	1/4
Punishment for repeated violations	More penalty	1/3
	Same	1/3

Attribute	Values	Probabilities
	Less penalty	1/3
Agreement costs	Rich countries pay more than poor countries	1/4
	Proportional to history of emissions	1/4
	Proportional to current emissions	1/4
	Only rich countries pay	1/4
Renegotiation	Never	1/5
	Fifty years	1/5
	Twenty years	1/5
	Five years	1/5
	One year	1/5

We added one logical restriction to the set climate change treaties: **Punishment** = **None** can never appear together with **Punishment for repeated violations** = **Less penalty**. The number of possible treaties are the product of the attributes ($5 \times 5 \times 4 \times 3 \times 4 \times 5 = 6,000$) minus the number of removed possibilities ($5 \times 5 \times 4 \times 5 = 500$). The total number of possible treaties is $5,500$.

8.4 Treatments

Descriptions of the intervention: Our treatment was the randomization of components in the conjoined climate mitigation treaties. We provided the following description before the conjoint experiment starts, in Spanish and Portuguese:

```
For the following questions, read carefully the instructions below.

Imagine that your country would sign an international treaty to mitigate climate change.
A climate mitigation treaty has, in general, the following attributes:

1. Who defines the rules? Which group will define the parameters for the treaty?
```

2. How are the conflicts that might happen when the treaty begin be resolved?

3. What punishments should be applied to ensure compliance?

4. How will repeated violations be punished?

5. How are costs for implementing the treaty be distributed?

6. How often the treaty has to be renegotiated?

In the following questions, you will see variations in treaties on these six attributes. Please select the treaty that has the characteristics that you believe are best for your country.

The conjoint experiment consisted in comparing two hypothetical climate change treaties that vary across six attributes. We presented each respondent with seven pairs of possible climate agreements.

Software: We used the Python application provided by Strezhnev et al. (2013) to program the PHP randomization device. We hosted the survey questionnaire on Qualtrics.

Delivery: We repeated the conjoint experiment seven times, to improve test power.

Dataset description: Each line in the dataset corresponds to a given treaty, which indicates the selection status of a given treaty (selected versus non-selected) for a specific respondent. When a respondent finished an entire response set, this added 14 rows to the dataset. Seven rows with the selected treaties and other seven rows with the non-selected treaties.

Deception: We used no deception in this survey experiment.

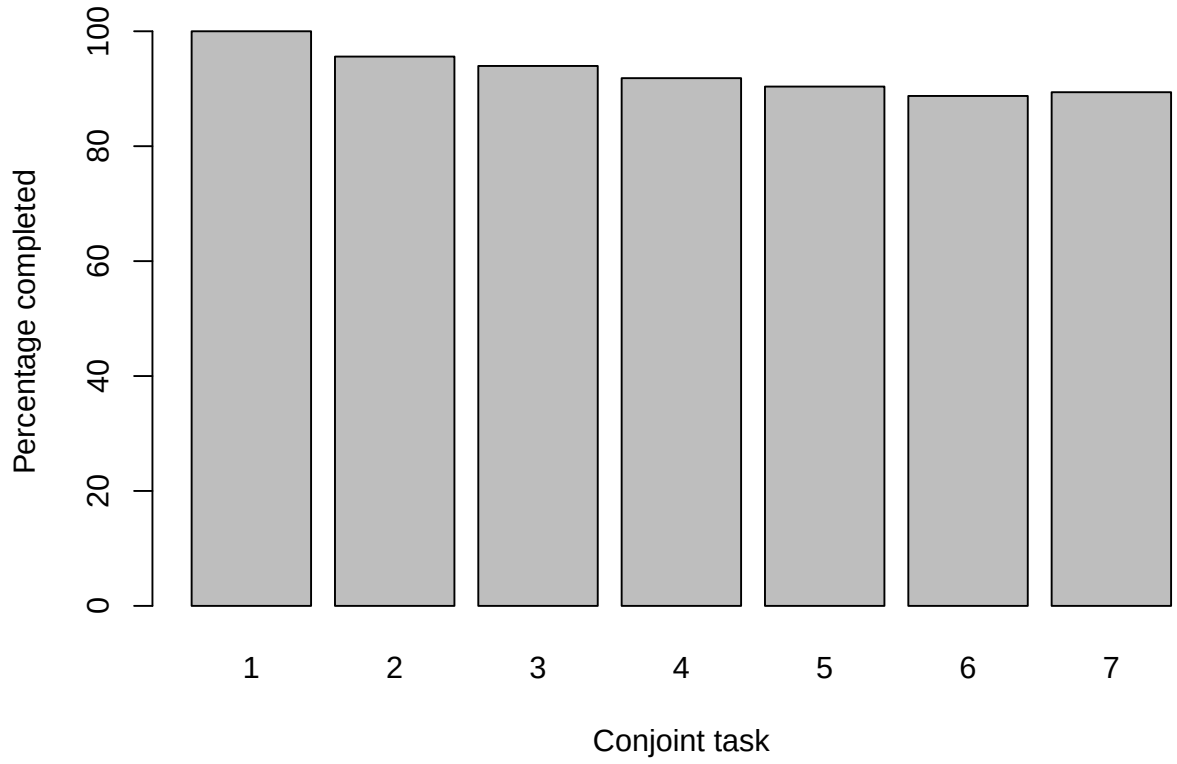
8.5 Results

Outcome measures and covariates: The main outcome is a binary indicator for the selection of a given conjoined package. We added two covariates to measure heterogeneous effects: *Country* and *Elite type*.

Statistical analysis: We fit a marginal means estimator and an AMCE estimator. The estimation conditions the results within subjects and the presented conjoined packages. The results are available in sections 5 and 7.

Missing data and attrition: Conditional on having started the conjoint experiment, for each task we had the following completion rates:

```r
barplot(100*table(cj$task)/max(table(cj$task)),
        xlab = 'Conjoint task',
        ylab = 'Percentage completed')
```



8.6 Other information

IRB: This research received IRB approval from Brown University (Protocol 2195/2018) and Fundação Getulio Vargas (Protocol 83/2018).

Pre-registration: The result was not pre-registered.

Funding: The research was funded by Konrad Adenauer Stiftung (KAS). KAS provided EUR$ 55,000.00 for this research. They have not interfered in the research design and in the question choices.

Replication materials: Available at http://github.com/danilofreire/climate-governance.

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