

# Aid's Effect on Crop Coverage

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## Aid's Effect on Crop Coverage: Analysis Overview

### Descriptive Stats for Covariates in Dataset

Variable	n	Mean	Std Dev	Median	Max	Min
trendcrop	1116	8.16	690.41	-1.46	2.227458e+04	-1580.64
trendc3	1114	-187.64	299.97	-69.29	5.048100e+02	-2552.74
trendcropveg	1116	146.91	685.10	75.04	1.084801e+04	-3243.51
trendgrass	1116	-128.37	731.79	-35.17	7.759700e+03	-9559.40
muni_locd	1121	0.11	0.31	0.00	1.000000e+00	0.00
cropsha_pcto1	1115	0.03	0.04	0.01	4.100000e-01	0.00
SPI12m_mean	1116	0.16	0.23	0.15	5.700000e-01	-0.30
SPI12m_sd	1116	0.92	0.16	1.00	1.210000e+00	0.59
upstream	1114	16042880.48	81510672.40	504193.50	1.403566e+09	573.00
altitude	1058	1183.33	1162.54	1197.50	2.522100e+04	2.00
roado	1003	103.67	108.81	72.14	1.526160e+03	2.86
illegal_crops	1119	0.20	0.40	0.00	1.000000e+00	0.00
vio_13	1121	0.16	0.31	0.00	9.400000e-01	0.00
farc_zone	1119	0.02	0.15	0.00	1.000000e+00	0.00
vio_15	1121	0.39	0.32	0.31	1.000000e+00	0.00
pres_tie	1121	0.00	0.03	0.00	6.700000e-01	0.00
pres_centro	1121	0.02	0.07	0.00	4.000000e-01	0.00
pres_conserv	1121	0.11	0.12	0.00	6.000000e-01	0.00
pres_izqui	1121	0.03	0.08	0.00	6.000000e-01	0.00
pres_tv	1121	0.08	0.10	0.00	5.000000e-01	0.00

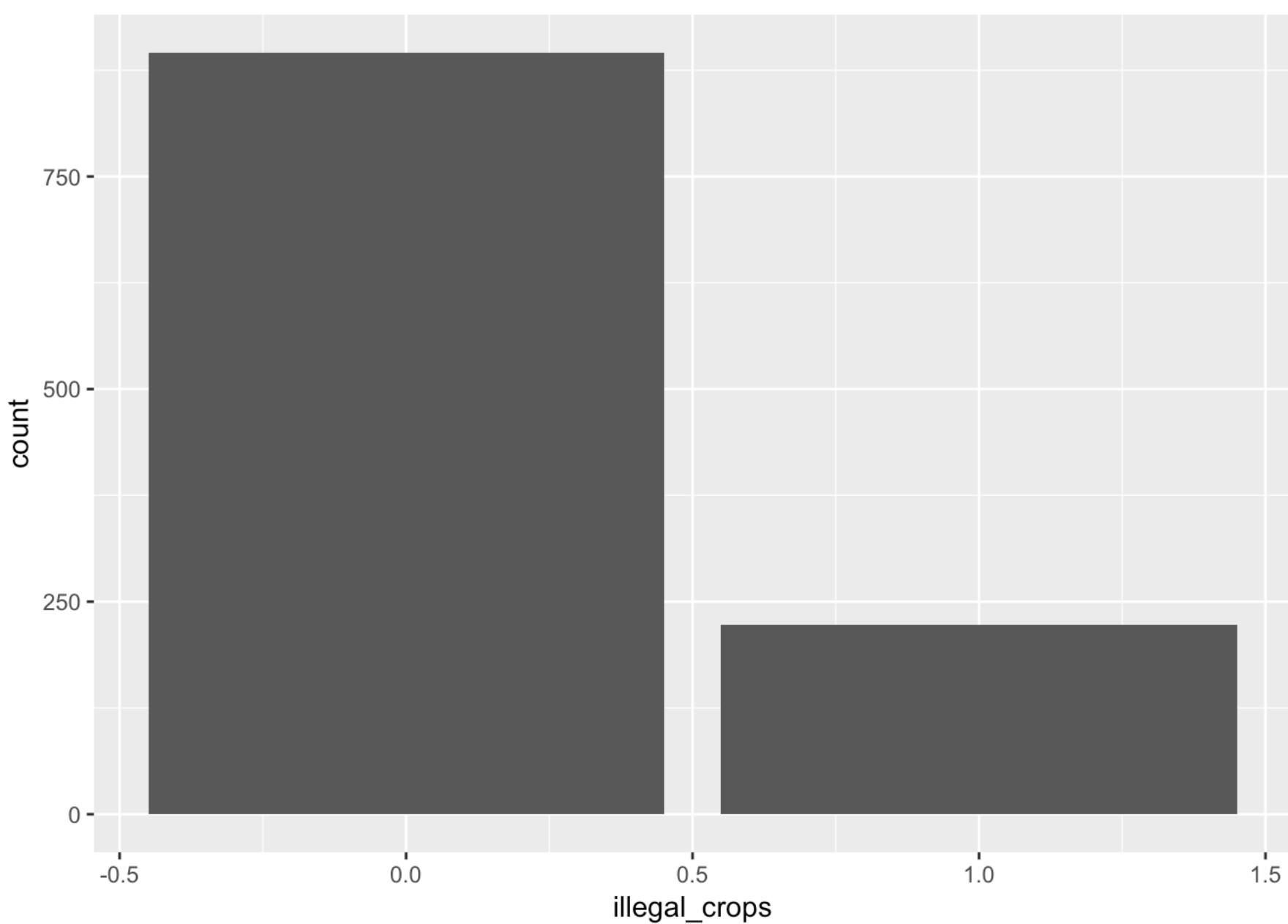
pres_lib	1121	0.19	0.19	0.20	8.000000e-01	0.00
pres_min	1121	0.01	0.05	0.00	3.300000e-01	0.00
pres_urib	1121	0.56	0.23	0.60	1.000000e+00	0.00
pres_pidmuni	1121	0.63	0.20	0.60	1.000000e+00	0.00
pol_9	1121	0.37	0.15	0.35	8.200000e-01	0.05
pol_11	1121	0.02	0.04	0.01	2.600000e-01	0.00
pol_12	1121	0.21	0.11	0.20	5.400000e-01	0.00
pol_13	1121	0.10	0.05	0.09	3.100000e-01	0.01
pol_14	1121	0.11	0.07	0.09	6.000000e-01	0.00
pol_15	1121	0.24	0.14	0.23	7.200000e-01	0.01
pol_16	1121	0.20	0.10	0.18	6.500000e-01	0.00
pol_17	1121	0.50	0.16	0.51	8.600000e-01	0.03
pol_18	1121	10537.18	72716.65	3113.80	2.228024e+06	4.67
c_dvote_avg	1121	453297.02	309506.92	356517.25	1.320760e+06	6277.50
c_mvote_avg	1121	9666.48	51700.85	3353.00	1.520300e+06	4.25
c_deptseats_14	1121	9.63	4.35	9.00	2.100000e+01	2.00
c_match_munidept	1121	0.21	0.25	0.25	1.000000e+00	0.00
c_match_presdept	1121	0.16	0.22	0.00	1.000000e+00	0.00
c_match_munideptpres	1121	0.47	0.30	0.50	1.000000e+00	0.00
c_match_none	1121	0.15	0.23	0.00	1.000000e+00	0.00
c_votepro_centro	1121	0.03	0.07	0.01	5.700000e-01	0.00
c_votepro_conserv	1121	0.22	0.17	0.18	8.600000e-01	0.00
c_votepro_iz	1121	0.03	0.05	0.02	4.800000e-01	0.00
c_votepro_lib	1121	0.22	0.13	0.20	8.700000e-01	0.00
c_votepro_min	1121	0.01	0.03	0.00	5.000000e-01	0.00
c_votepro_other	1121	0.00	0.00	0.00	0.000000e+00	0.00
c_votepro_tv	1121	0.19	0.14	0.16	8.000000e-01	0.00
c_votepro_urib	1121	0.23	0.10	0.23	8.000000e-01	0.00
c_seatpro_centro	1121	0.03	0.06	0.00	2.500000e-01	0.00
c_seatpro_conserv	1121	0.19	0.11	0.19	5.000000e-01	0.00

c_seatpro_iz	1121	0.02	0.05	0.00	2.000000e-01	0.00
c_seatpro_lib	1121	0.25	0.10	0.26	6.100000e-01	0.05
c_seatpro_min	1121	0.01	0.05	0.00	5.000000e-01	0.00
c_seatpro_other	1121	0.00	0.00	0.00	7.000000e-02	0.00
c_seatpro_tv	1121	0.15	0.09	0.17	5.000000e-01	0.00
c_seatpro_urib	1121	0.29	0.09	0.33	5.000000e-01	0.00
c_turnout	1121	0.28	0.10	0.28	1.090000e+00	0.00
s_nvote_avg	1121	10614314.47	144686.68	10592550.25	1.230710e+07	10592550.25
s_mvote_avg	1121	12331.31	67515.91	4188.75	1.993438e+06	7.00
s_natlseats_14	1121	102.00	0.00	102.00	1.020000e+02	102.00
s_match_muniseat	1121	0.00	0.00	0.00	0.000000e+00	0.00
s_match_presseat	1121	0.22	0.15	0.25	6.700000e-01	0.00
s_match_muniseatpres	1121	0.28	0.15	0.25	6.700000e-01	0.00
s_match_none	1121	0.50	0.04	0.50	1.000000e+00	0.33
s_votepro_centro	1121	0.03	0.06	0.01	6.200000e-01	0.00
s_votepro_conserv	1121	0.22	0.15	0.18	7.700000e-01	0.00
s_votepro_iz	1121	0.03	0.03	0.02	2.800000e-01	0.00
s_votepro_lib	1121	0.17	0.09	0.15	5.400000e-01	0.00
s_votepro_min	1121	0.01	0.02	0.01	2.000000e-01	0.00
s_votepro_other	1121	0.00	0.00	0.00	0.000000e+00	0.00
s_votepro_tv	1121	0.17	0.14	0.14	7.800000e-01	0.00
s_votepro_urib	1121	0.20	0.08	0.19	5.800000e-01	0.01
s_seatpro_centro	1121	0.04	0.01	0.04	5.000000e-02	0.00
s_seatpro_conserv	1121	0.20	0.01	0.20	2.200000e-01	0.00
s_seatpro_iz	1121	0.07	0.01	0.07	1.000000e-01	0.00
s_seatpro_lib	1121	0.20	0.01	0.20	2.100000e-01	0.00
s_seatpro_min	1121	0.01	0.00	0.01	2.000000e-02	0.00
s_seatpro_other	1121	0.27	0.01	0.27	3.100000e-01	0.20
s_seatpro_tv	1121	0.20	0.02	0.21	2.100000e-01	0.00

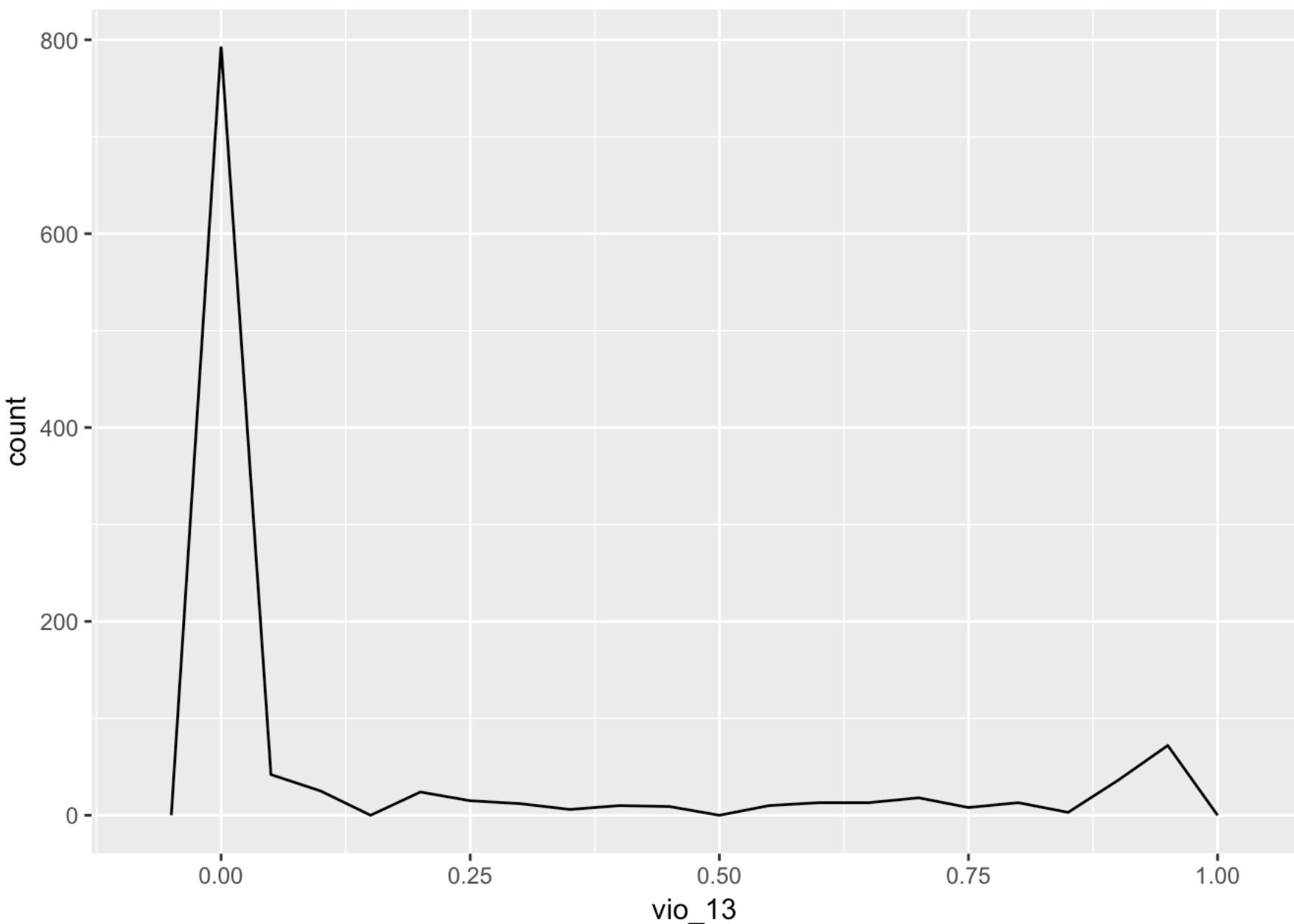
s_seatpro_urib	1121	0.31	0.01	0.31	4.200000e-01	0.23
s_turnout	1121	0.36	0.12	0.36	1.090000e+00	0.01
vio_1	1121	1.00	0.67	1.00	3.000000e+00	0.00
vio_2	1121	1.73	1.13	2.00	5.000000e+00	0.00
vio_3	1121	0.90	0.50	1.00	2.000000e+00	0.00
vio_9	1121	5764.57	12931.30	1396.00	2.304210e+05	0.00
vio_10	1121	0.09	0.29	0.00	1.000000e+00	0.00
vio_11	1121	0.14	0.16	0.06	6.900000e-01	0.00
vio_14	1121	0.19	0.23	0.12	1.000000e+00	0.00
vio_46	1121	2.19	1.21	2.00	5.000000e+00	1.00
vio_47	1121	0.02	0.03	0.01	2.200000e-01	0.00
vio_87	1121	3957.08	19934.97	589.00	5.102570e+05	0.00
vio_26_mean	741	0.75	0.17	0.74	1.000000e+00	0.20
vio_27_mean	421	0.70	0.19	0.67	1.000000e+00	0.14
vio_28_mean	363	0.51	0.21	0.50	1.000000e+00	0.10
vio_31_mean	984	0.69	0.29	0.75	1.000000e+00	0.00
vio_32_mean	984	0.61	0.35	0.70	1.000000e+00	0.00
vio_33_mean	984	0.25	0.27	0.20	1.000000e+00	0.00
vio_34_mean	984	0.44	0.33	0.44	1.000000e+00	0.00
vio_35_mean	984	0.13	0.20	0.00	1.000000e+00	0.00
vio_36_mean	984	0.11	0.18	0.00	1.000000e+00	0.00

## Coca Presence

Between 1993-2015, municipalities are by and large going to fall under one of two categories: “*having coca crops present*” in their municipality or “*not having coca crops present*” in their municipality. “**illegal\_crops**” is a dummy variable that counts whether there was coca growing in 2013. “**vio\_13**” is the proportion of years (1993-2015) in which coca is present in a given municipality.

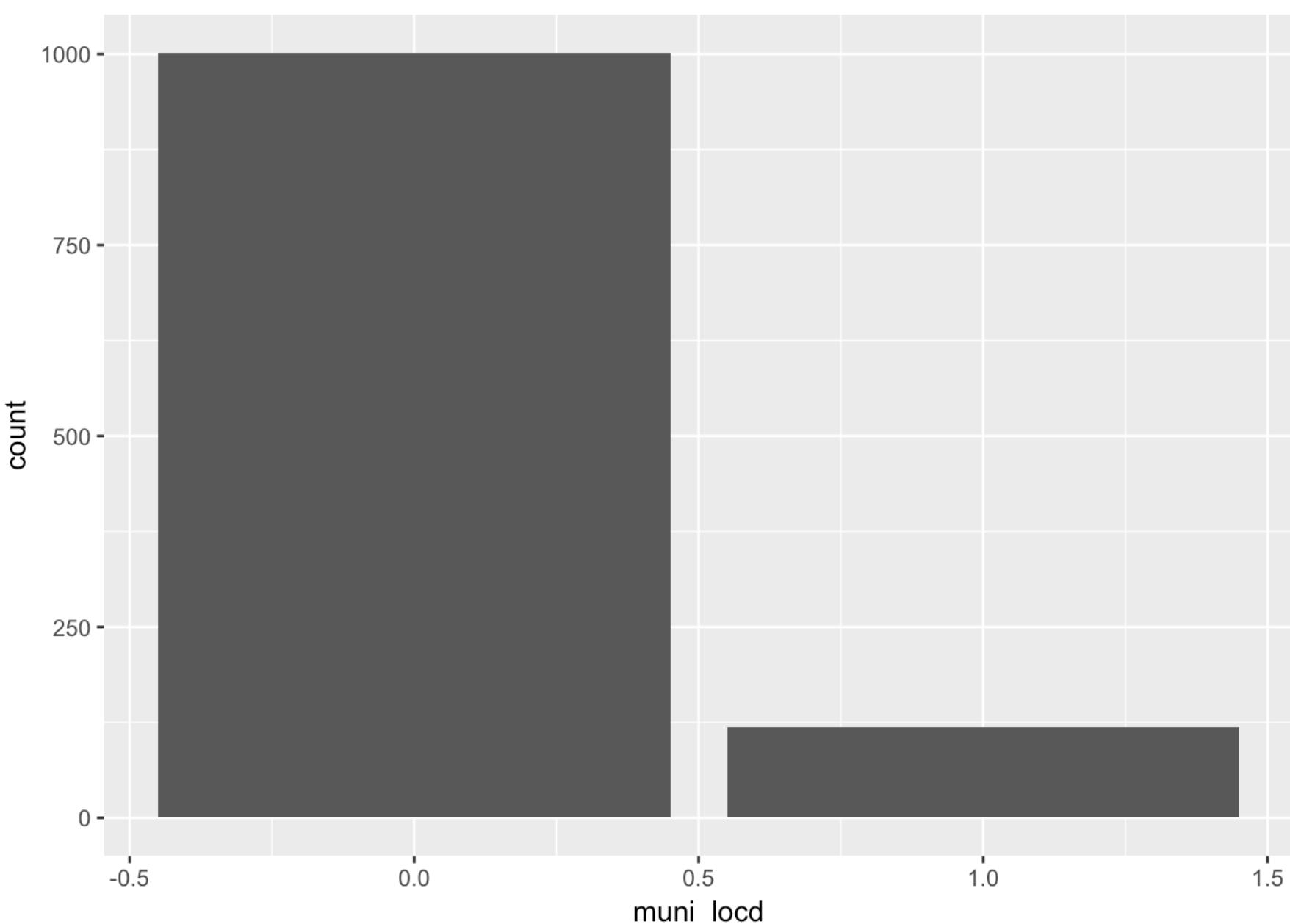


```
## # A tibble: 1 x 1
##       n
##   <int>
## 1 1121
```



## Aid (`muni_locd`)

`muni_locd` is a dummy variable counting whether a municipality received aid from the World Bank at any time during the the time period. To determine whether an aid project “counts”, we use precision codes 1, 2, or 3. Of note, data for World Bank Level 1 aid projects only record Precision Codes 1 or 3.

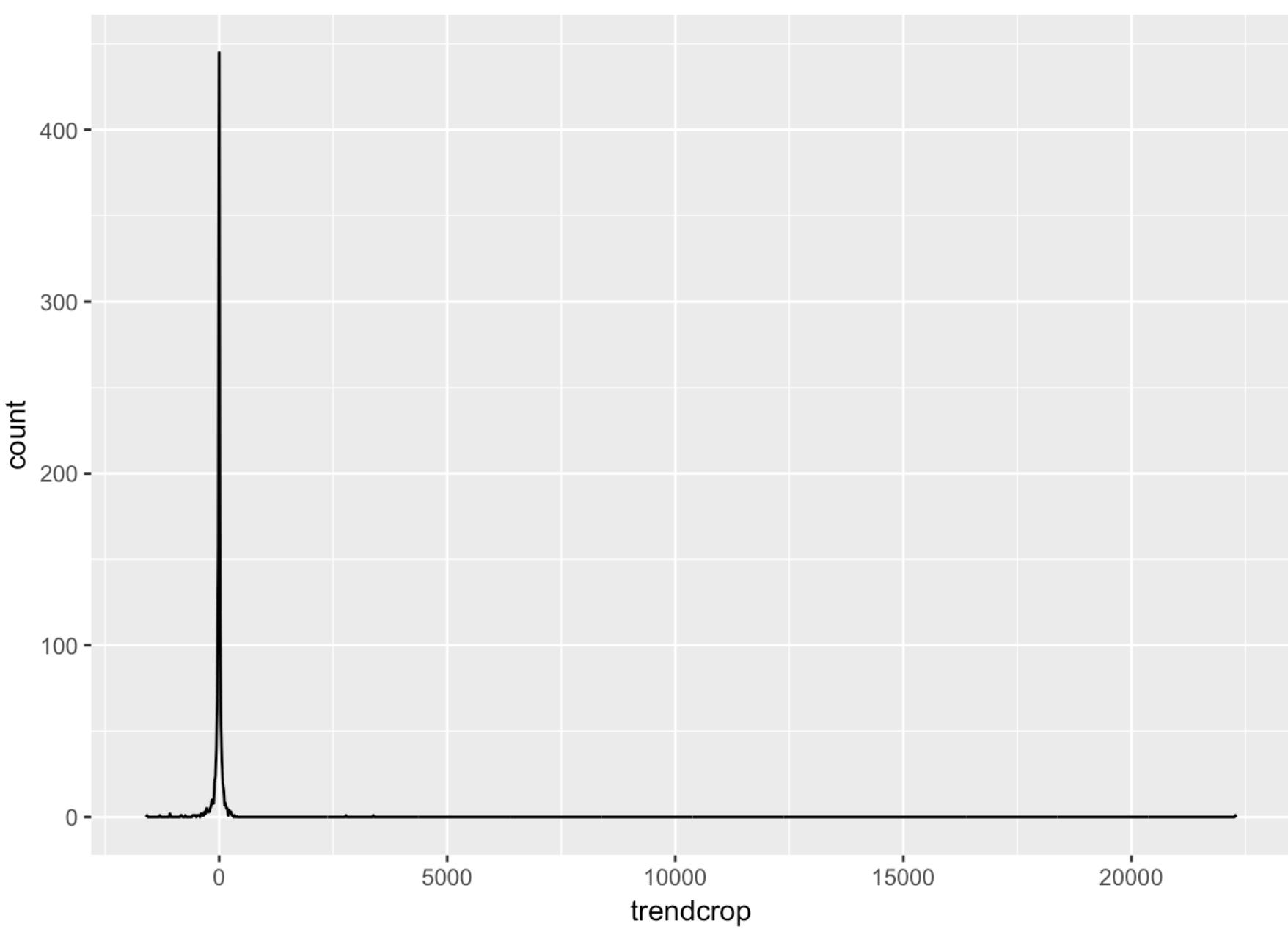


```
## # A tibble: 1 x 1
##       n
##   <int>
## 1 1121
```

## Cropshare Trend/Change

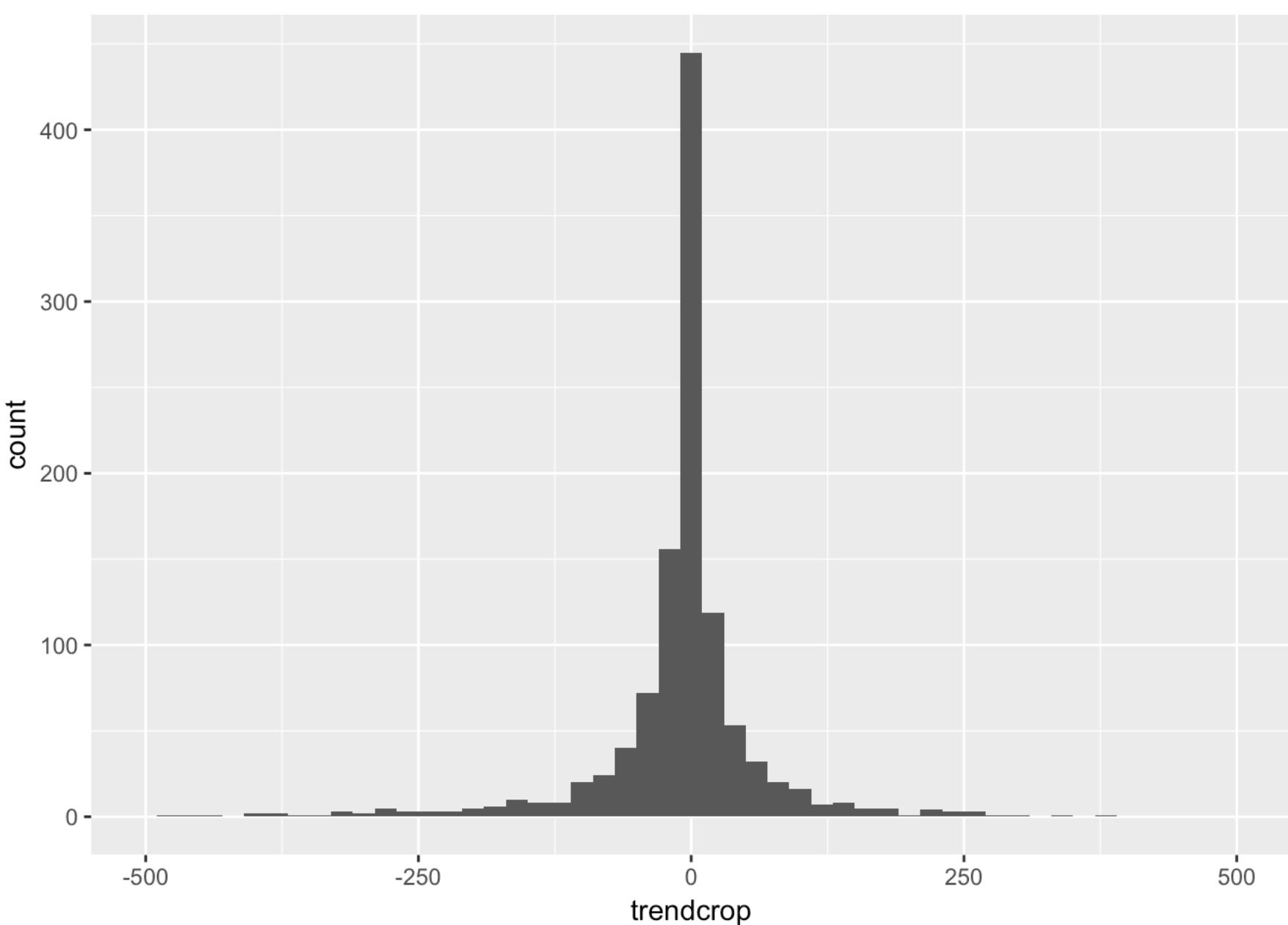
### TREND CROP (MODIS crop)

- There's one major outlier in the measure of MODIS crop cover – Uribia in the department of La Guajira.
- The municipality has a positive trend of  $22274.58 \text{ km}^2$ . There are no outliers even remotely close to this “far out” in the distribution on either tail. Models using MODIS crop cover (*trendcrop*) as a dependent variable will be run with and without the municipality of Uribia.
- The output below shows other variables that are further out in the tails for comparison. The plots showing the distribution have a limited x-axis for better visualization purposes. The histogram leaves out 13 values.



```
## # A tibble: 3 x 2
##   codmuni trendcrop
##   <dbl>     <dbl>
## 1 44430    2779.196
## 2 44560    3386.779
## 3 44847   22274.584
```

```
## # A tibble: 11 x 2
##   codmuni trendcrop
##   <dbl>     <dbl>
## 1 13006    -552.4039
## 2 13430    -834.6591
## 3 13468   -1087.5437
## 4 13549   -1580.6381
## 5 13600    -548.6669
## 6 13780    -511.9100
## 7 47555    -814.3794
## 8 52835   -1074.9126
## 9 68575    -731.9711
## 10 70678   -1298.6888
## 11 70771   -572.6398
```

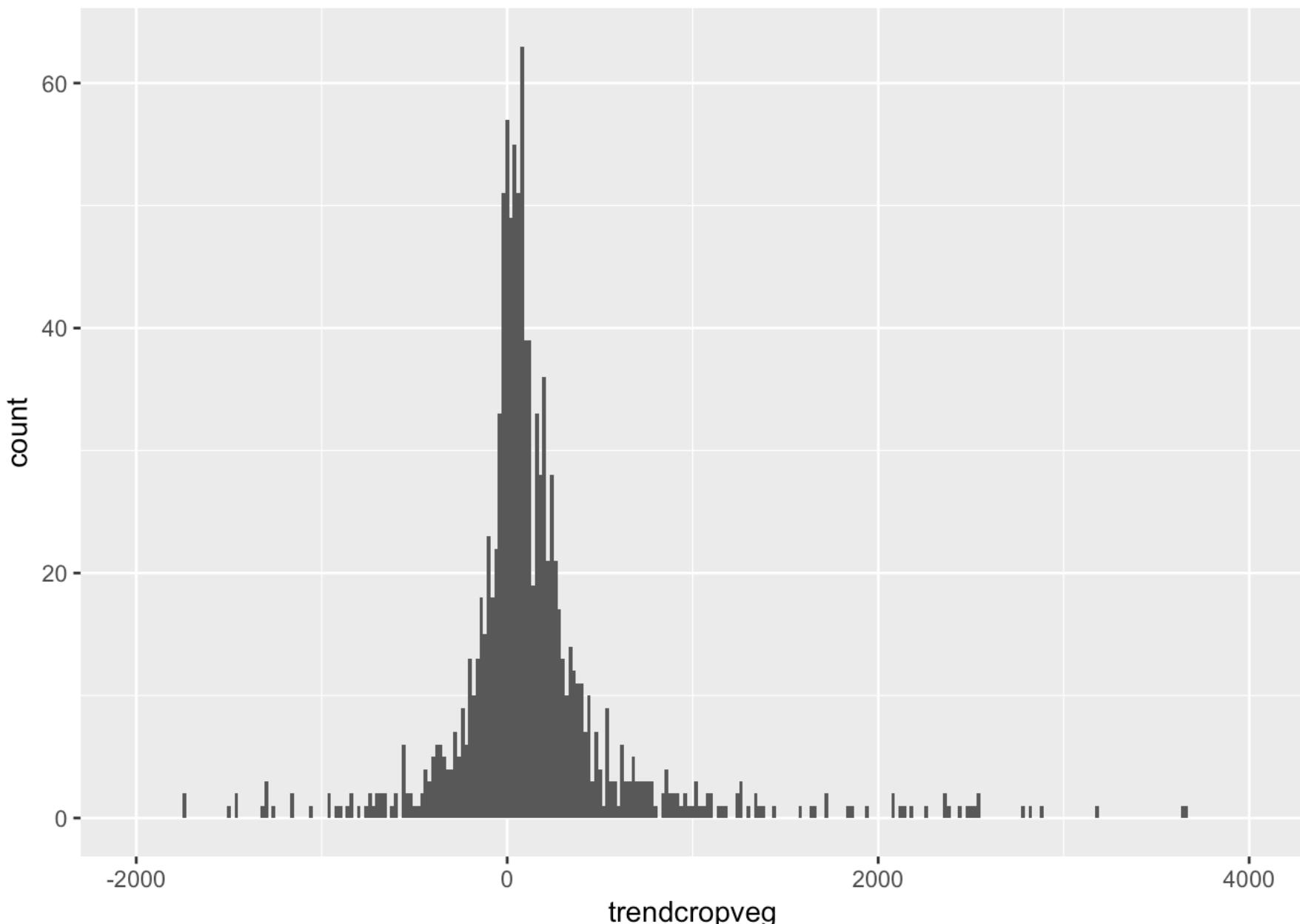


## TREND CROP VEG (MODIS crop vegetation)

- Uribia of the department of La Guajira is again an outlier. The municipality has a positive trend of 10848.012. Below you can see other values that are also out in the tails of the distribution. As with the crop cover variable, we will run the models with and without Uribia included in the data.

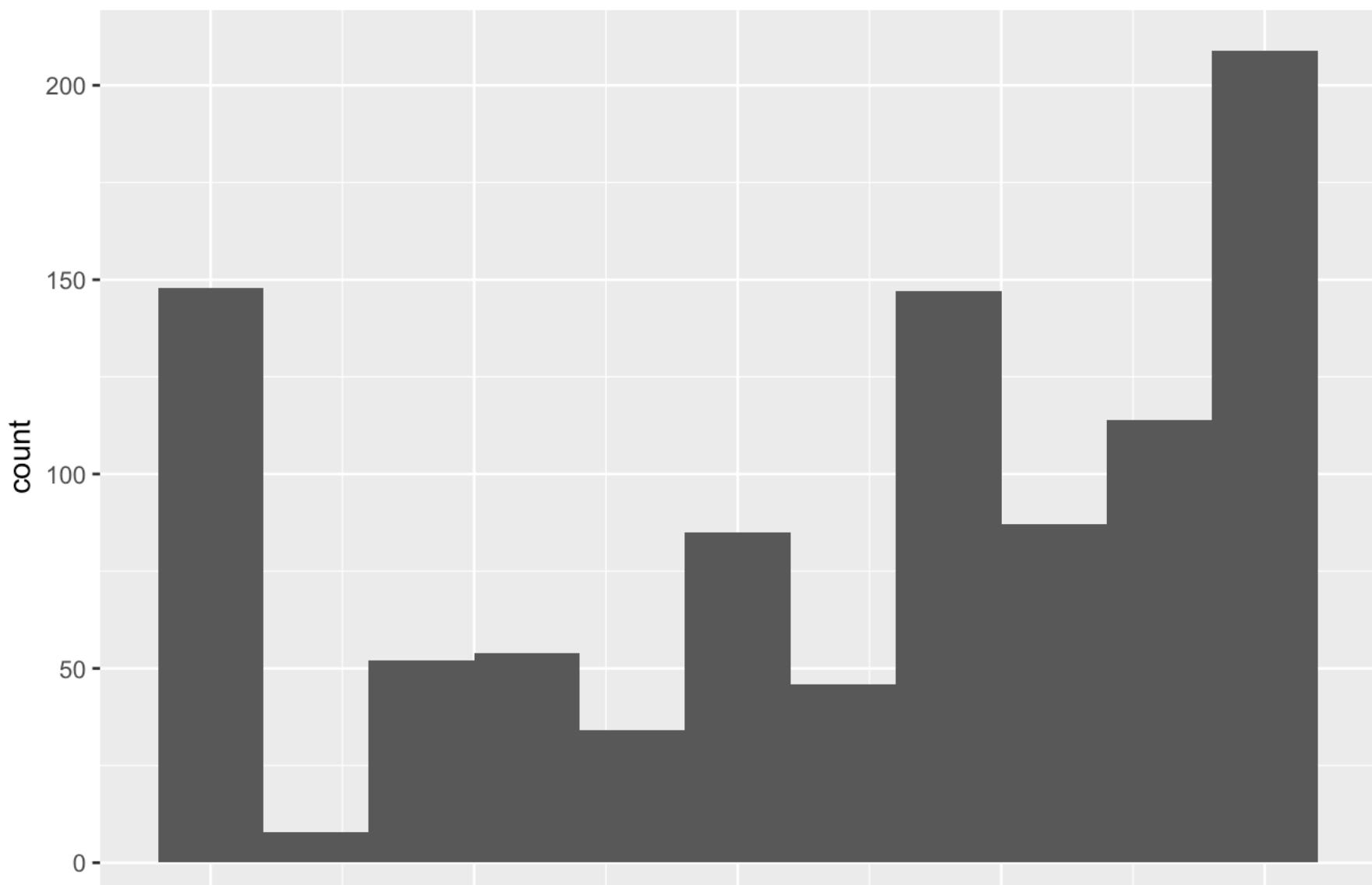
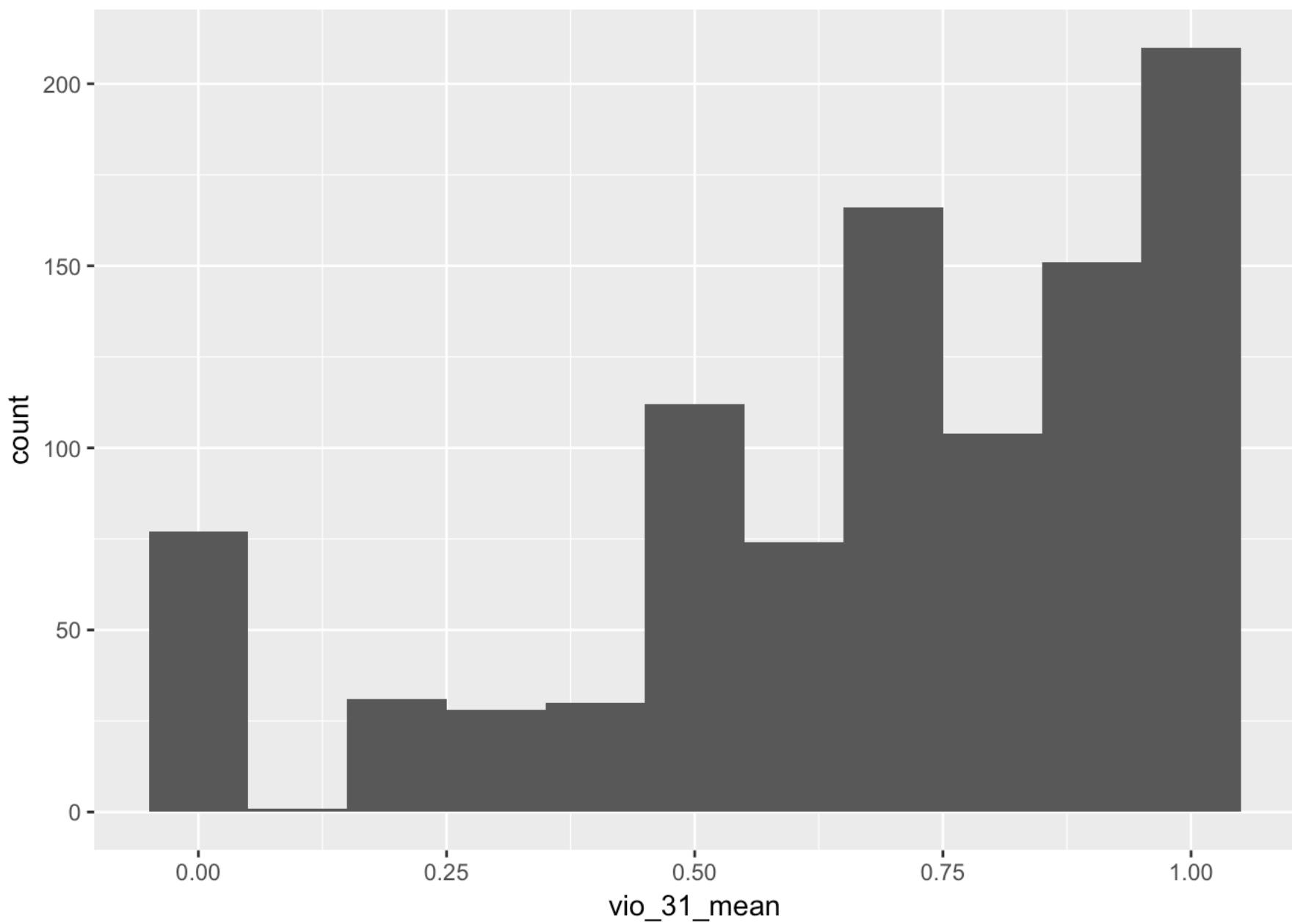
```
## # A tibble: 8 x 4
##   codmuni    department  municipality trendcropveg
##   <dbl>      <chr>        <chr>          <dbl>
## 1 13006      BOLIVAR      ACHI           -2125.852
## 2 18592      CAQUETA      PUERTO RICO   -2091.805
## 3 18860      CAQUETA      VALPARAISO  -3103.103
## 4 54810  NORTE DE SAN    TIBU           -2995.564
## 5 68575      SANTANDER    PUERTO WILCHES -3243.510
## 6 70771      SUCRE         SUCRE          -3040.909
## 7 86320      PUTUMAYO     ORITO          -2224.934
## 8 95200      GUAVIARE    MIRAFLORES -2809.921
```

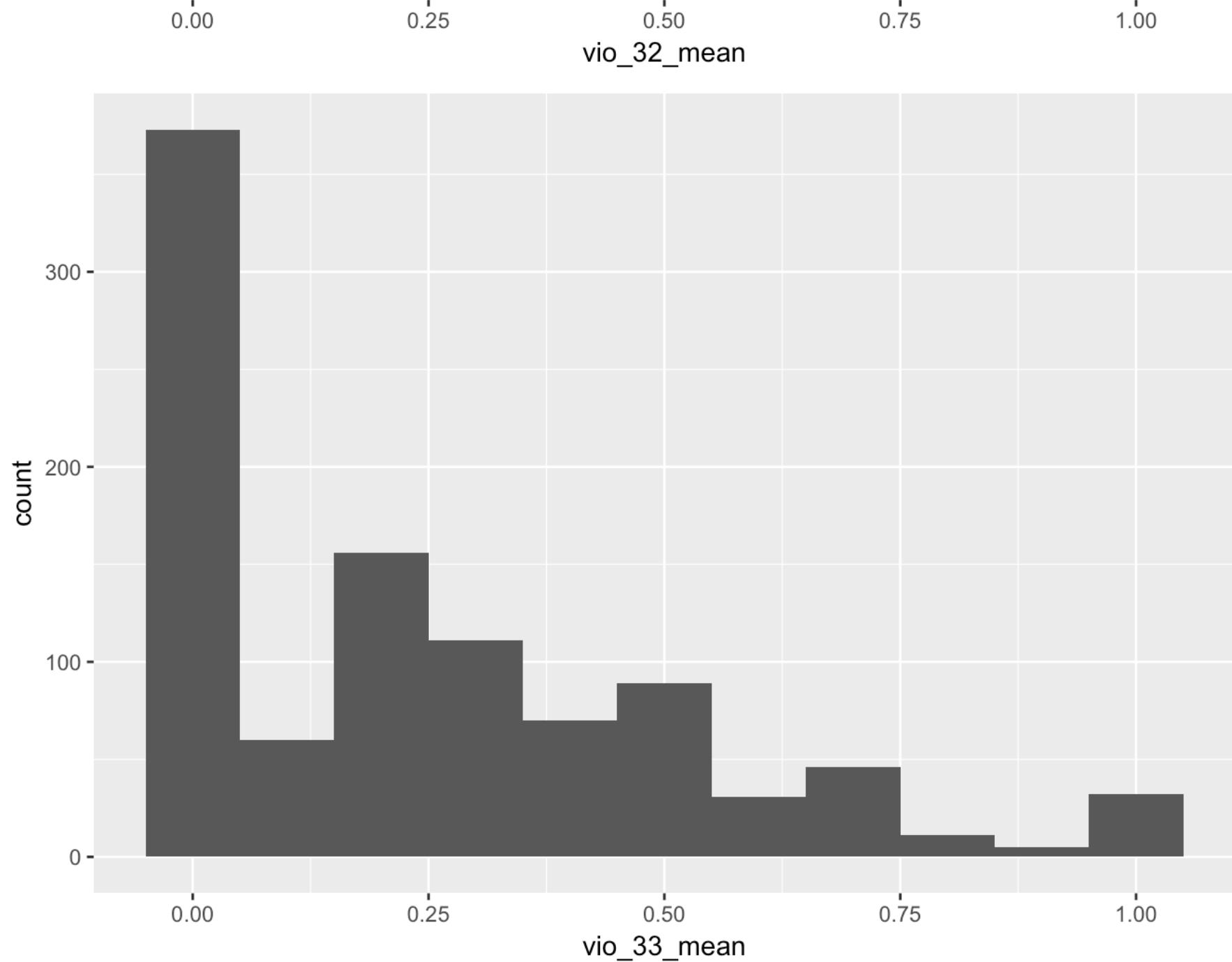
```
## # A tibble: 3 x 4
##   codmuni department municipality trendcropveg
##   <dbl>     <chr>      <chr>          <dbl>
## 1 44847  LA GUAJIRA  URIBIA        10848.012
## 2 50350      META    LA MACARENA  6066.346
## 3 95001  GUAVIARE SAN JOSE DEL GUAVIARE 4647.662
```

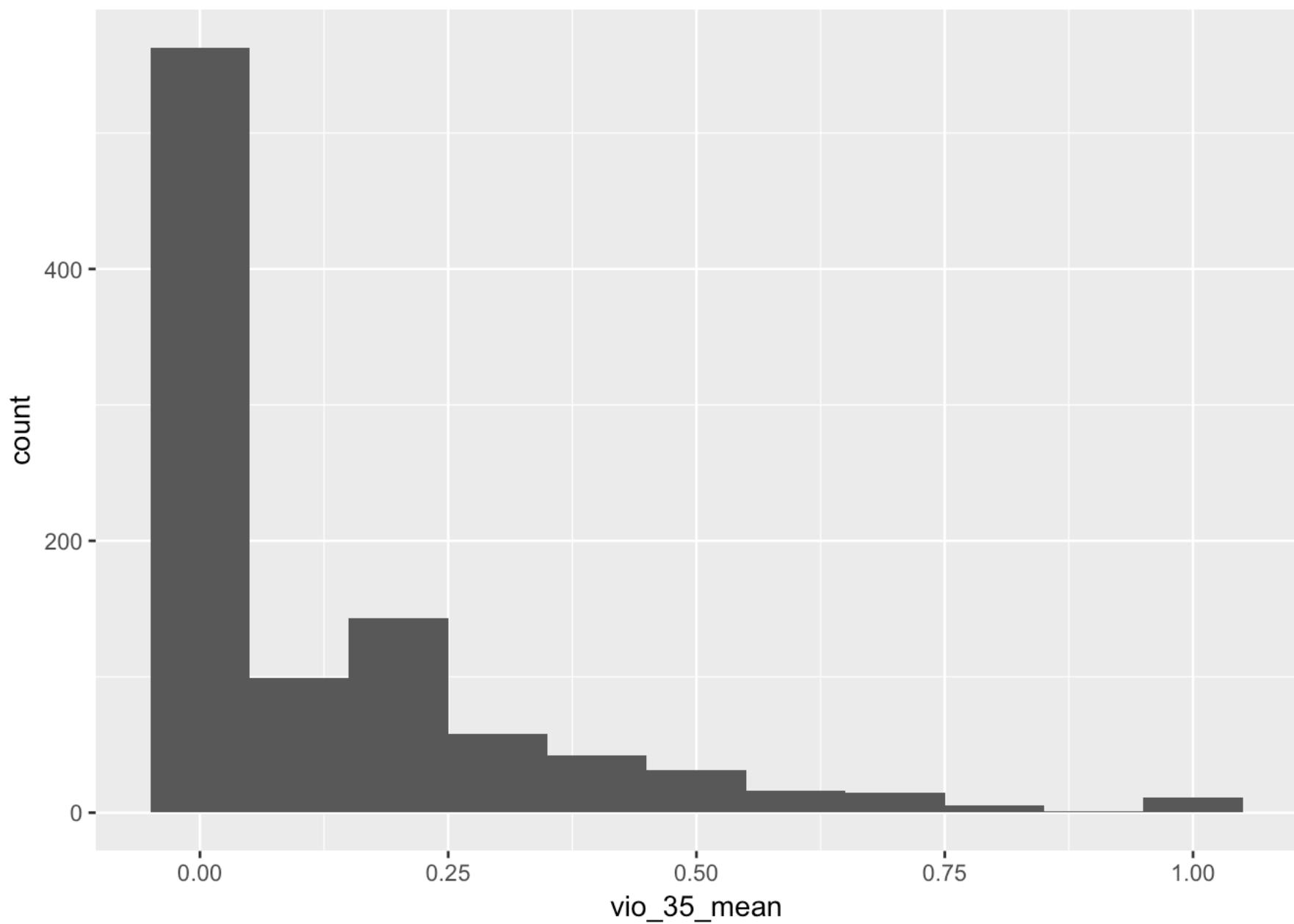
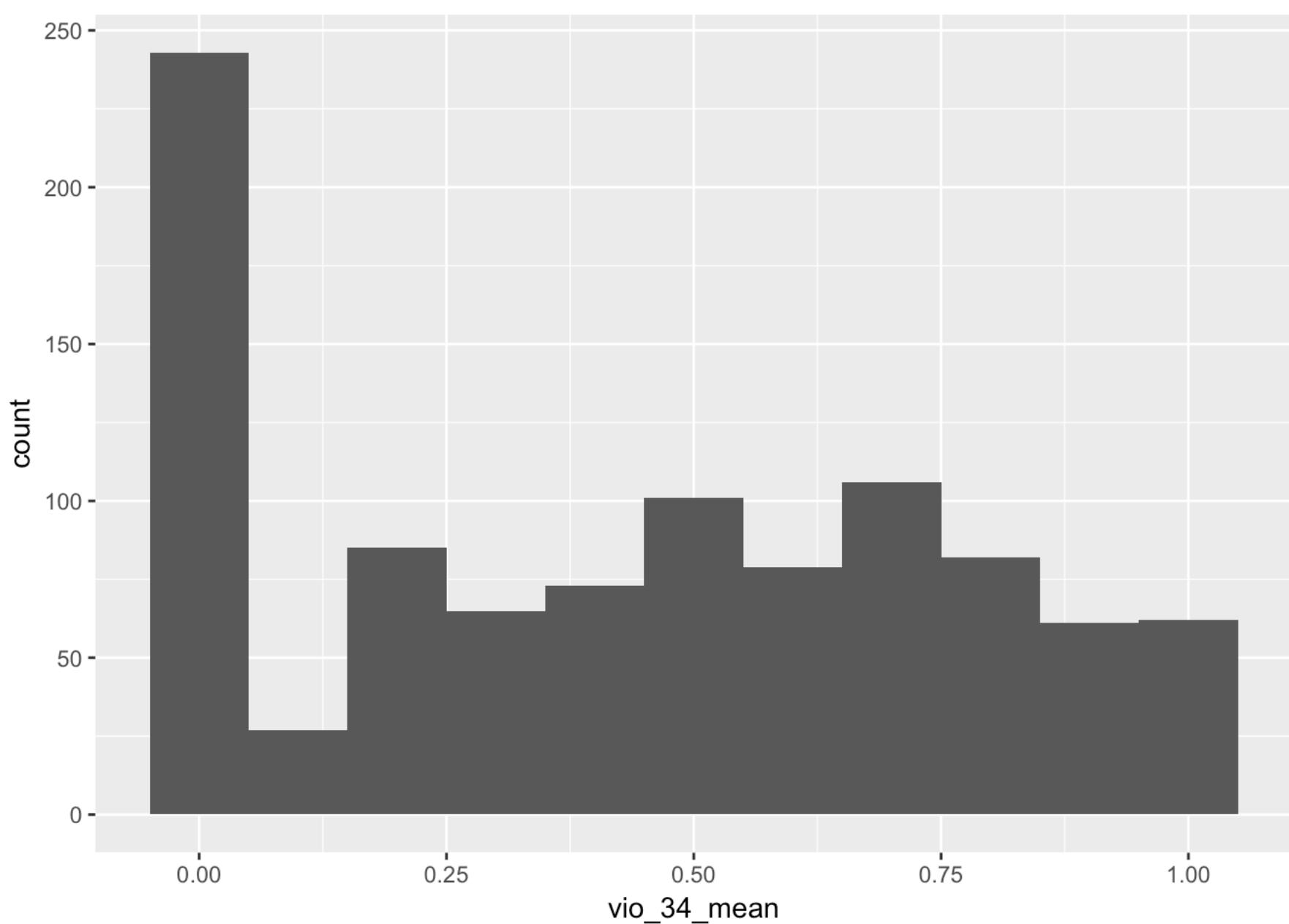


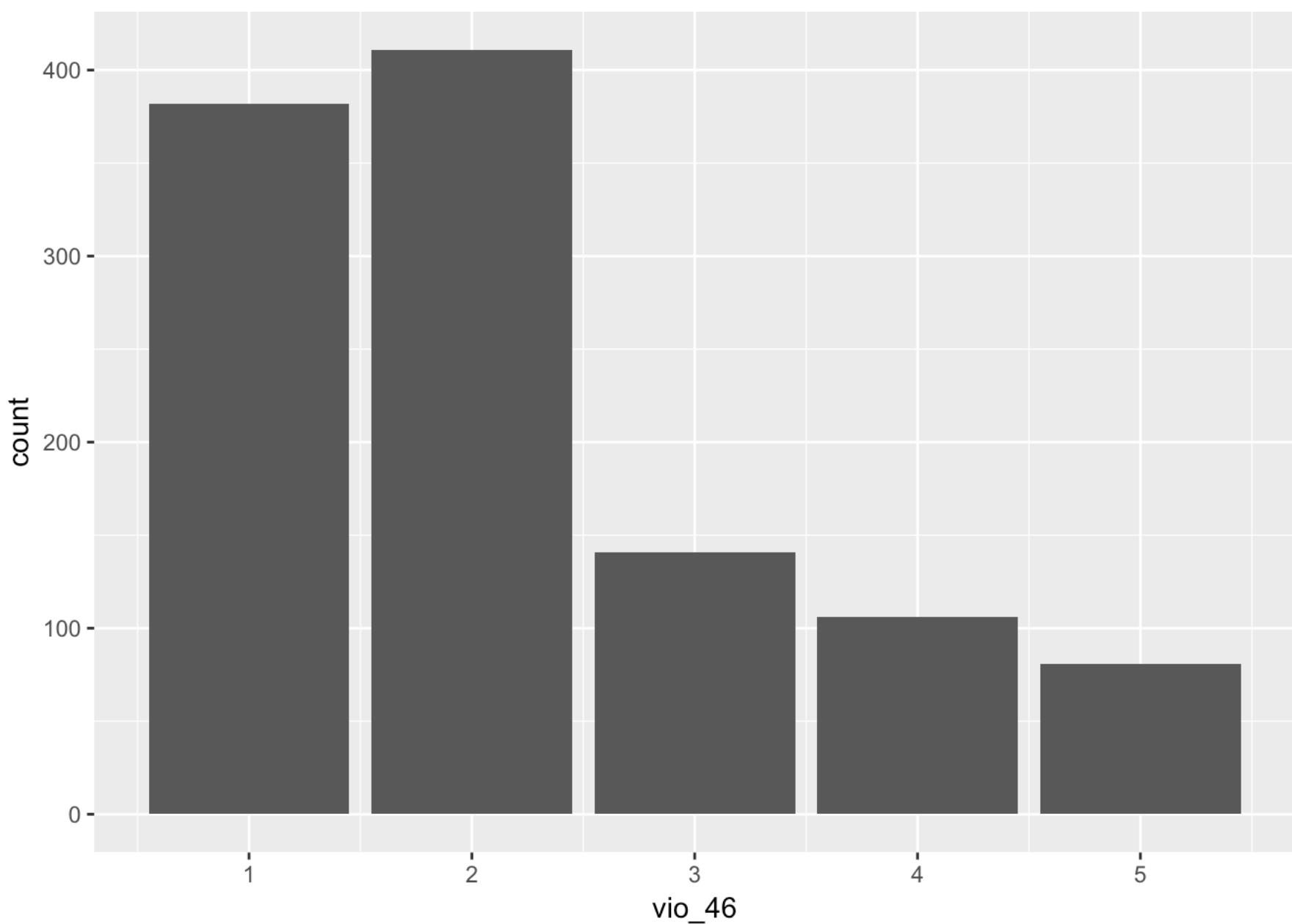
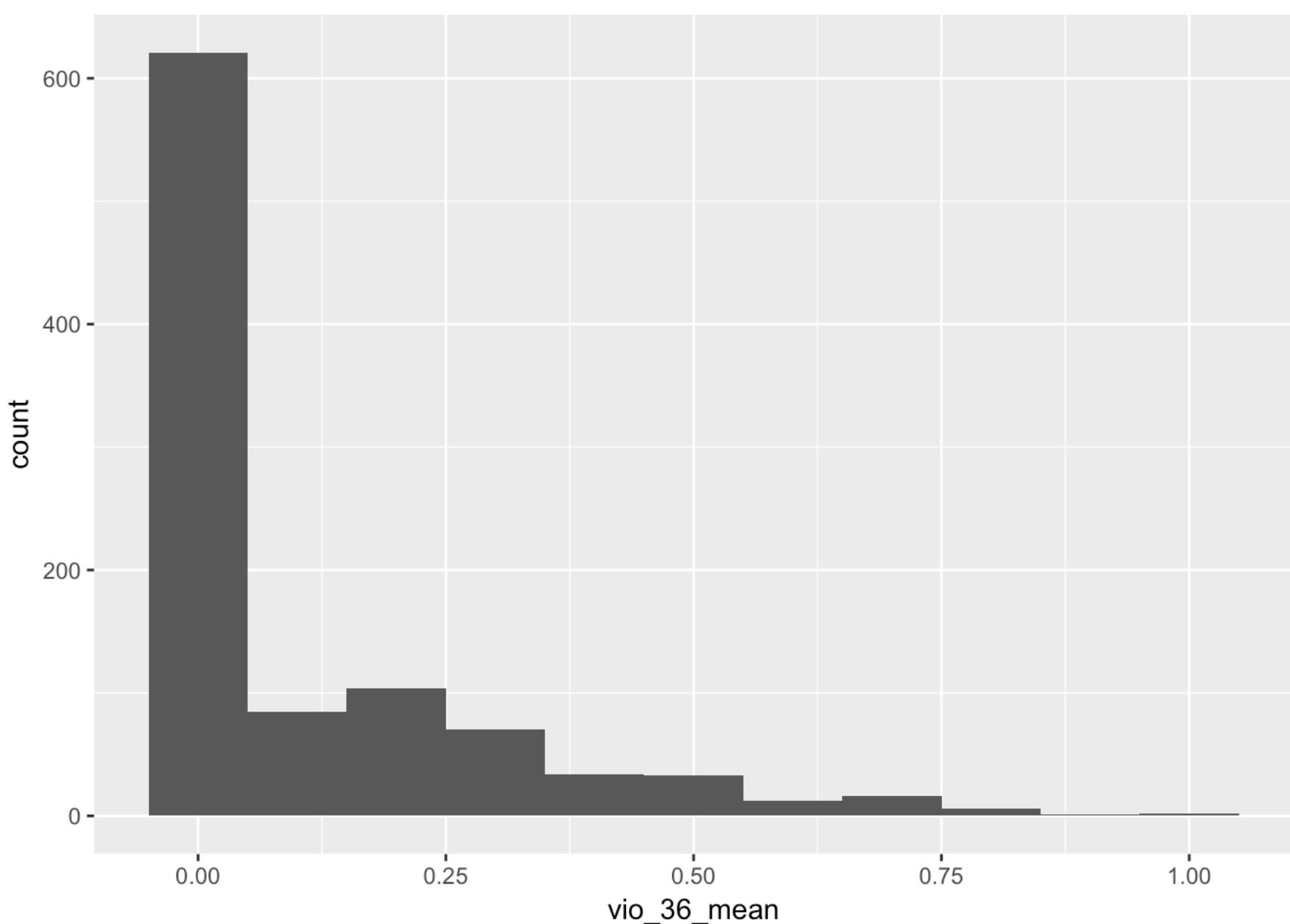
## Conflict Measures











## A note on election variables:

Data for Camara (“House of Representatives”) and Senado (“Senate”) elections encompasses four elections from 2002-2014. Presidential election data covers five elections from 1998-2014. The election variables are dummies averaged over the elections to give a proportion of elections in which there is a “match” in ideology.

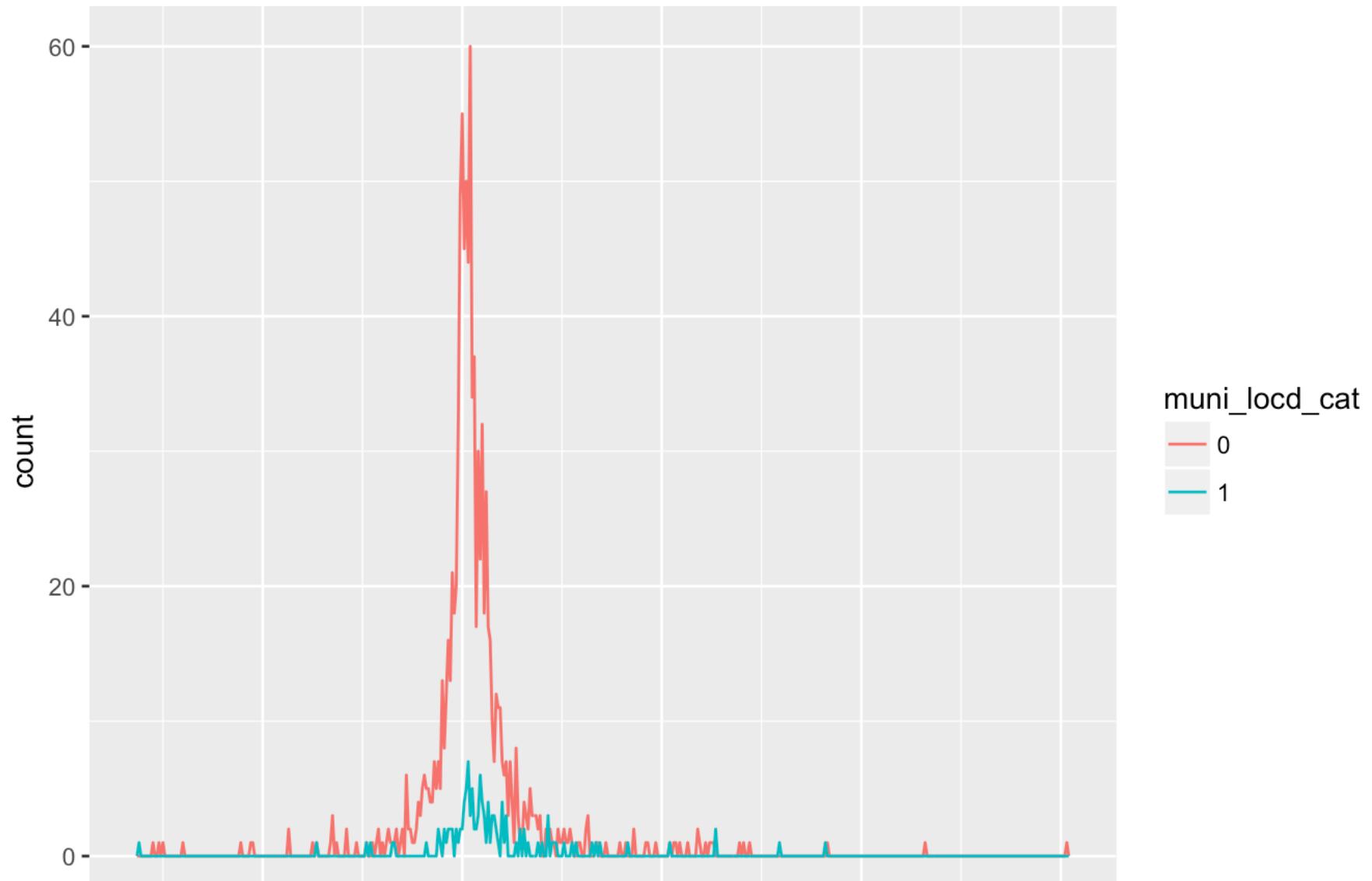
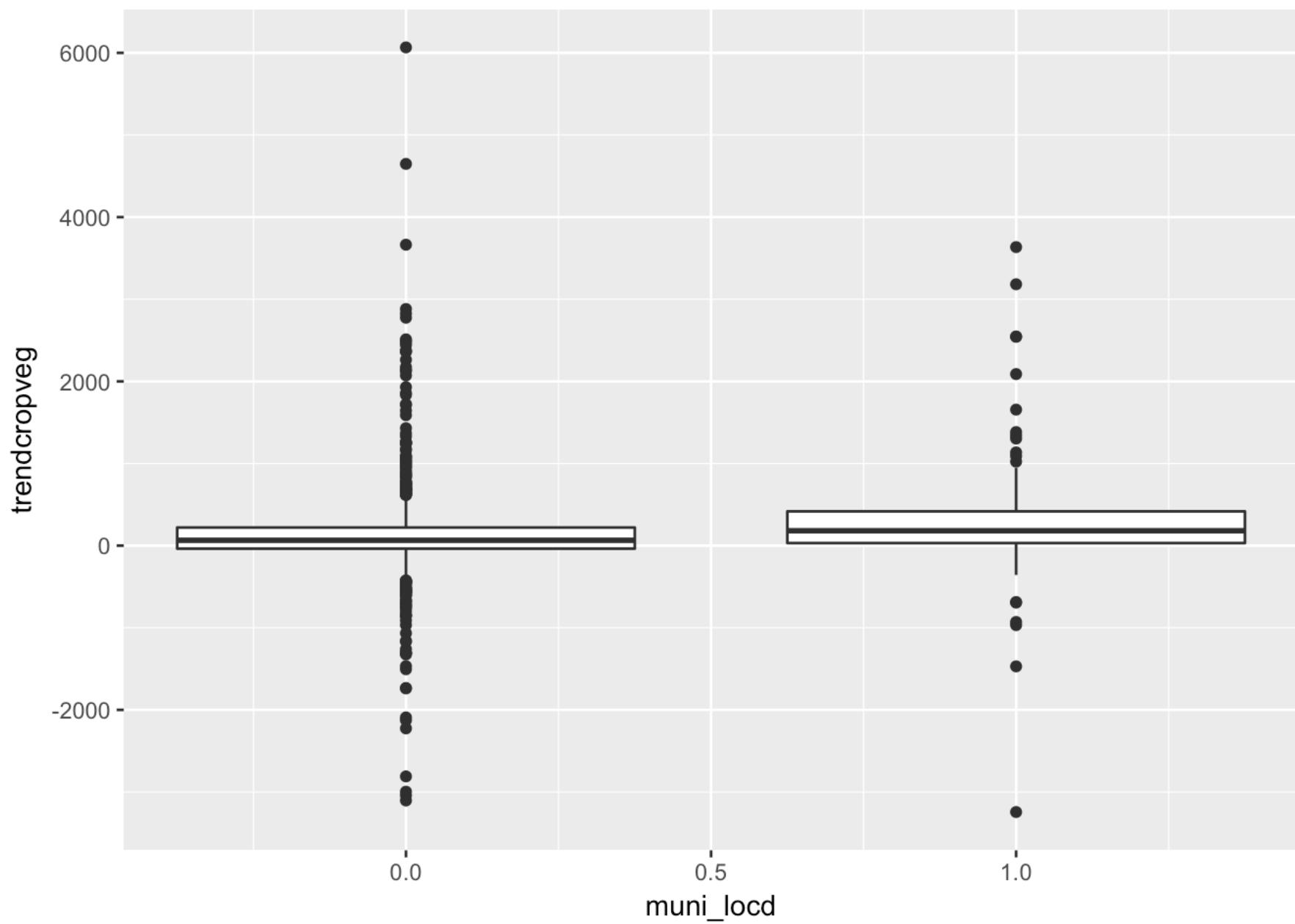
**c\_match** variables indicate mutually exclusive categories where 1) *presdept* = the President’s ideology & the majority ideology of Camara representatives at the department level are the same, 2) *munidept* = the majority ideology of department Camara representatives and the ideology with the highest municipality vote share (in Camara elections) are the same, 3) *munideptpres* = ideology of the president, camara reps, and highest municipality Camara vote share are the same. Coefficients are compared against the situation where there is no match in ideology from the president down to the municipality.

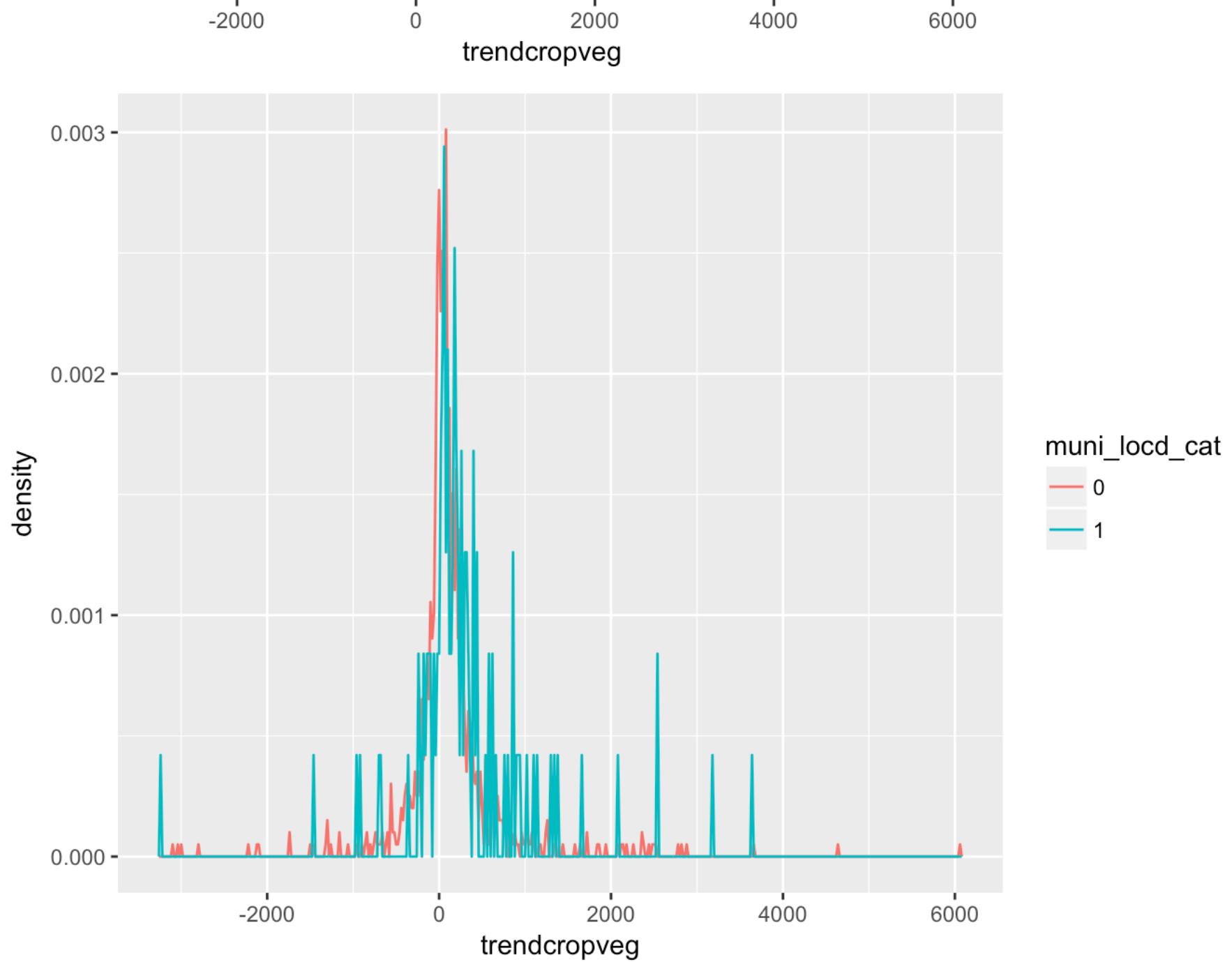
**s\_match** variables indicate similarly mutually exclusive categories where 1) *presseat* = the president’s ideology and the majority ideology of senators are the same, 2) *muniseatpres* = *presseat* plus a match with the ideology that received the highest vote share in Senate municipality elections. These two categories are compared against the situation where no ideology match occurs across the president, Senate majority, and municipality vote share.

**pres\_pidmuni** = a match where the municipality ideology with the highest vote share in the presidential elections matches the president’s ideology.

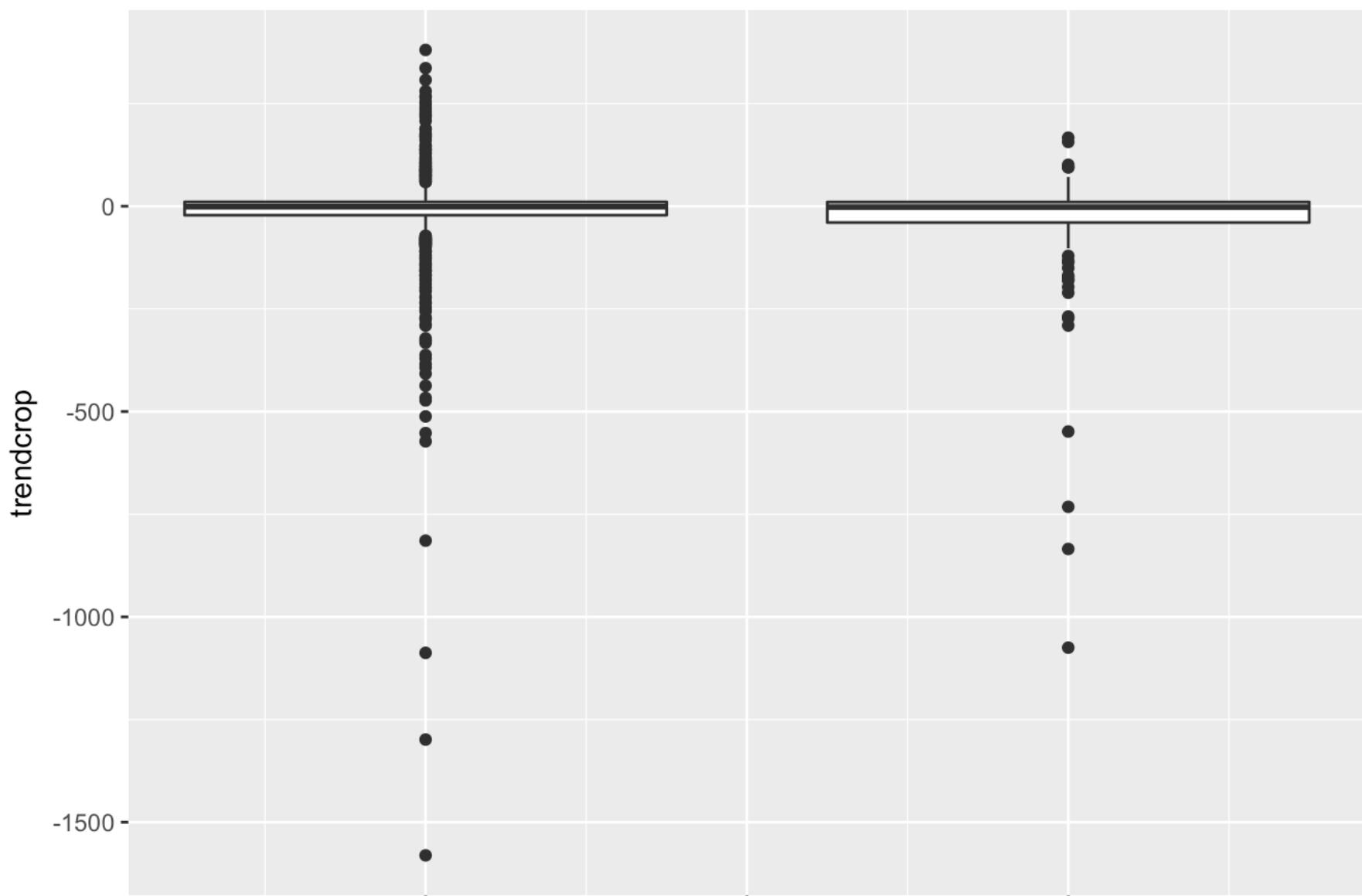
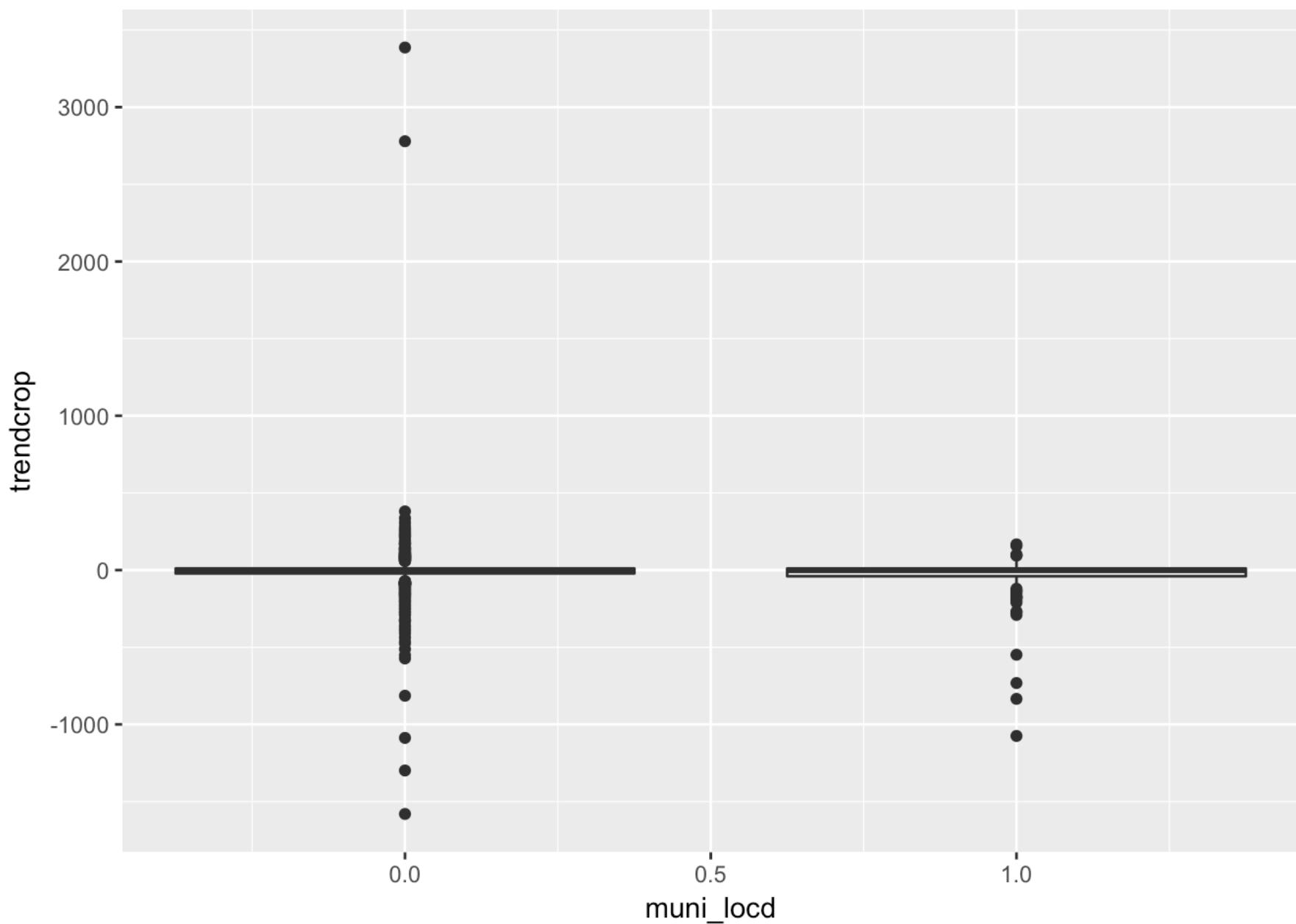
## Aid, Coca Presence, and CropVeg & Crop Cover

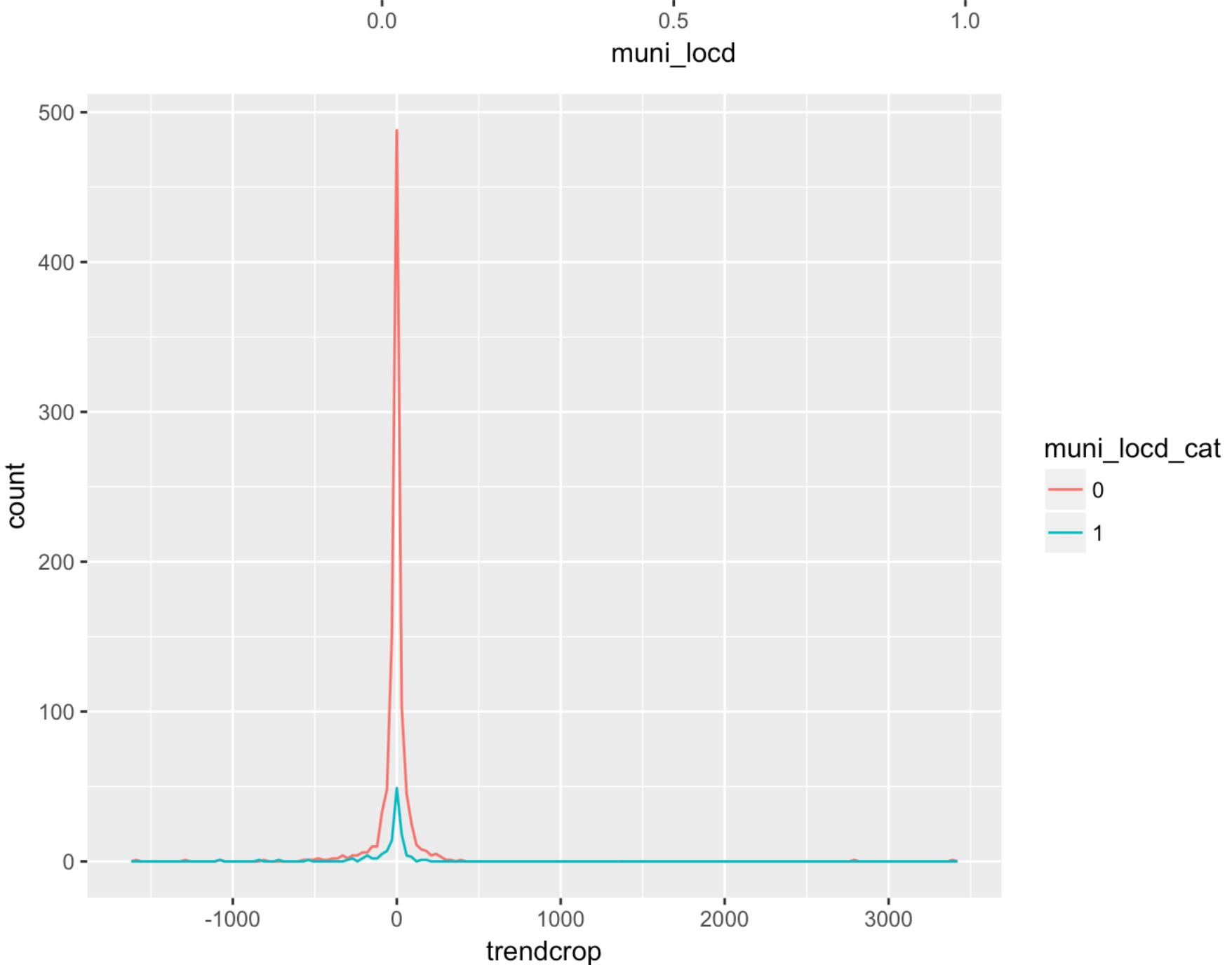
**Does receiving aid have an effect on *cropveg* trend?**

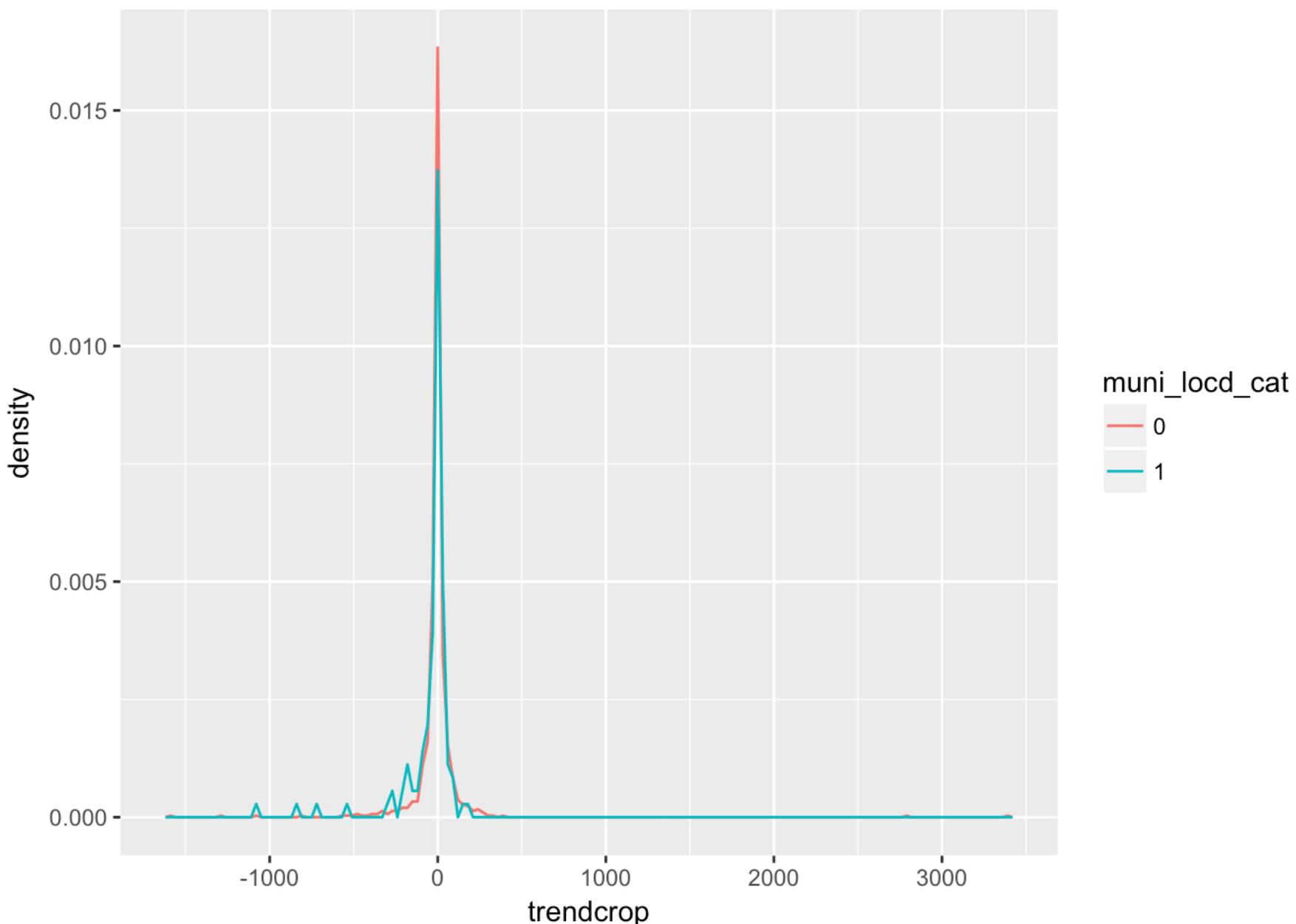




**Does receiving aid have an effect on *crop* trend?**







Obviously it's not immediately clear from the plots below – which show the distribution of the cropveg cover trend and crop cover trend variables. Considering there are only 119 (agricultural) aid receiving municipalities and 1002 non-receiving, the distributions look fairly similar. The first box plot shows all variables, and the second takes out the outlier positive values in the first box plot to “zoom” in on the box a little more. The plot with “density” on the y-axis is as it seems – the count is standardized so the area under the polygon is equal to one.

## Regression Tables and Marginal Effects Plots

```
## Printing code for markdown table...
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### Aid's Effect on MODIS Crop Veg Cover

	(1)	(2)	(3)	(4)
(Intercept)	127.34 (130.89)	141.05 (130.06)	708.08 (490.49)	730.75 (484.37)
Aid given	209.34 *** (70.51)	90.25 (72.01)	216.24 *** (70.00)	98.00 (72.32)
SPI (std dev)	3.52 (151.64)	2.25 (151.27)	-54.68 (157.33)	-55.37 (156.98)
Muni area	0.09 *** (0.03)	0.09 *** (0.03)	0.09 *** (0.03)	0.09 *** (0.03)

Upstream	-0.00 **	-0.00 **	-0.00 **	-0.00 **
	(0.00)	(0.00)	(0.00)	(0.00)
Altitude	-0.02	-0.03	-0.02	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)
Coca presence avg	-227.16 *	-300.86 **	-210.56 *	-284.44 **
	(123.53)	(139.11)	(124.80)	(140.93)
c_match_presdept			0.20	-22.65
			(100.28)	(100.71)
c_match_munidept			-77.89	-90.48
			(133.71)	(132.06)
c_match_munideptpres			-92.15	-99.53
			(84.30)	(84.24)
pres_pidmuni			55.48	46.64
			(104.63)	(104.93)
s_match_presseat			-1224.47	-1209.50
			(905.49)	(891.71)
s_match_muniseatpres			-869.86	-860.80
			(911.06)	(895.96)
Aid * Coca		426.95 *		420.97 *
		(240.49)		(243.24)
Adj. R <sup>2</sup>	0.08	0.08	0.08	0.08
Num. obs.	1057	1057	1057	1057

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. Table shows robust standard errors.

```
## Printing code for markdown table...
```

### Aid's Effect on MODIS Crop Veg Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)
(Intercept)	213.85 **	226.23 **	789.93 *	810.58 *
	(99.16)	(99.02)	(468.53)	(462.65)
Aid given	214.70 ***	105.78	224.21 ***	115.72
	(71.42)	(71.07)	(70.52)	(70.64)
SPI (std dev)	-112.08	-113.03	-174.57 *	-174.99 *
	(100.84)	(100.61)	(104.47)	(104.19)
Muni area	0.07 ***	0.08 ***	0.07 ***	0.07 ***
	(0.02)	(0.02)	(0.02)	(0.02)
Upstream	-0.00 ***	-0.00 ***	-0.00 **	-0.00 ***
	(0.00)	(0.00)	(0.00)	(0.00)
Altitude	-0.02	-0.02	-0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)
Coca presence avg	-162.10	-229.62 *	-151.38	-219.27 *

	(104.63)	(119.99)	(109.42)	(125.39)
c_match_presdept		-22.28	-43.21	
c_match_munidept		(97.18)	(98.16)	
c_match_munideptpres		-135.28	-146.74	
	(121.18)	(120.07)		
pres_pidmuni		-131.81*	-138.51*	
	(74.56)	(74.83)		
s_match_presseat		64.76	56.63	
	(104.43)	(104.79)		
s_match_muniseatpres		-1116.59	-1103.04	
	(871.96)	(858.38)		
Aid * Coca	390.46		386.23	
	(244.17)		(247.05)	
Adj. R <sup>2</sup>	0.07	0.07	0.07	0.08
Num. obs.	1056	1056	1056	1056

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. Table shows robust standard errors.

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## Aid's Effect on MODIS Crop Cover

	(1)	(2)	(3)	(4)
(Intercept)	-267.73 (190.76)	-267.56 (188.41)	-239.82 (239.07)	-240.00 (236.36)
Aid given	-53.34** (21.51)	-54.82 (38.46)	-60.40** (25.15)	-59.48 (42.85)
SPI (std dev)	311.81 (254.12)	311.79 (254.01)	324.48 (264.01)	324.48 (264.02)
Muni area	0.05 (0.04)	0.05 (0.04)	0.05 (0.04)	0.05 (0.04)
Upstream	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Altitude	-0.00 (0.02)	-0.00 (0.02)	0.00 (0.01)	0.00 (0.01)
Coca presence avg	-148.32 (142.71)	-149.23 (156.49)	-147.33 (130.37)	-146.75 (143.65)
c_match_presdept			80.51 (55.28)	80.69 (52.05)
c_match_munidept			175.47 (127.63)	175.57 (125.65)

c_match_munideptpres		77.23	77.29
		(88.80)	(87.59)
pres_pidmuni		28.73	28.80
		(35.10)	(36.29)
s_match_presseat		-317.33	-317.44
		(339.97)	(338.41)
s_match_muniseatpres		-274.15	-274.22
		(289.15)	(288.65)
Aid * Coca	5.28		-3.29
	(105.34)		(101.68)
Adj. R <sup>2</sup>	0.02	0.02	0.01
Num. obs.	1057	1057	1057

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. Table shows robust standard errors.

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## Printing code for markdown table...
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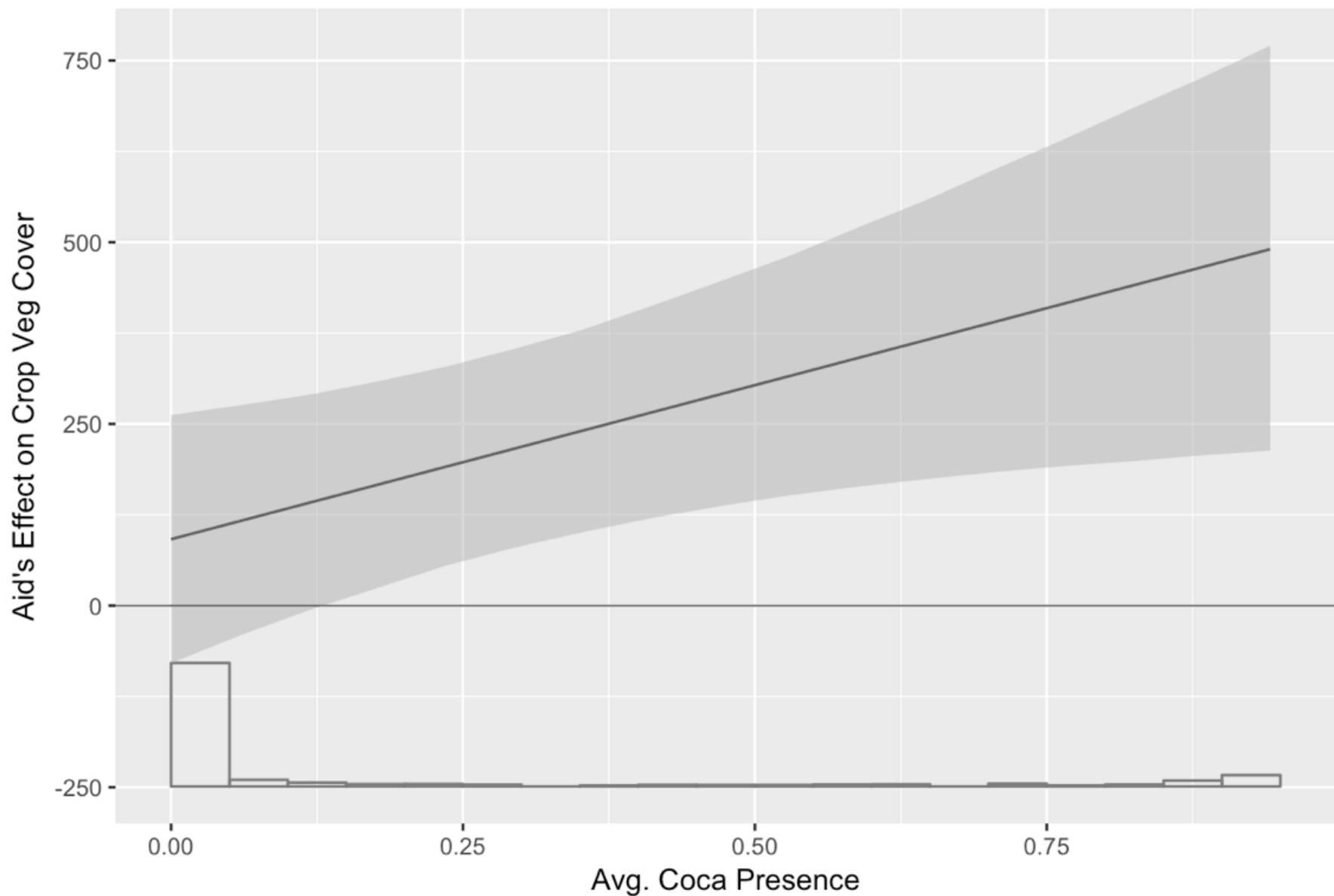
### Aid's Effect on MODIS Crop Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)
(Intercept)	-78.85*	-81.21**	-61.12	-65.36
	(40.64)	(40.63)	(113.75)	(116.43)
Aid given	-41.64***	-20.85	-42.98***	-20.71
	(15.53)	(18.56)	(15.80)	(18.31)
SPI (std dev)	59.40	59.58	62.73	62.82
	(54.17)	(54.12)	(57.49)	(57.44)
Muni area	0.01	0.00	0.01	0.01
	(0.00)	(0.00)	(0.00)	(0.00)
Upstream	-0.00*	-0.00*	-0.00*	-0.00*
	(0.00)	(0.00)	(0.00)	(0.00)
Altitude	0.02**	0.02**	0.01*	0.01*
	(0.01)	(0.01)	(0.01)	(0.01)
Coca presence avg	-6.26	6.63	-18.11	-4.17
	(18.26)	(19.46)	(18.68)	(19.44)
c_match_presdept			31.43	35.73
			(21.80)	(22.18)
c_match_munidept			50.16*	52.51*
			(28.26)	(28.58)
c_match_munideptpres			-9.36	-7.98
			(22.71)	(22.65)
pres_pidmuni			48.99**	50.66**
			(22.36)	(22.36)
s_match_presseat			-81.79	-84.57

s_match_muniseatpres		(165.15)	(170.15)
Aid * Coca	-74.53 (54.19)	-140.77 (160.80)	-142.45 (166.41)
Adj. R <sup>2</sup>	0.03	0.03	0.03
Num. obs.	1056	1056	1056

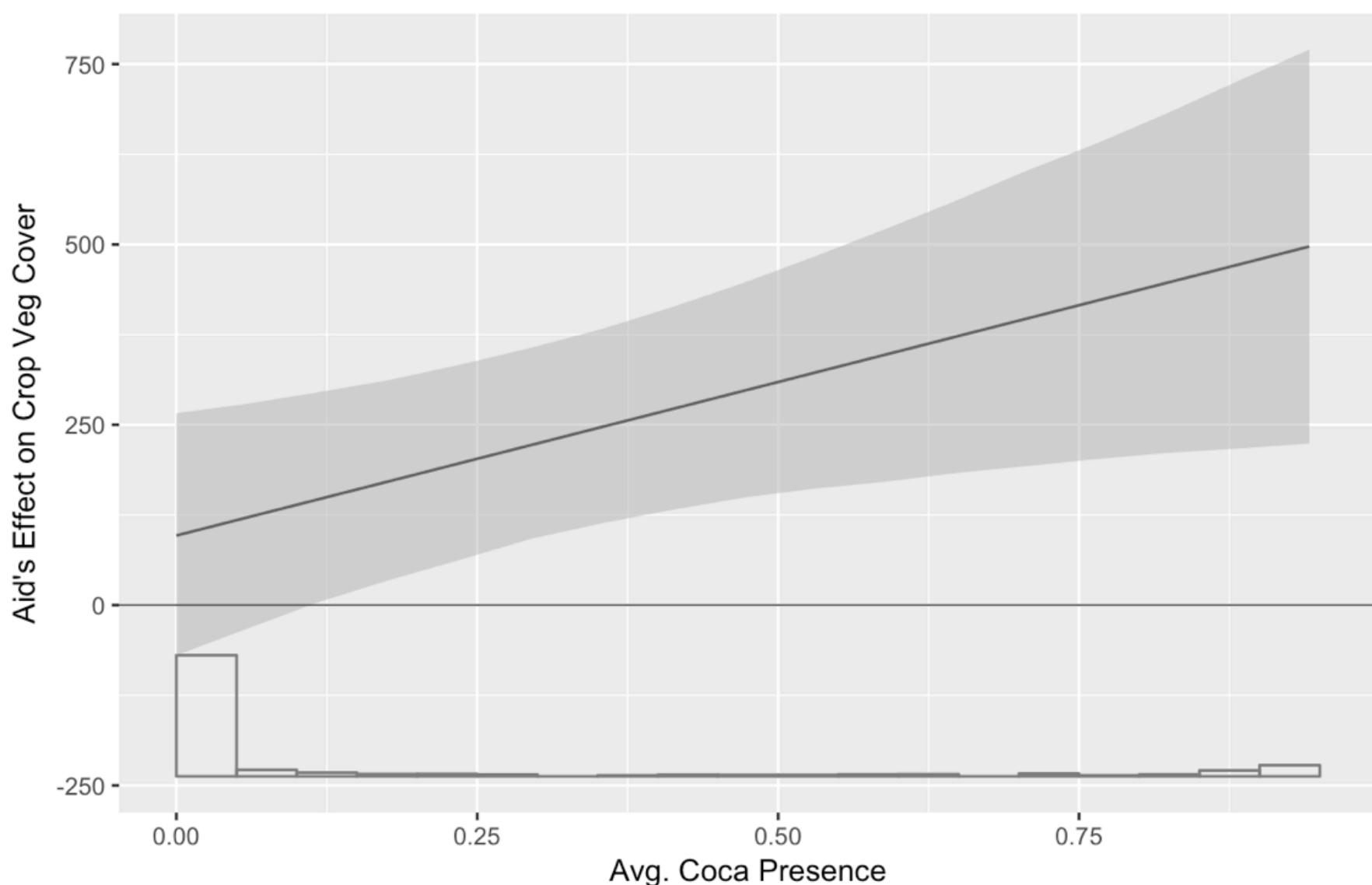
\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. Table shows robust standard errors.

### Estimated Coefficient of Aid by Coca Presence (1993-2015)

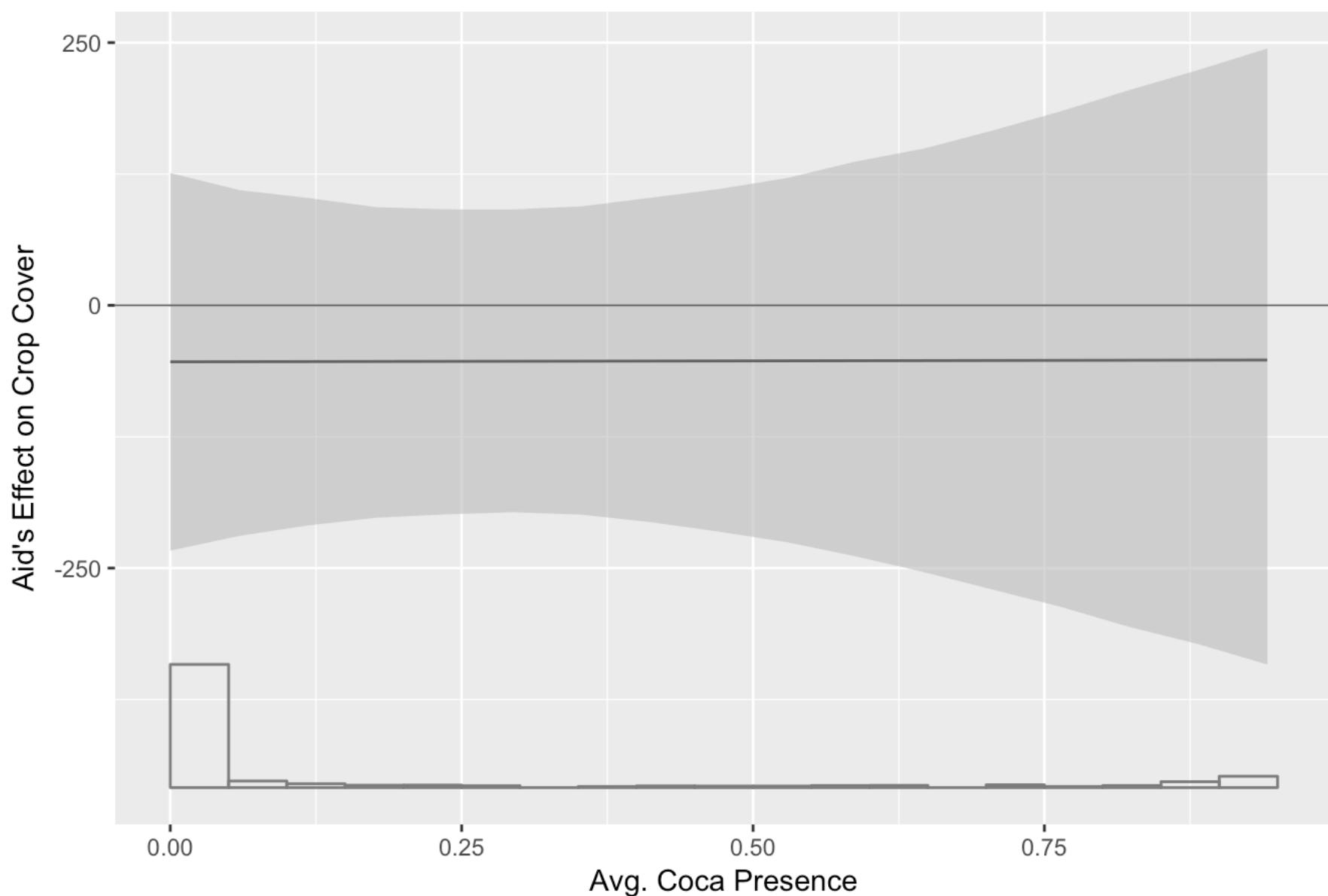


# Estimated Coefficient of Aid by Coca Presence (1993-2015)

controlling for election effects

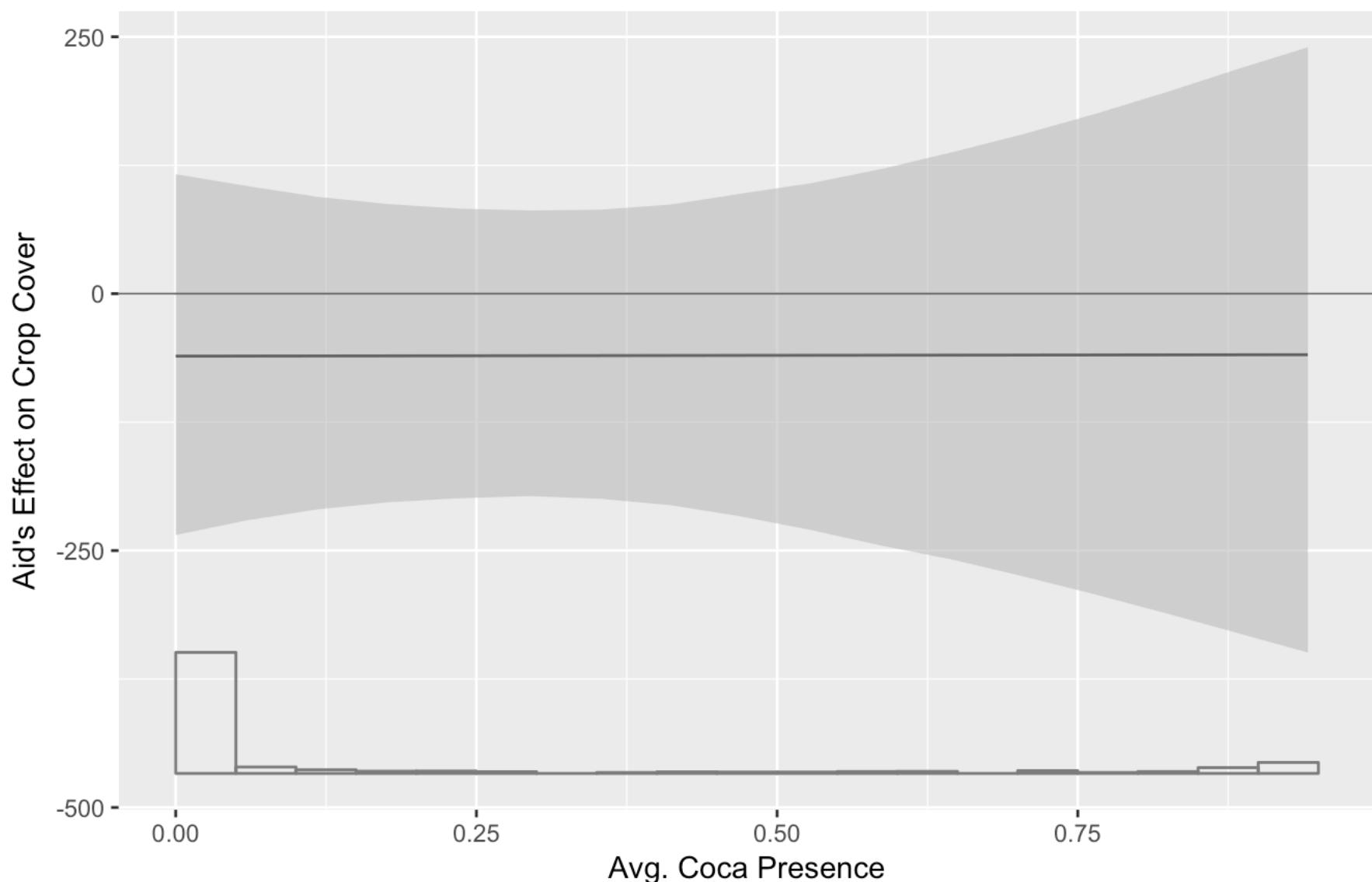


# Estimated Coefficient of Aid by Coca Presence (1993-2015)



# Estimated Coefficient of Aid by Coca Presence (1993-2015)

controlling for election effects



## Aid, State-Guerilla Conflict, and CropVeg/Crop Cover

### Regression Tables and Marginal Effects Plots

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#### Aid's Effect on MODIS Crop Veg Cover

	(1)	(2)	(3)	(4)
(Intercept)	70.43 (158.42)	82.10 (157.85)	605.09 (567.20)	607.12 (563.75)
Aid given	196.44 *** (68.79)	4.95 (100.14)	203.69 *** (68.19)	21.36 (99.63)
SPI (std dev)	96.49 (182.46)	94.11 (182.20)	29.63 (188.45)	28.26 (188.14)
Muni area	0.11 *** (0.04)	0.11 *** (0.04)	0.11 *** (0.04)	0.11 *** (0.04)
Upstream	-0.00 ** (0.00)	-0.00 ** (0.00)	-0.00 ** (0.00)	-0.00 ** (0.00)

Altitude	-0.01 (0.02)	-0.01 (0.02)	-0.00 (0.02)	-0.00 (0.02)
State-Guerilla Dispute	-172.18 (130.89)	-212.34 (134.28)	-181.82 (133.00)	-220.15 (136.25)
Exposure to State	176.99 ** (69.26)	180.20 *** (69.51)	193.98 *** (72.41)	197.25 *** (72.51)
Exposure to Guerillas	-209.37 *** (71.01)	-202.48 *** (70.87)	-181.02 ** (71.21)	-175.03 ** (71.00)
c_match_presdept			5.17 (110.18)	-0.07 (109.88)
c_match_munidept			-48.99 (148.43)	-46.87 (148.05)
c_match_munideptpres			-44.22 (99.74)	-45.64 (99.68)
pres_pidmuni			112.81 (121.54)	116.85 (121.08)
s_match_presseat			-1283.83 (1025.84)	-1265.02 (1020.24)
s_match_muniseatpres			-937.04 (1029.34)	-926.22 (1022.90)
Aid * State-Guerilla Dispute		348.75 * (189.38)		330.90 * (192.06)
Adj. R <sup>2</sup>	0.10	0.10	0.10	0.10
Num. obs.	937	937	937	937

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'State-Guerilla Dispute' = the proportion of years (1998-2009) that government and guerilla forces have a dispute in a given municipality. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust standard errors.

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## Printing code for markdown table...
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## Aid's Effect on MODIS Crop Veg Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)
(Intercept)	179.55 (117.06)	190.88 (116.53)	736.94 (528.09)	738.90 (524.16)
Aid given	205.07 *** (69.46)	18.72 (102.01)	214.90 *** (68.29)	36.49 (100.71)
SPI (std dev)	-51.85 (110.32)	-54.12 (109.91)	-122.32 (115.44)	-123.63 (114.88)
Muni area	0.08 *** (0.03)	0.08 *** (0.03)	0.08 *** (0.03)	0.08 *** (0.03)

Upstream	-0.00 **	-0.00 **	-0.00 **	-0.00 **
	(0.00)	(0.00)	(0.00)	(0.00)
Altitude	-0.00	-0.00	0.00	0.00
	(0.02)	(0.02)	(0.02)	(0.02)
State-Guerilla Dispute	-100.89	-139.99	-104.42	-141.94
	(110.19)	(113.37)	(108.98)	(112.08)
Exposure to State	170.91 **	174.03 **	182.14 ***	185.34 ***
	(68.11)	(68.30)	(70.67)	(70.69)
Exposure to Guerillas	-218.07 ***	-211.37 ***	-197.33 ***	-191.46 ***
	(69.92)	(69.61)	(69.15)	(68.76)
c_match_presdept			-24.81	-29.93
			(105.50)	(105.19)
c_match_munidept			-115.80	-113.71
			(132.93)	(132.47)
c_match_munideptpres			-99.83	-101.21
			(83.12)	(83.05)
pres_pidmuni			120.09	124.04
			(121.95)	(121.44)
s_match_presseat			-1198.43	-1180.03
			(975.33)	(968.96)
s_match_muniseatpres			-898.13	-887.55
			(980.32)	(972.87)
Aid * State-Guer Dispute		339.41 *		323.77
		(196.26)		(198.63)
Adj. R <sup>2</sup>	0.09	0.09	0.09	0.09
Num. obs.	936	936	936	936

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'State-Guerilla Dispute' = the proportion of years (1998-2009) that government and guerilla forces have a dispute in a given municipality. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust standard errors.

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## Printing code for markdown table...
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## Aid's Effect on MODIS Crop Cover

	(1)	(2)	(3)	(4)
(Intercept)	-323.42	-324.11	-379.49	-379.60
	(242.10)	(241.78)	(341.56)	(341.85)
Aid given	-64.79 **	-53.58	-72.74 **	-62.97
	(28.61)	(48.37)	(32.86)	(50.00)
SPI (std dev)	396.49	396.63	409.73	409.81
	(327.18)	(327.26)	(335.66)	(335.80)

Muni area	0.05 (0.05)	0.05 (0.05)	0.06 (0.05)	0.06 (0.05)
Upstream	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Altitude	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.01 (0.01)
State-Guerilla Dispute	-101.41 (162.43)	-99.05 (165.39)	-118.85 (175.11)	-116.80 (177.47)
Exposure to State	6.09 (35.22)	5.91 (35.42)	24.01 (41.53)	23.83 (41.73)
Exposure to Guerillas	-20.53 (40.00)	-20.94 (40.36)	-5.39 (50.52)	-5.71 (50.83)
c_match_presdept			101.14 (71.93)	101.42 (71.89)
c_match_munidept			204.59 (149.39)	204.47 (149.51)
c_match_munideptpres			118.44 (124.38)	118.52 (124.42)
pres_pidmuni			44.62 (37.23)	44.41 (36.85)
s_match_presseat			-256.92 (347.11)	-257.93 (346.83)
s_match_muniseatpres			-213.79 (311.02)	-214.37 (311.24)
Aid * State-Guer Dispute		-20.42 (79.32)		-17.72 (75.08)
Adj. R <sup>2</sup>	0.02	0.02	0.01	0.01
Num. obs.	937	937	937	937

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'State-Guerilla Dispute' = the proportion of years (1998-2009) that government and guerilla forces have a dispute in a given municipality. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust standard errors.

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## Printing code for markdown table...
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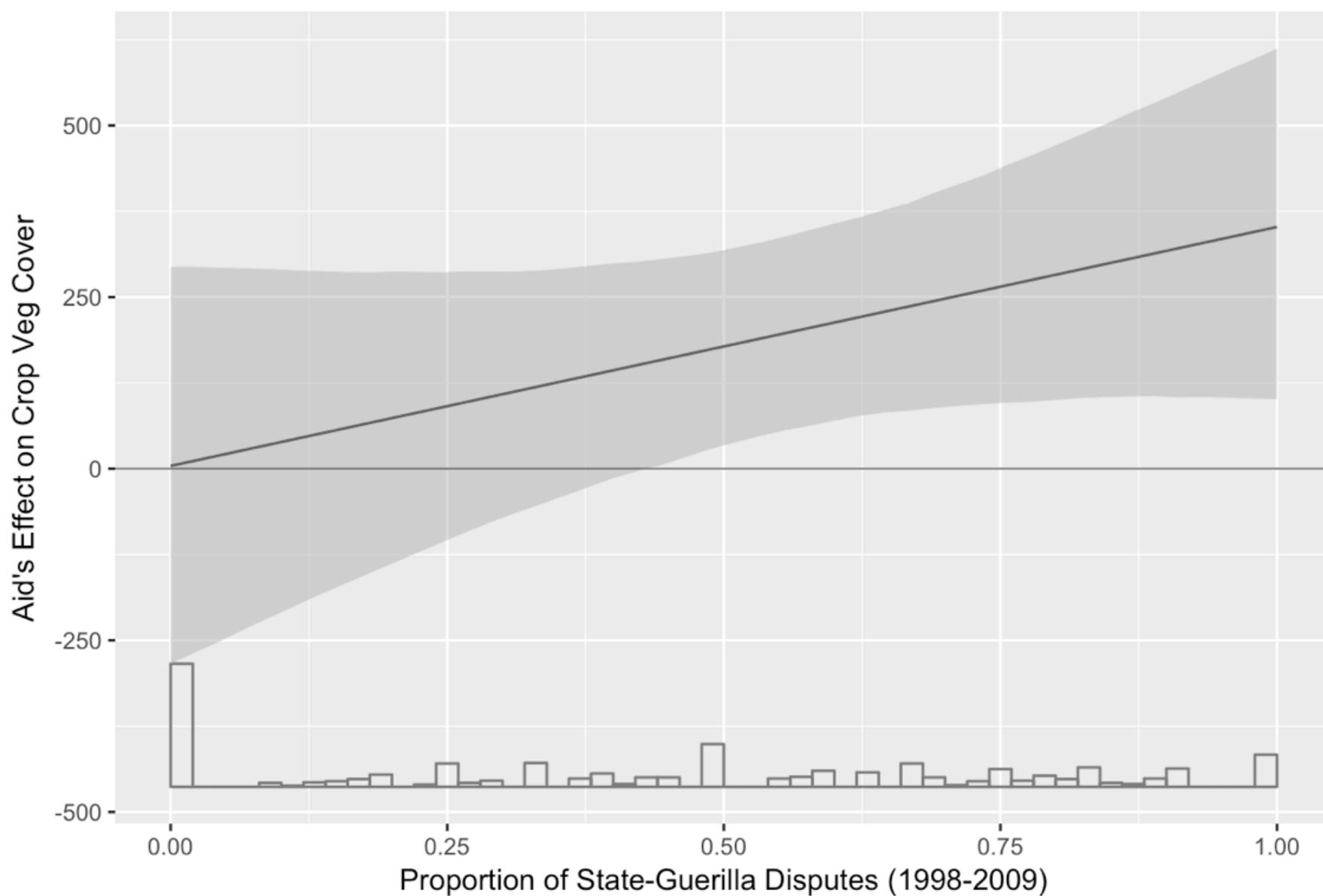
## Aid's Effect on MODIS Crop Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)
(Intercept)	-82.65 <sup>*</sup> (47.50)	-84.02 <sup>*</sup> (48.57)	-88.47 (123.58)	-88.67 (124.74)
Aid given	-45.73 <sup>**</sup> (18.20)	-23.19 (31.70)	-47.99 <sup>***</sup> (18.55)	-29.55 (29.89)

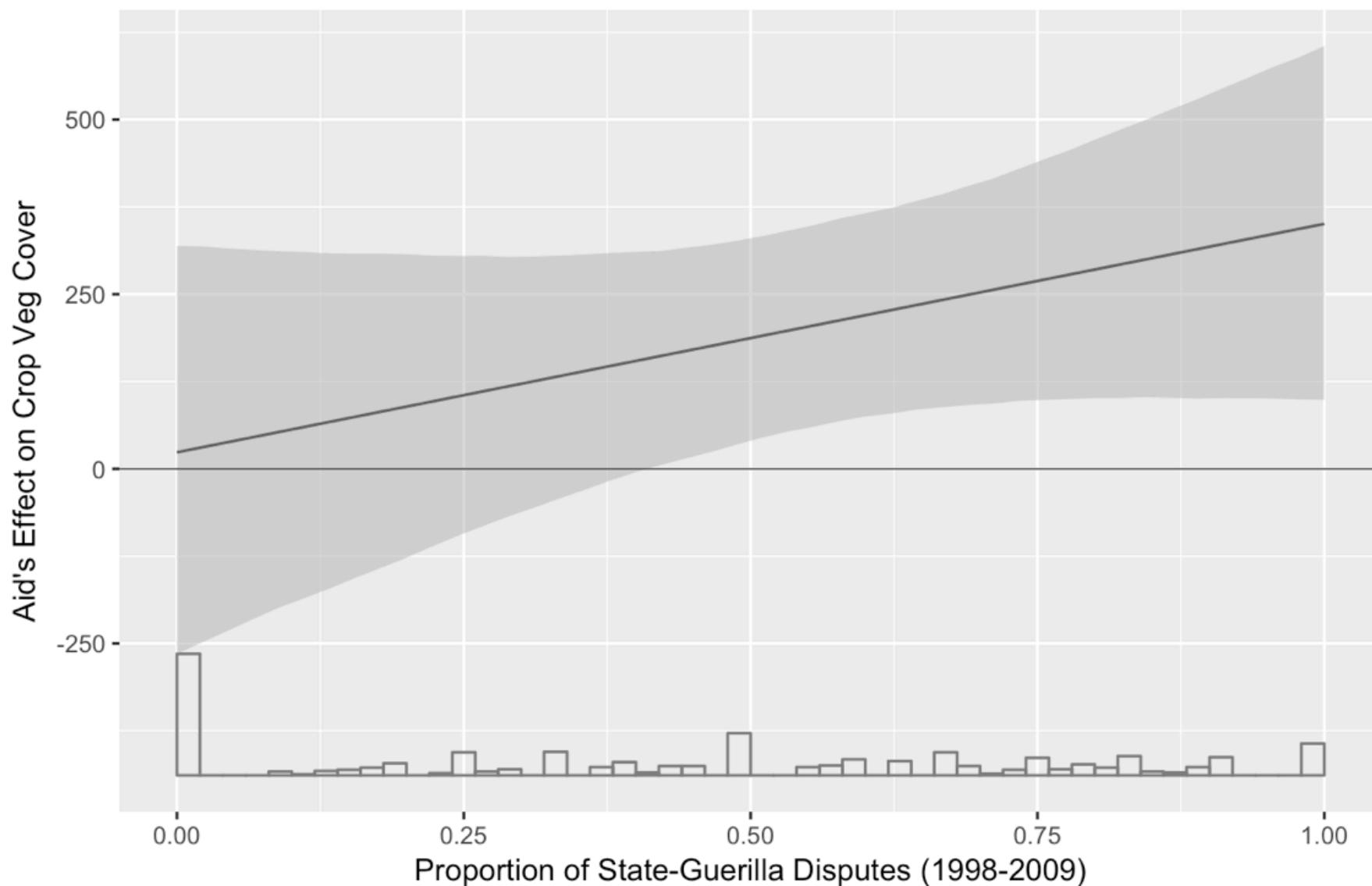
SPI (std dev)	69.18	69.45	74.32	74.46
	(59.25)	(59.41)	(61.86)	(61.96)
Muni area	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Upstream	-0.00*	-0.00*	-0.00*	-0.00*
	(0.00)	(0.00)	(0.00)	(0.00)
Altitude	0.01**	0.01**	0.01*	0.01*
	(0.01)	(0.01)	(0.01)	(0.01)
State-Guerilla Dispute	55.90	60.63	51.99	55.87
	(46.22)	(48.34)	(44.98)	(46.86)
Exposure to State	-7.34	-7.71	-2.13	-2.46
	(24.88)	(24.93)	(23.89)	(23.92)
Exposure to Guerillas	-39.75	-40.56	-41.38	-41.99
	(31.77)	(32.01)	(31.82)	(32.01)
c_match_presdept			34.96	35.49
			(24.80)	(25.13)
c_match_munidept			57.12*	56.90*
			(31.41)	(31.17)
c_match_munideptpres			-4.31	-4.17
			(27.46)	(27.60)
pres_pidmuni			60.69**	60.28**
			(25.67)	(25.43)
s_match_presseat			-68.40	-70.31
			(173.27)	(174.01)
s_match_muniseatpres			-127.92	-129.01
			(168.13)	(169.73)
Aid * State-Guer Dispute		-41.05		-33.47
		(60.05)		(57.68)
Adj. R <sup>2</sup>	0.03	0.03	0.03	0.03
Num. obs.	936	936	936	936

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'State-Guerilla Dispute' = the proportion of years (1998-2009) that government and guerilla forces have a dispute in a given municipality. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust standard errors.

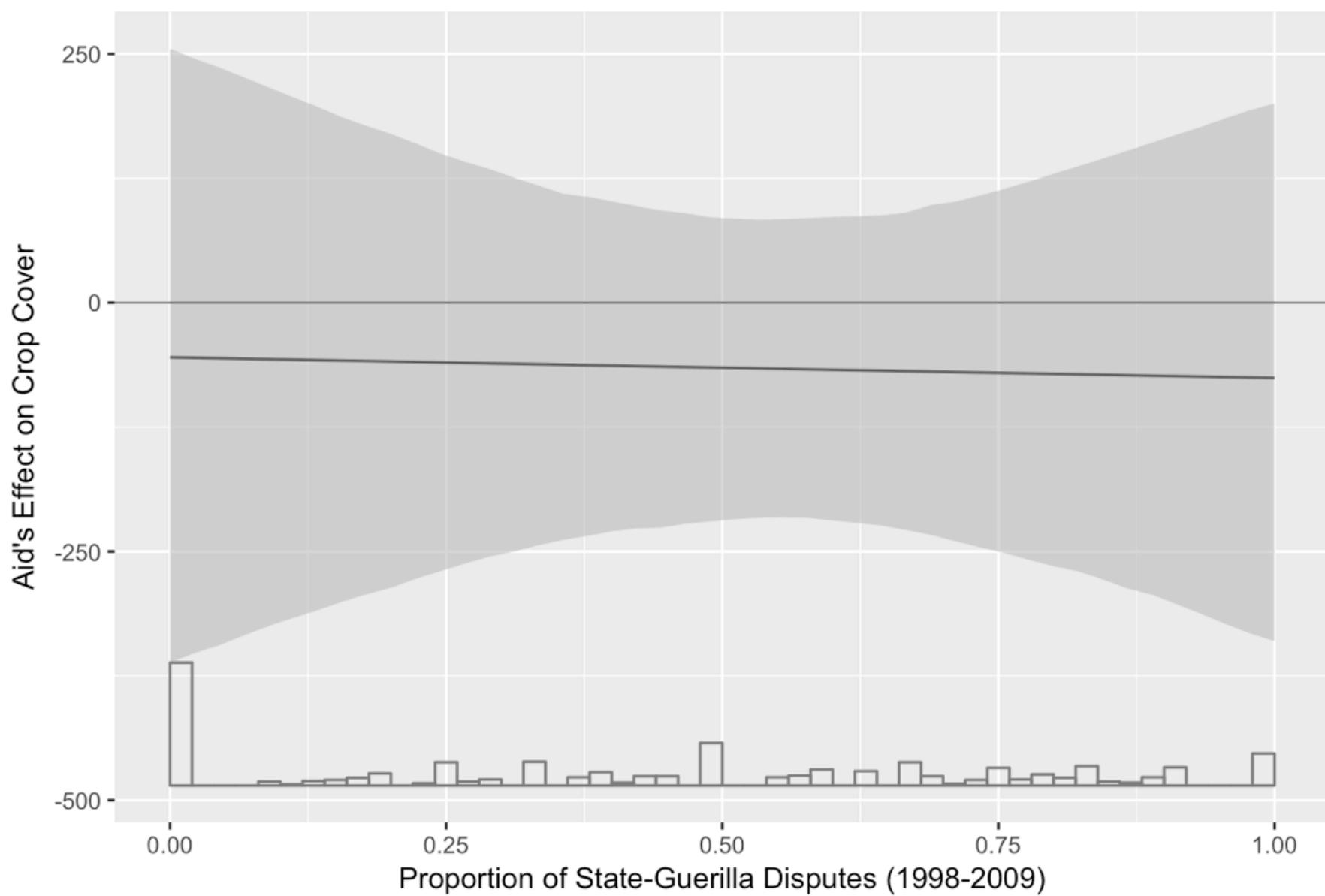
### Estimated Coefficient of Aid by the Proportion of Disputes (1998-2009)



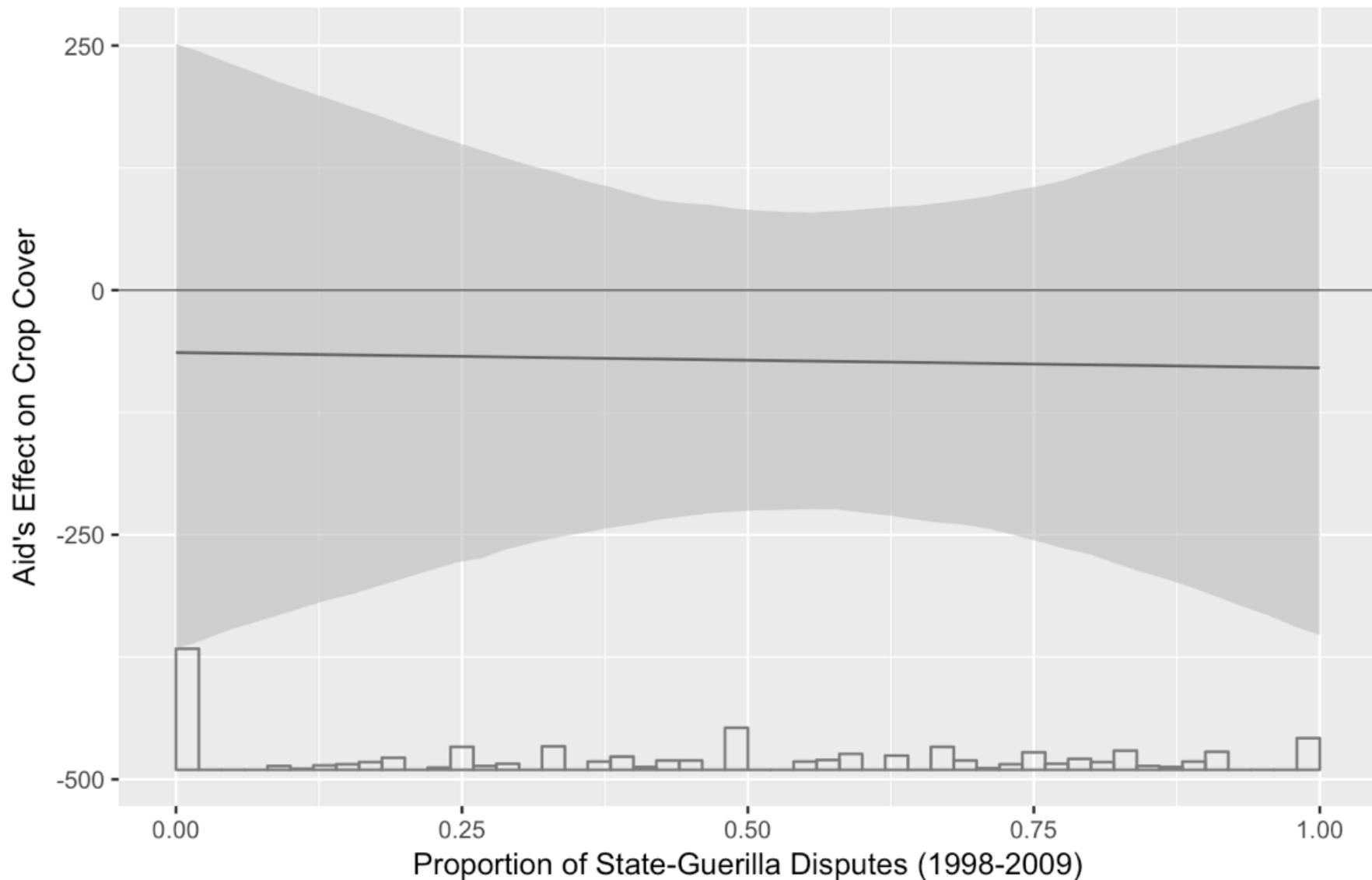
### Estimated Coefficient of Aid by the Proportion of Disputes (1998-2009) controlling for election effects



### Estimated Coefficient of Aid by the Proportion of Disputes (1998-2009)



### Estimated Coefficient of Aid by the Proportion of Disputes (1998-2009) controlling for election effects



# Aid, Conflict Incidence, and CropVeg/Crop Cover

## Regression Tables and Marginal Effects Plots

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## Printing code for markdown table...
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### Aid's Effect on MODIS Crop Veg Cover

	(1)	(2)	(3)	(4)
(Intercept)	201.91 (133.53)	225.69* (133.73)	662.30 (544.77)	690.45 (539.48)
Aid given	210.78*** (70.61)	-48.73 (163.77)	215.14*** (69.89)	-33.79 (164.20)
SPI (std dev)	67.16 (172.62)	73.27 (173.02)	7.21 (179.79)	15.65 (180.52)
Muni area	0.11*** (0.04)	0.11*** (0.04)	0.11*** (0.04)	0.11*** (0.04)
Upstream	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00** (0.00)
Altitude	-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.02)
Conflict Incidence	-43.24 (29.68)	-54.92* (32.32)	-35.86 (29.48)	-47.18 (32.16)
Conflict Incidence		93.07 (59.50)		88.74 (60.77)
Exposure to State	125.25** (54.79)	119.31** (54.73)	129.63** (55.29)	123.92** (55.18)
Exposure to Guerillas	-271.09*** (57.11)	-268.09*** (56.97)	-259.79*** (55.65)	-257.61*** (55.52)
c_match_presdept			-0.00 (108.19)	-8.56 (107.36)
c_match_munidept			-62.87 (144.82)	-57.60 (143.98)
c_match_munideptpres			-57.12 (95.80)	-64.05 (94.90)
pres_pidmuni			101.76 (123.81)	95.87 (124.53)
s_match_presseat			-1106.69 (1024.07)	-1105.13 (1012.89)
s_match_muniseatpres			-782.69 (1026.50)	-782.78 (1014.88)
Adj. R <sup>2</sup>	0.10	0.10	0.10	0.10
Num. obs.	937	937	937	937

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'Conflict Incidence' takes on values 1-5 moving from low levels of conflict occurrence to high levels of conflict occurrence. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

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## Printing code for markdown table...
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## Aid's Effect on MODIS Crop Veg Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)
(Intercept)	258.07 ** (121.74)	279.18 ** (123.10)	769.86 (511.09)	794.62 (505.32)
Aid given	213.85 *** (71.64)	-17.31 (164.54)	221.32 *** (70.60)	1.24 (163.94)
SPI (std dev)	-69.07 (110.14)	-63.45 (110.14)	-134.82 (114.30)	-127.19 (114.51)
Muni area	0.09 *** (0.03)	0.09 *** (0.03)	0.09 *** (0.03)	0.08 *** (0.03)
Upstream	-0.00 ** (0.00)	-0.00 ** (0.00)	-0.00 ** (0.00)	-0.00 ** (0.00)
Altitude	-0.01 (0.02)	-0.01 (0.02)	-0.00 (0.02)	-0.00 (0.02)
Conflict Incidence	-26.44 (24.35)	-36.87 (26.89)	-20.20 (24.93)	-30.22 (27.52)
Conflict Incidence		82.90 (60.92)		78.46 (62.16)
Exposure to State	141.40 *** (51.21)	136.08 *** (50.99)	144.82 *** (51.99)	139.75 *** (51.77)
Exposure to Guerillas	-253.04 *** (54.29)	-250.39 *** (54.21)	-243.08 *** (53.18)	-241.18 *** (53.09)
c_match_presdept			-27.73 (104.49)	-35.26 (103.96)
c_match_munidept			-123.61 (132.14)	-118.88 (131.07)
c_match_munideptpres			-107.05 (82.14)	-113.11 (81.60)
pres_pidmuni			113.79 (123.64)	108.57 (124.42)
s_match_presseat			-1098.83 (981.25)	-1097.47 (968.45)
s_match_muniseatpres			-811.35 (981.96)	-811.39 (968.58)
Adj. R <sup>2</sup>	0.09	0.09	0.09	0.09
Num. obs.	936	936	936	936

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'Conflict Incidence' takes on values 1-5 moving from low levels of conflict occurrence to high levels of conflict occurrence. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

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## Printing code for markdown table...
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## Aid's Effect on MODIS Crop Cover

	(1)	(2)	(3)	(4)
(Intercept)	-226.64 *	-223.22 *	-349.23	-344.37
	(132.51)	(127.58)	(307.98)	(303.58)
Aid given	-51.87 **	-89.19	-60.99 **	-103.98
	(22.44)	(87.35)	(25.86)	(93.54)
SPI (std dev)	373.78	374.65	391.10	392.56
	(301.49)	(303.06)	(314.43)	(316.65)
Muni area	0.06	0.06	0.06	0.06
	(0.05)	(0.05)	(0.05)	(0.05)
Upstream	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Altitude	-0.00	-0.00	-0.00	-0.00
	(0.02)	(0.02)	(0.01)	(0.01)
Conflict Incidence	-37.73	-39.41	-35.74	-37.69
	(37.47)	(40.26)	(35.13)	(37.96)
Conflict Incidence		13.38		15.33
		(30.90)		(30.77)
Exposure to State	-14.36	-15.21	-8.40	-9.39
	(41.82)	(43.00)	(40.42)	(41.60)
Exposure to Guerillas	-42.20	-41.77	-42.72	-42.35
	(45.33)	(44.77)	(42.79)	(42.36)
c_match_presdept			97.43	95.95
			(67.65)	(65.96)
c_match_munidept			193.86	194.77
			(136.87)	(138.18)
c_match_munideptpres			106.86	105.67
			(112.17)	(110.61)
pres_pidmuni			35.44	34.43
			(42.82)	(44.12)
s_match_presseat			-79.33	-79.07
			(323.59)	(323.96)
s_match_muniseatpres			-57.44	-57.46
			(330.90)	(331.58)
Adj. R <sup>2</sup>	0.02	0.02	0.02	0.02
Num. obs.	937	937	937	937

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'Conflict Incidence' takes on values 1-5 moving from low levels of conflict occurrence to high levels of conflict occurrence. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

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### Aid's Effect on MODIS Crop Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)
(Intercept)	-102.37 ** (49.78)	-104.70 ** (50.19)	-111.51 (134.03)	-113.86 (136.77)
Aid given	-45.08 *** (17.05)	-19.56 (46.17)	-47.34 *** (17.51)	-26.46 (45.16)
SPI (std dev)	72.35 (59.10)	71.73 (59.05)	77.19 (62.22)	76.46 (62.11)
Muni area	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Upstream	-0.00 * (0.00)	-0.00 * (0.00)	-0.00 * (0.00)	-0.00 * (0.00)
Altitude	0.01 * (0.01)	0.01 * (0.01)	0.01 (0.01)	0.01 (0.01)
Conflict Incidence	-0.57 (7.41)	0.58 (7.85)	-1.12 (7.38)	-0.17 (7.72)
Conflict Incidence		-9.15 (16.21)		-7.44 (15.95)
Exposure to State	21.36 (17.43)	21.95 (17.45)	25.17 (18.01)	25.65 (18.03)
Exposure to Guerillas	-2.26 (21.67)	-2.55 (21.79)	-5.80 (21.05)	-5.98 (21.14)
c_match_presdept			36.15 (25.23)	36.87 (25.57)
c_match_munidept			59.61 * (32.07)	59.17 * (31.83)
c_match_munideptpres			-3.48 (26.56)	-2.91 (26.66)
pres_pidmuni			62.03 ** (25.51)	62.53 ** (25.50)
s_match_presseat			-61.98 (188.52)	-62.11 (191.06)
s_match_muniseatpres			-120.79 (177.72)	-120.79 (180.42)
Adj. R <sup>2</sup>	0.03	0.03	0.03	0.03

Num. obs.

936

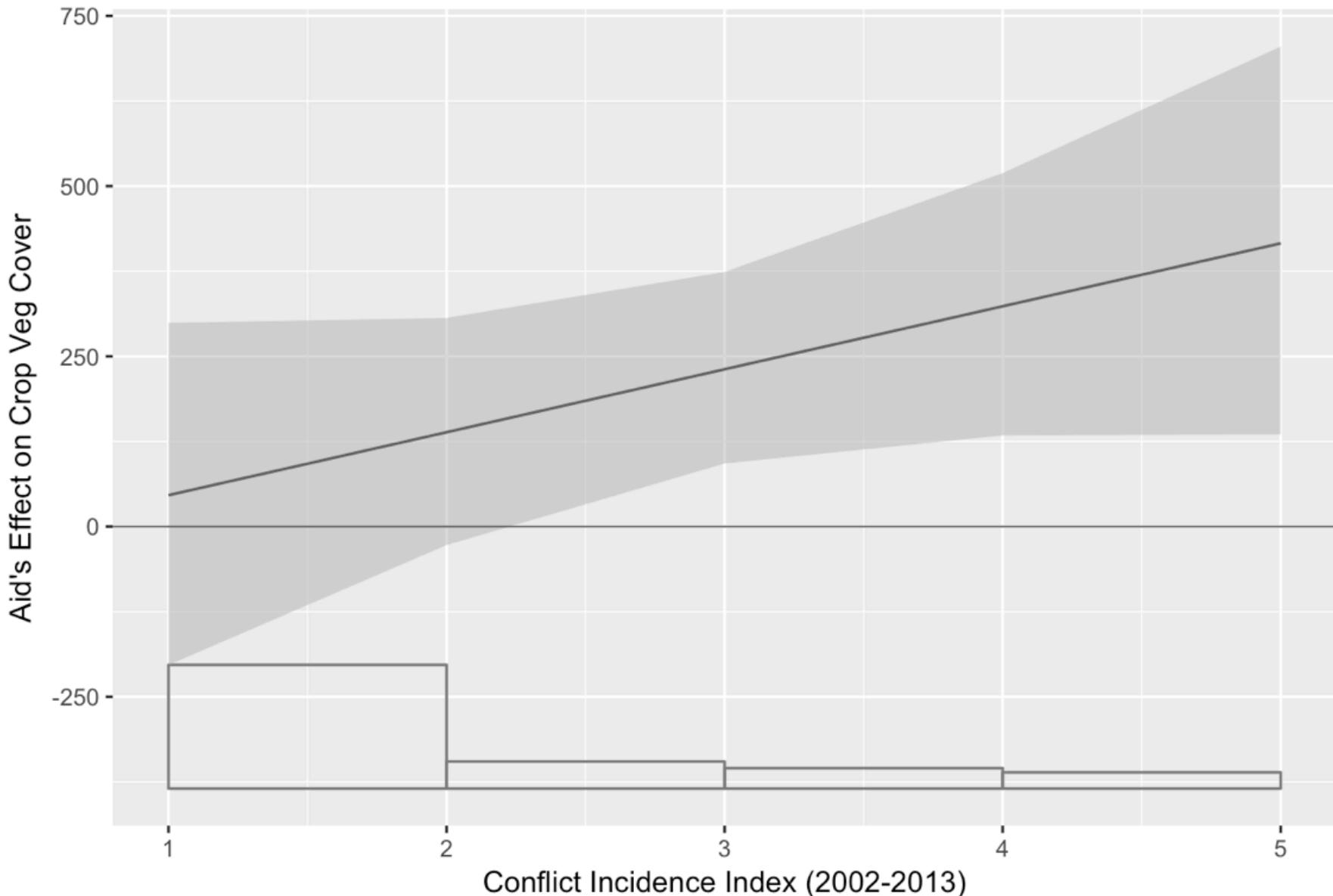
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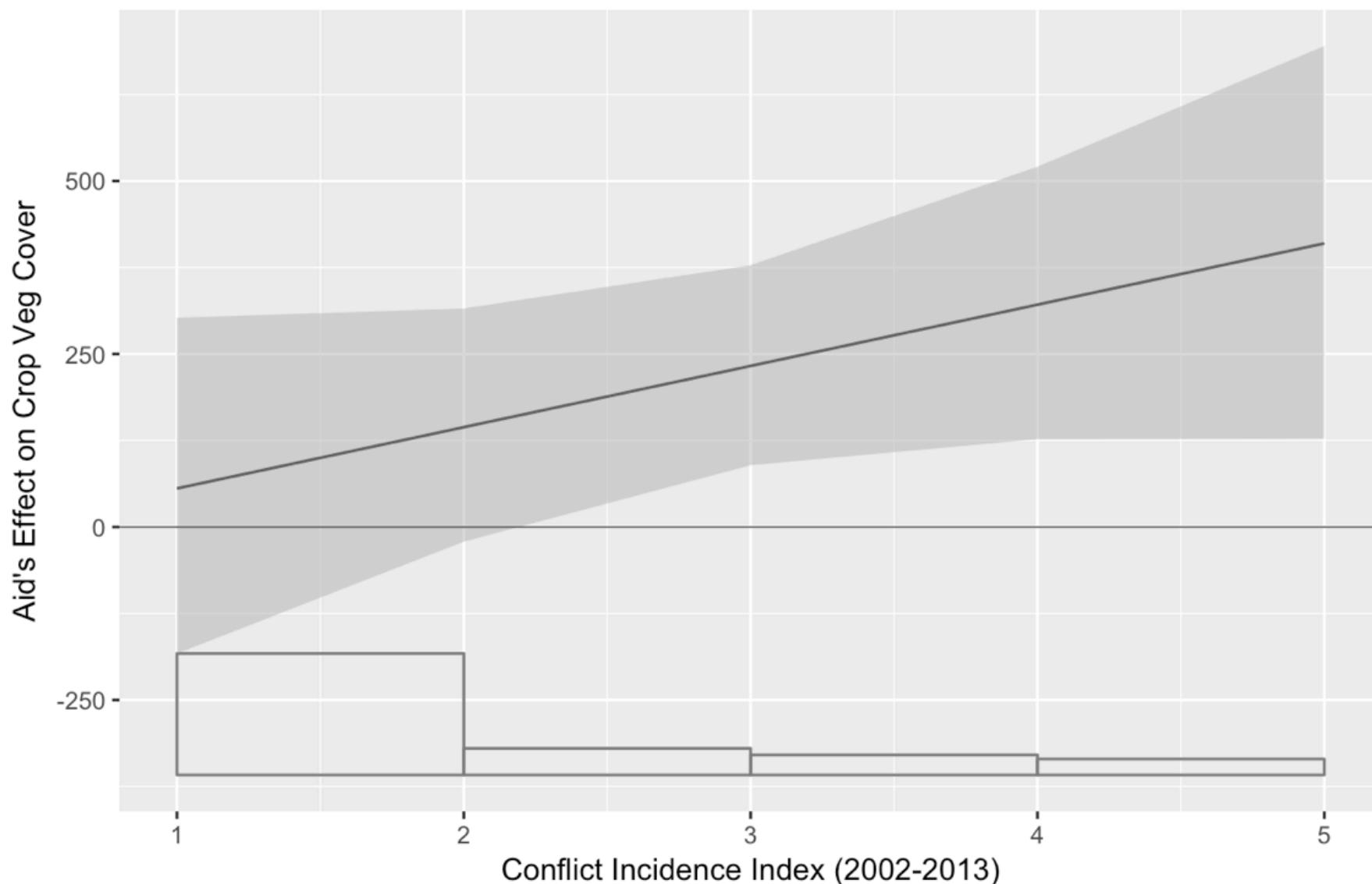
\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . OLS regressions with MODIS crop trend as the dependent variable. 'Conflict Incidence' takes on values 1-5 moving from low levels of conflict occurrence to high levels of conflict occurrence. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

### Estimated Coefficient of Aid by Conflict Incidence (2002-2013)

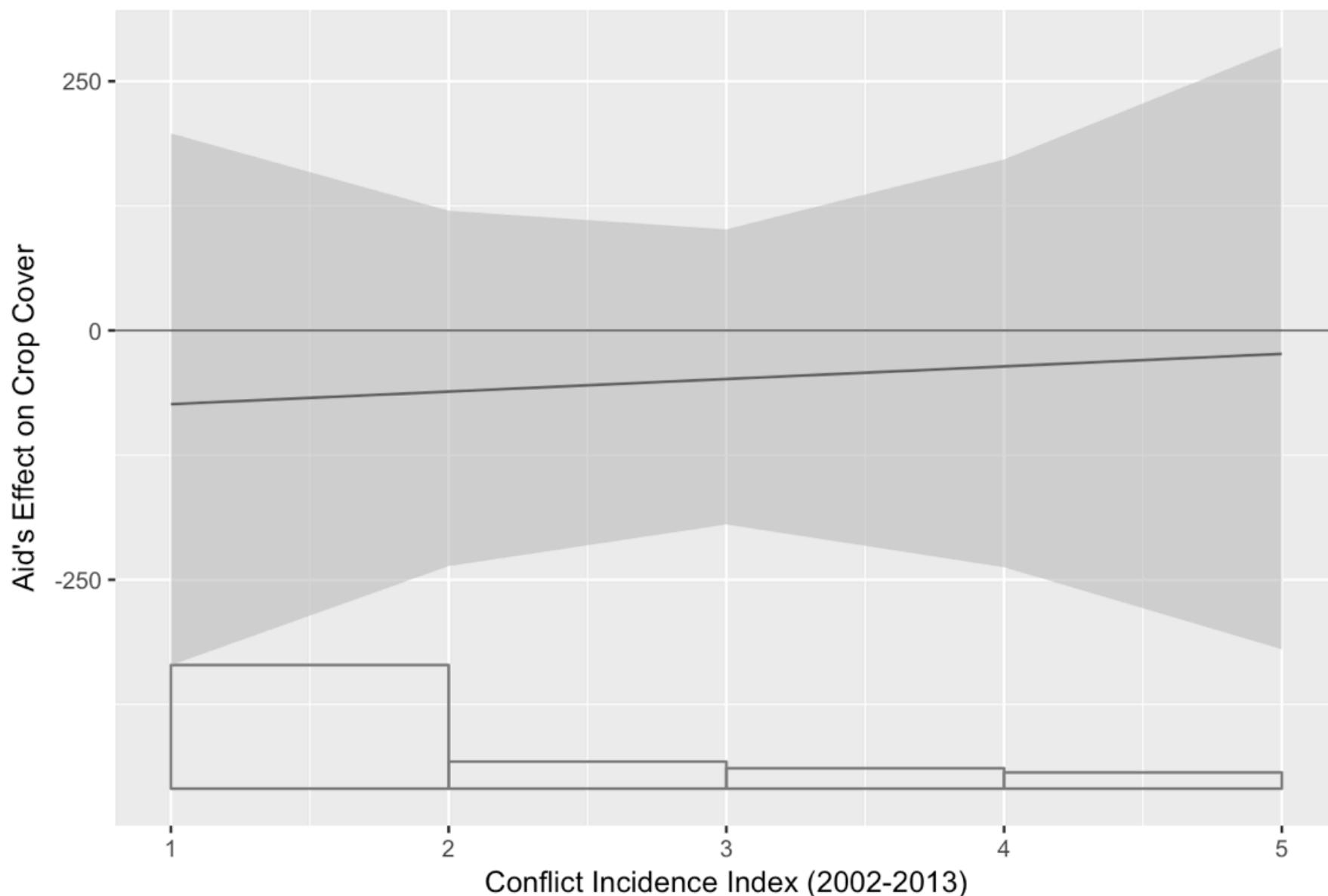


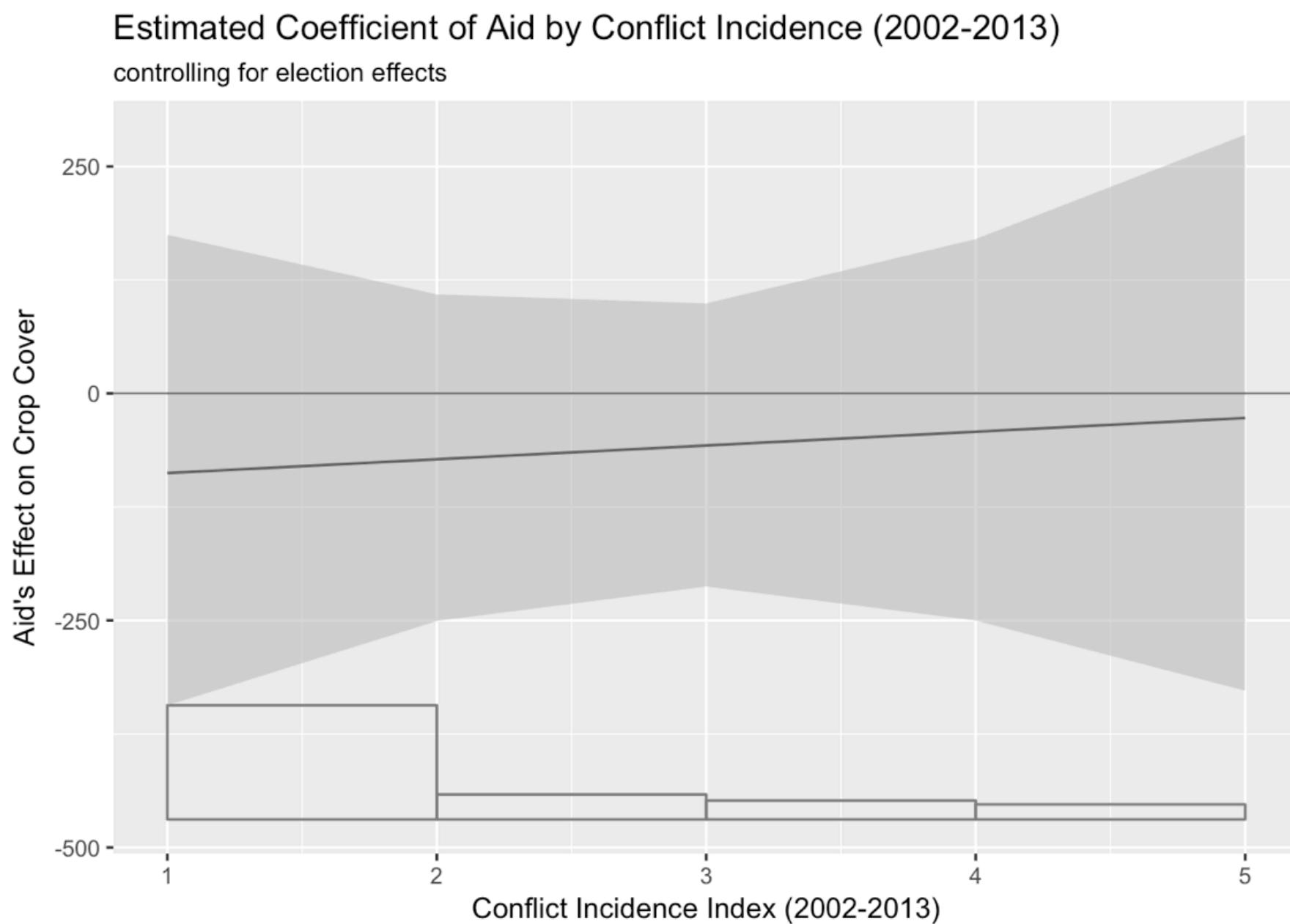
# Estimated Coefficient of Aid by Conflict Incidence (2002-2013)

controlling for election effects



# Estimated Coefficient of Aid by Conflict Incidence (2002-2013)





# Aid, Population Exposure to Fighting Groups, and CropVeg/Crop Cover

The first plot with *Population Exposure to State during Conflict* (vio\_31\_mean) or *Population Exposure to Guerrillas during Conflict* (vio\_32\_mean) on the x-axis is the plot *without* the election variables in the model. The second plot with those respective variables contains the election variables in the model.

# Regression Tables and Marginal Effects Plots

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# Aid's Effect on MODIS Crop Veg Cover

	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Upstream	-0.00 **	-0.00 **	-0.00 **	-0.00 **	-0.00 **	-0.00 **
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Altitude	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Exposure to State	116.67 **	96.46 *	112.43 **	126.41 **	105.92 *	122.48 **
	(54.87)	(56.45)	(55.05)	(56.40)	(57.57)	(56.48)
Exposure to Guerillas	-295.57 ***	-298.81 ***	-317.13 ***	-278.71 ***	-282.36 ***	-299.79 ***
	(60.18)	(60.43)	(63.38)	(58.62)	(58.90)	(61.86)
Coca Presence Avg	-190.36	-193.59	-190.71	-182.08	-186.51	-183.27
	(120.53)	(120.92)	(120.51)	(122.47)	(123.05)	(122.55)
c_match_presdept				-18.74	-23.81	-21.12
				(107.32)	(107.13)	(107.27)
c_match_munidept				-59.42	-59.95	-58.13
				(144.98)	(144.56)	(144.83)
c_match_munideptpres				-85.08	-88.38	-88.23
				(92.20)	(92.20)	(92.23)
pres_pidmuni				108.44	112.31	110.56
				(121.97)	(121.96)	(121.81)
s_match_presseat				-1321.10	-1341.76	-1288.90
				(1004.10)	(998.71)	(1000.47)
s_match_muniseatpres				-1005.78	-1031.59	-974.56
				(1011.28)	(1005.39)	(1007.60)
Aid * Exposure to State	329.40				338.75	
	(214.82)				(221.44)	
Aid * Exposure to Guer		304.03				294.08
		(186.72)				(187.19)
Adj. R <sup>2</sup>	0.10	0.10	0.10	0.10	0.10	0.10
Num. obs.	937	937	937	937	937	937

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

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## Aid's Effect on MODIS Crop Veg Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)	(5)	(6)
(Intercept)	235.39 **	253.00 **	243.63 **	832.41	863.01 *	825.70
	(113.81)	(114.61)	(113.40)	(512.01)	(509.41)	(509.94)
Aid given	221.31 ***	-23.79	19.72	229.14 ***	-25.37	32.79
	(72.25)	(150.76)	(134.45)	(71.44)	(152.52)	(132.64)
SPI (std dev)	-79.26	-82.26	-73.37	-146.13	-149.54	-139.97

	(111.80)	(112.01)	(111.84)	(115.76)	(115.93)	(115.96)
Muni area	0.09 *** (0.03)					
Upstream	-0.00 ** (0.00)					
Altitude	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)
Exposure to State	138.62 *** (49.15)	118.82 ** (50.86)	134.67 *** (49.24)	146.83 *** (51.30)	126.58 ** (52.69)	143.16 *** (51.32)
Exposure to Guerillas	-265.50 *** (52.31)	-268.68 *** (52.57)	-285.55 *** (55.18)	-250.32 *** (51.40)	-253.93 *** (51.72)	-270.01 *** (54.43)
Coca Presence Avg	-134.24 (106.02)	-137.41 (106.47)	-134.59 (106.00)	-130.82 (110.45)	-135.20 (111.13)	-131.95 (110.54)
c_match_presdept				-41.29 (104.35)	-46.31 (104.19)	-43.51 (104.32)
c_match_munidept				-121.78 (131.56)	-122.30 (131.09)	-120.55 (131.34)
c_match_munideptpres				-128.47 (81.63)	-131.73 (81.66)	-131.40 (81.78)
pres_pidmuni				117.69 (122.14)	121.52 (122.09)	119.66 (121.95)
s_match_presseat				-1225.05 (959.25)	-1245.48 (953.00)	-1195.04 (955.72)
s_match_muniseatpres				-946.60 (966.87)	-972.12 (960.02)	-917.48 (963.08)
Aid * Exposure to State		322.75 (220.85)			334.93 (226.53)	
Aid * Exposure to Guer			282.45 (192.22)			274.50 (192.84)
Adj. R <sup>2</sup>	0.09	0.09	0.09	0.09	0.09	0.09
Num. obs.	936	936	936	936	936	936

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

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## Aid's Effect on MODIS Crop Cover

	(1)	(2)	(3)	(4)	(5)	(6)
(Intercept)	-266.53 (171.57)	-267.84 (171.27)	-265.51 (170.54)	-274.32 (255.31)	-275.87 (255.93)	-275.21 (255.61)
Aid given	-48.06 **	-29.87	-72.95	-57.61 **	-44.76	-83.78

	(1)	(2)	(3)	(4)	(5)	(6)
SPI (std dev)	(21.66)	(51.52)	(60.53)	(25.01)	(50.28)	(63.77)
Muni area	367.84	368.07	368.56	383.46	383.63	384.27
Upstream	(297.68)	(297.74)	(298.72)	(310.08)	(310.20)	(311.12)
Altitude	0.06	0.06	0.06	0.06	0.06	0.06
Exposure to State	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Exposure to Guerillas	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
Coca Presence Avg	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
c_match_presdept	-25.83	-24.36	-26.32	-17.43	-16.41	-17.92
c_match_munidept	(52.75)	(53.91)	(53.38)	(50.09)	(50.93)	(50.63)
c_match_munideptpres	-67.62	-67.39	-70.10	-66.80	-66.61	-69.42
pres_pidmuni	(68.14)	(68.36)	(71.68)	(64.71)	(64.88)	(67.97)
s_match_presseat	-137.80	-137.56	-137.84	-138.98	-138.76	-139.13
s_match_muniseatpres	(125.92)	(126.08)	(126.03)	(115.78)	(115.89)	(115.99)
Aid * Exposure to State	-23.96			-16.92		
Aid * Exposure to Guer	(71.62)			(66.67)		
Adj. R <sup>2</sup>	0.02	0.02	0.02	0.02	0.02	0.02
Num. obs.	937	937	937	937	937	937

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

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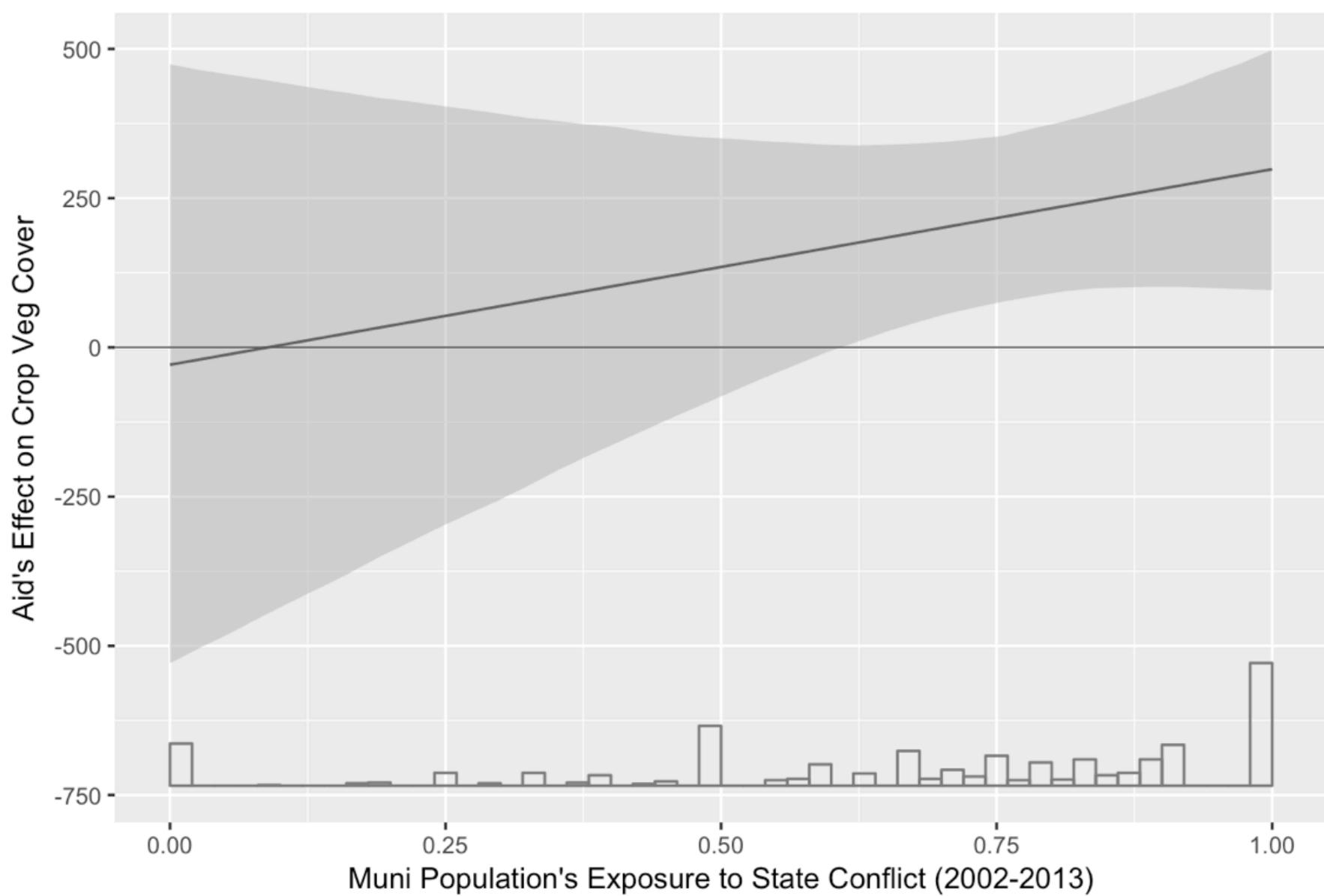
## Aid's Effect on MODIS Crop Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)	(5)	(6)
(Intercept)	-101.38*	-103.49*	-101.76*	-100.98	-103.29	-100.81

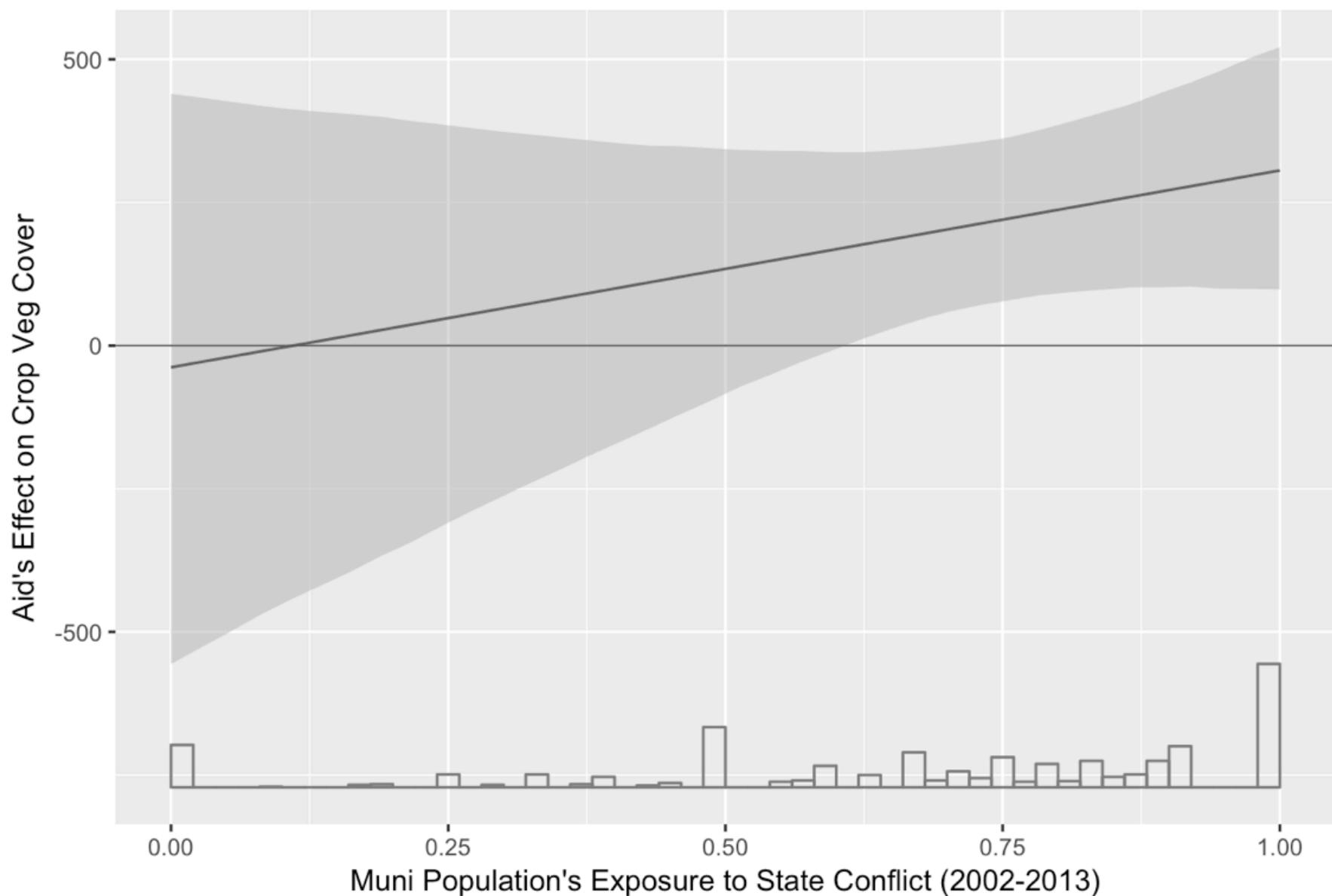
	(54.47)	(55.69)	(55.05)	(126.90)	(130.00)	(126.28)
Aid given	-43.57 ***	-14.19	-34.34	-44.84 ***	-25.57	-39.99
	(16.75)	(37.18)	(41.88)	(17.19)	(35.26)	(39.17)
SPI (std dev)	70.45	70.81	70.18	74.13	74.39	73.98
	(58.67)	(58.86)	(58.30)	(61.60)	(61.83)	(61.20)
Muni area	0.01	0.01	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Upstream	-0.00 *	-0.00 *	-0.00 *	-0.00 *	-0.00 *	-0.00 *
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Altitude	0.01 *	0.01 *	0.01 *	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Exposure to State	22.78	25.16	22.96	27.77	29.30	27.86
	(16.56)	(17.87)	(16.71)	(17.13)	(18.36)	(17.27)
Exposure to Guerillas	-1.02	-0.64	-0.11	-3.98	-3.71	-3.49
	(17.70)	(17.80)	(18.65)	(17.26)	(17.36)	(18.17)
Coca Presence Avg	-13.50	-13.12	-13.49	-25.55	-25.22	-25.52
	(21.87)	(21.66)	(21.85)	(22.14)	(21.90)	(22.09)
c_match_presdept				33.44	33.82	33.49
				(24.35)	(24.57)	(24.43)
c_match_munidept				59.62 *	59.66 *	59.59 *
				(32.43)	(32.47)	(32.36)
c_match_munideptpres				-8.37	-8.12	-8.29
				(25.26)	(25.46)	(25.52)
pres_pidmuni				62.34 **	62.05 **	62.29 **
				(26.23)	(26.11)	(26.18)
s_match_presseat				-72.50	-70.95	-73.24
				(174.39)	(176.89)	(171.41)
s_match_muniseatpres				-134.50	-132.57	-135.22
				(170.03)	(172.63)	(167.36)
Aid * Exposure to State		-38.68			-25.35	
		(50.60)			(48.59)	
Aid * Exposure to Guer			-12.93			-6.77
			(57.67)			(55.19)
Adj. R <sup>2</sup>	0.03	0.03	0.03	0.03	0.03	0.03
Num. obs.	936	936	936	936	936	936

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

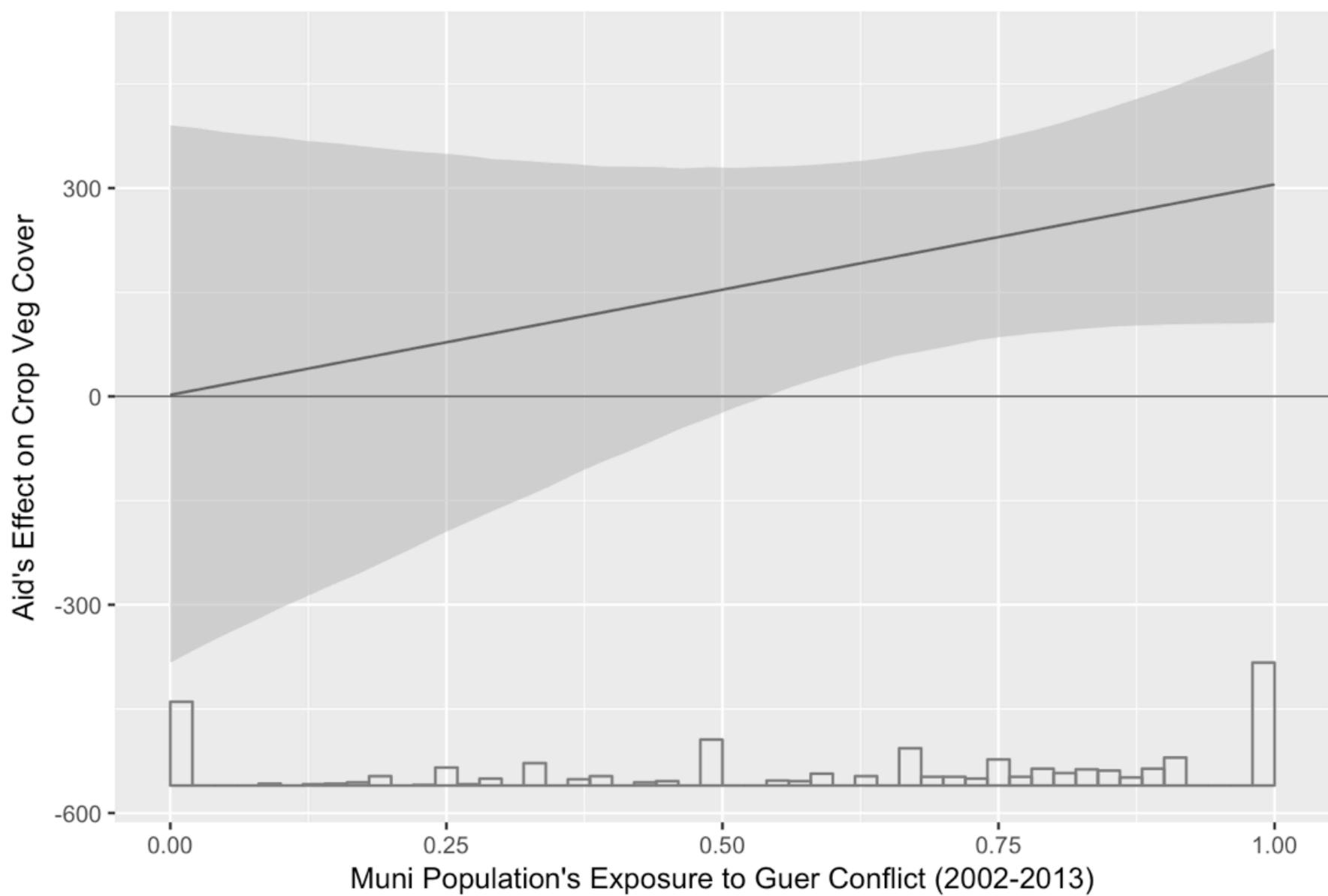
### Estimated Coefficient of Aid by Exposure to Conflict (2002-2013)



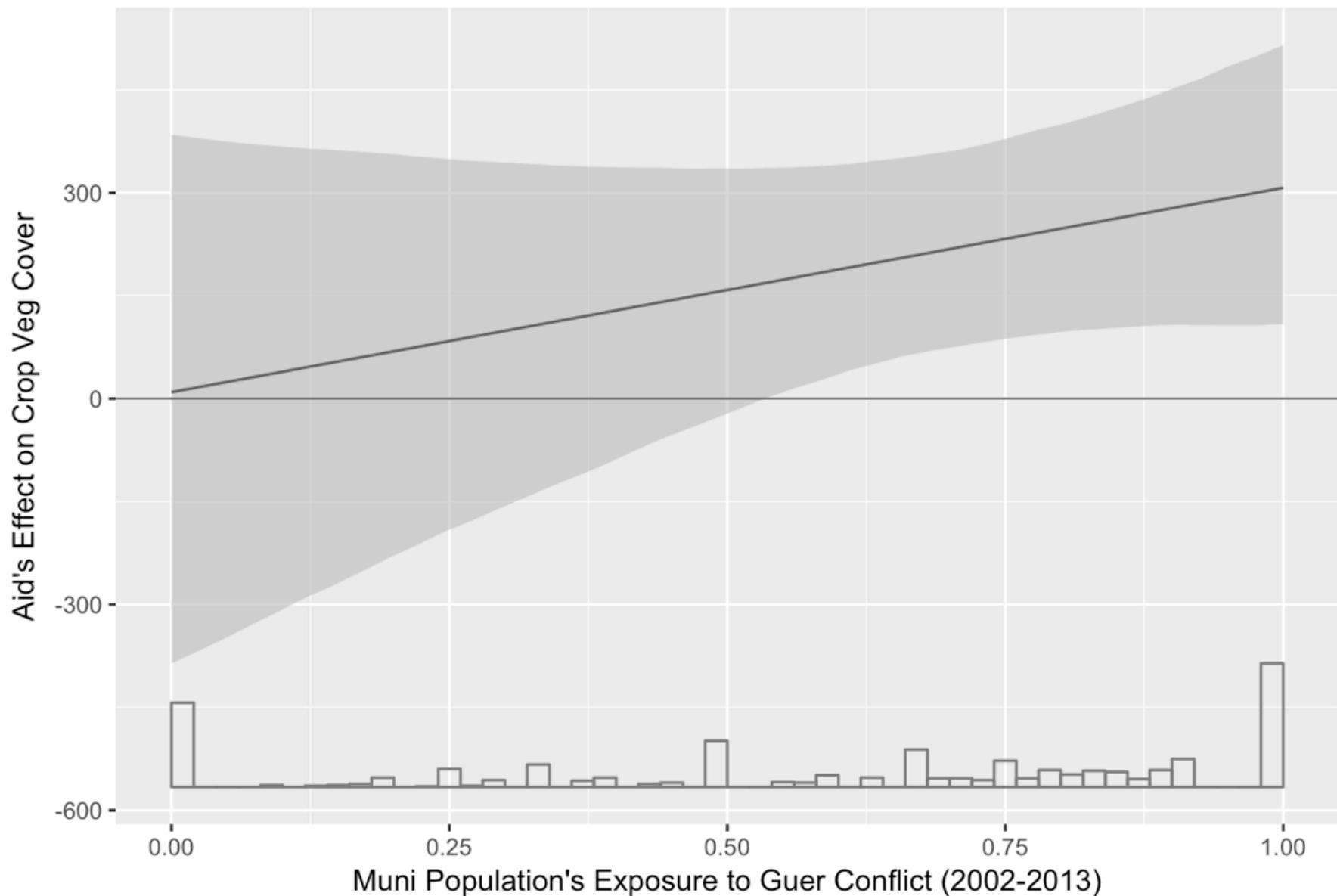
### Estimated Coefficient of Aid by Exposure to Conflict (2002-2013)



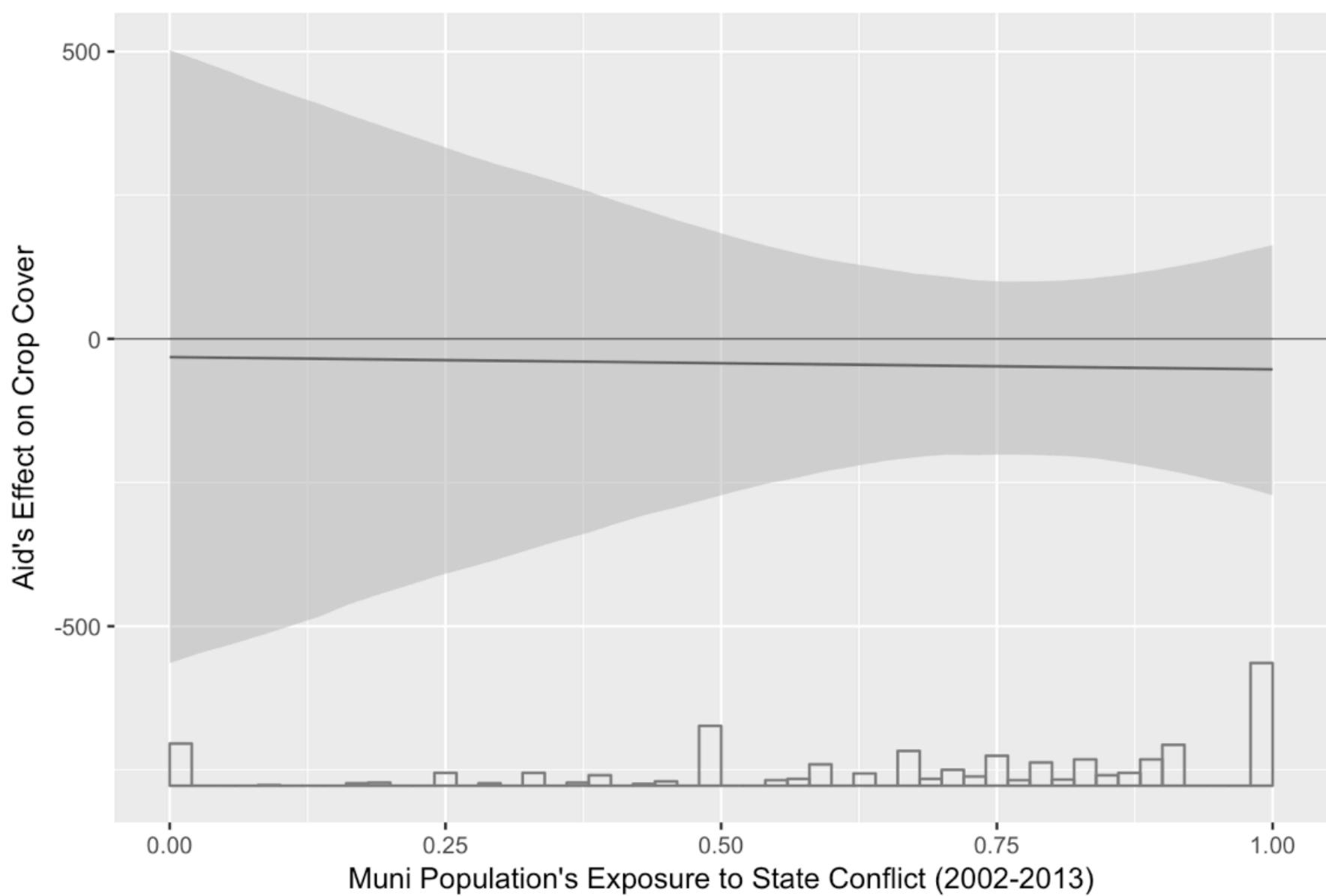
### Estimated Coefficient of Aid by Exposure to Conflict (2002-2013)



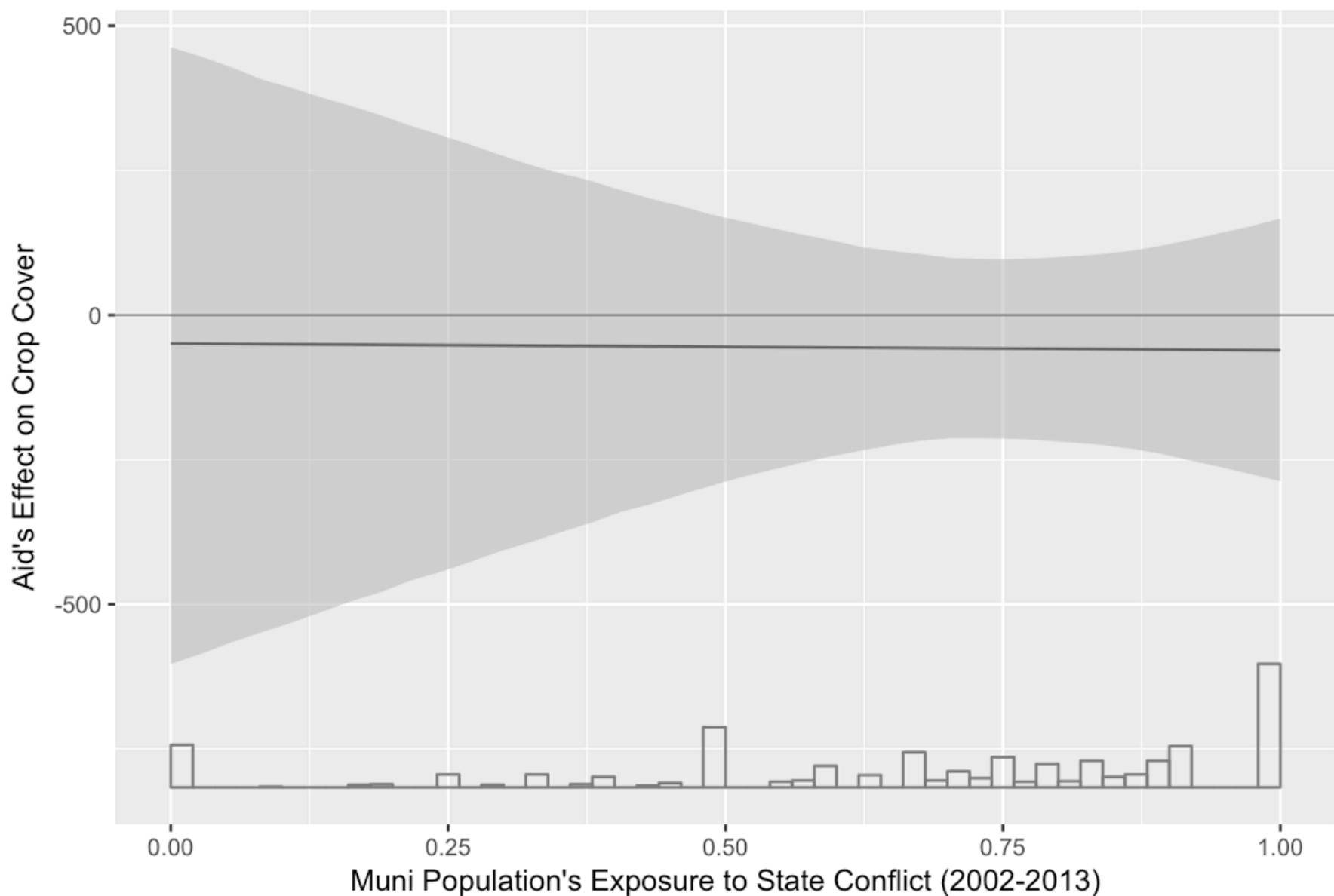
### Estimated Coefficient of Aid by Exposure to Conflict (2002-2013)



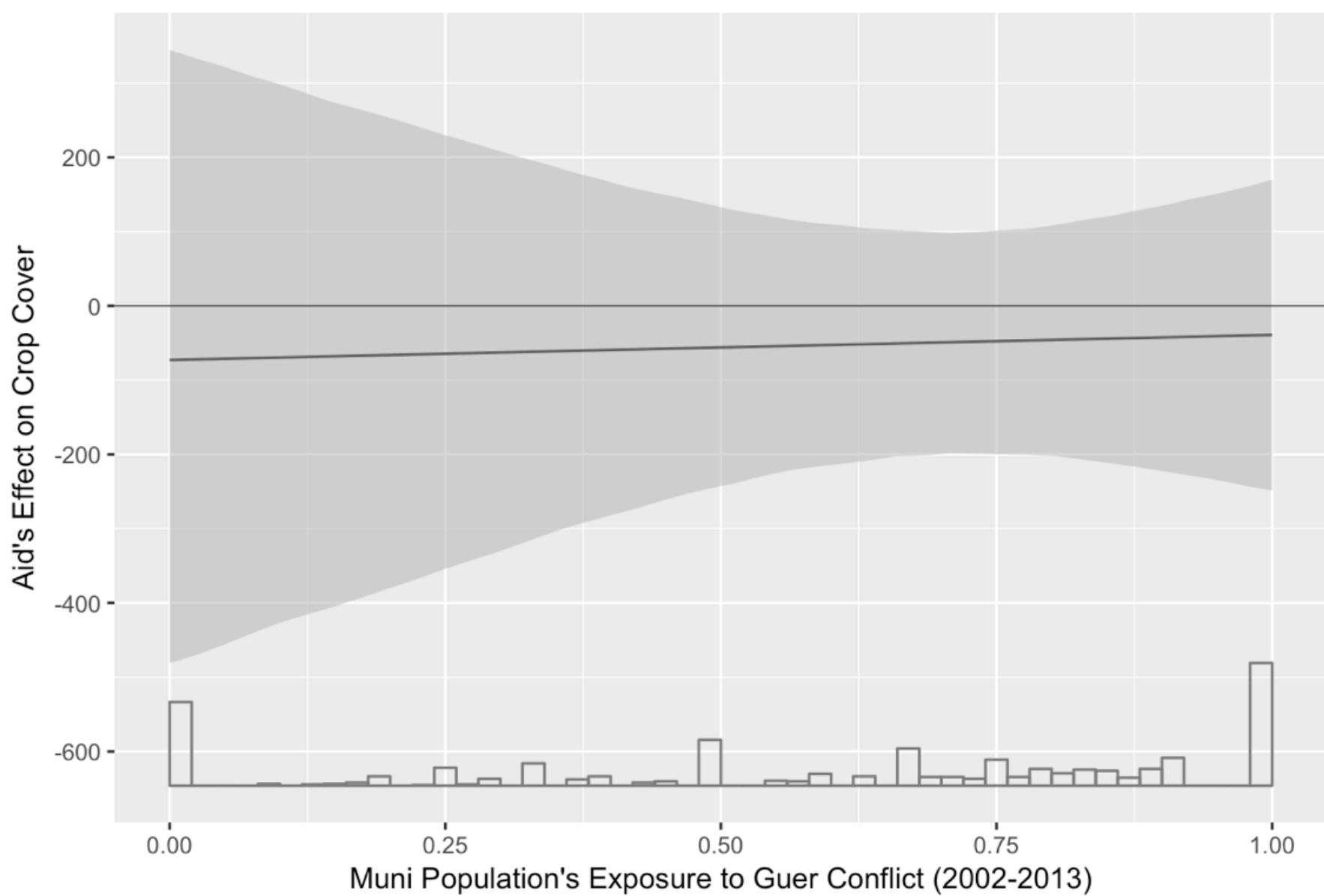
### Estimated Coefficient of Aid by Exposure to Conflict (2002-2013)



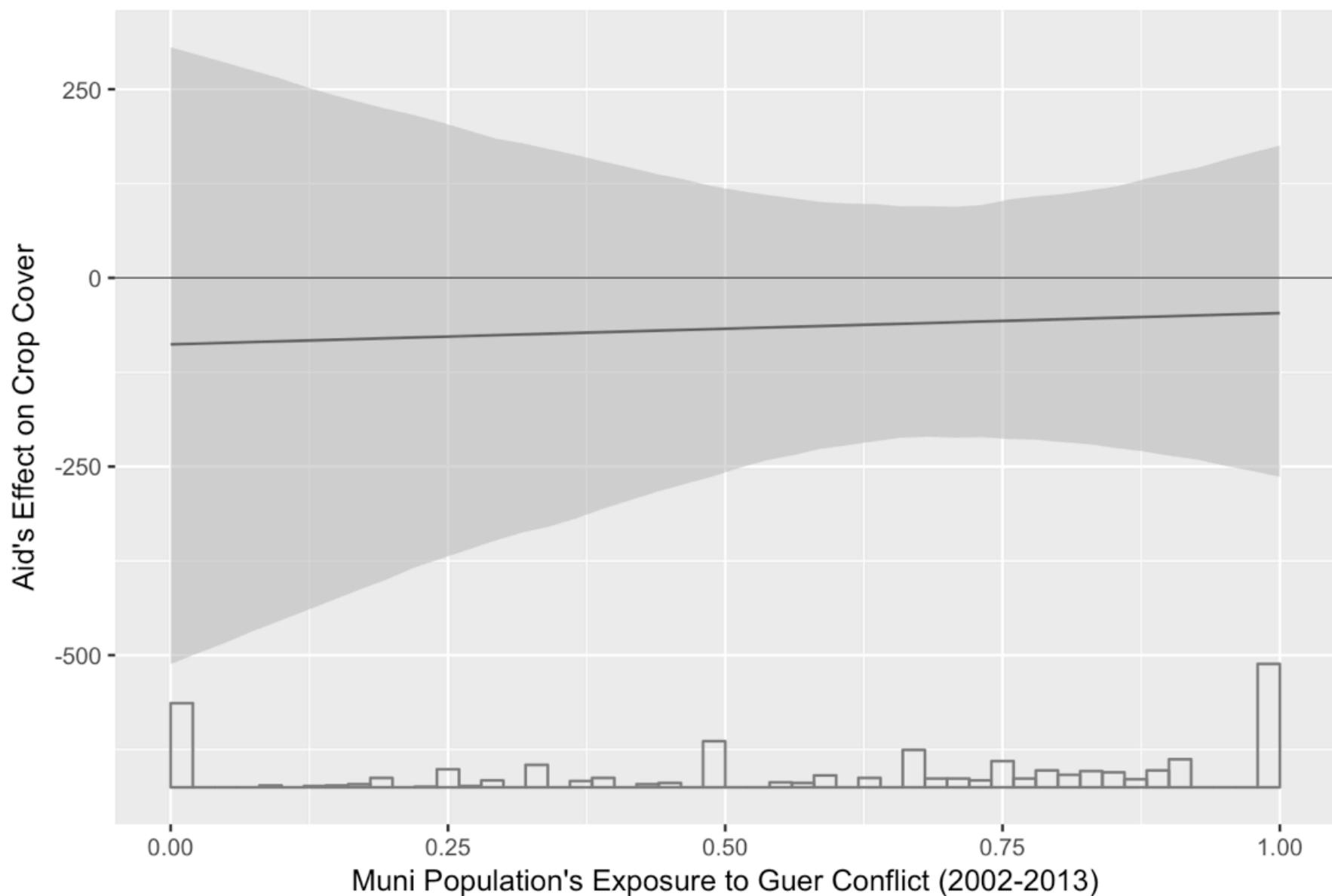
### Estimated Coefficient of Aid by Exposure to Conflict (2002-2013)



### Estimated Coefficient of Aid by Exposure to Conflict (2002-2013)



### Estimated Coefficient of Aid by Exposure to Conflict (2002-2013)



# Extra Tables & Figures

## Aid, Coca Presence (Dummy), and CropVeg/Crop Cover

### Regression Tables and Marginal Effects Plots

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Aid's Effect on MODIS Crop Veg Cover

(1)

(2)

(3)

(4)

(Intercept)	147.20	148.34	683.94	694.59
	(135.94)	(135.76)	(500.73)	(493.80)
Aid given	191.63 ***	106.72	198.49 ***	115.97
	(71.64)	(82.72)	(71.09)	(82.31)
SPI (std dev)	-33.04	-26.11	-83.42	-75.73
	(153.70)	(153.88)	(158.82)	(158.95)
Muni area	0.09 ***	0.09 ***	0.09 ***	0.09 ***
	(0.03)	(0.03)	(0.03)	(0.03)
Upstream	-0.00 **	-0.00 **	-0.00 **	-0.00 **
	(0.00)	(0.00)	(0.00)	(0.00)
Altitude	-0.02	-0.02	-0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)
Coca Presence (1 = Yes)	-123.53	-165.43 *	-101.70	-143.19
	(76.69)	(87.16)	(78.44)	(88.71)
c_match_presdept		16.42	3.67	
		(101.48)	(101.31)	
c_match_munidept		-66.74	-72.38	
		(136.88)	(135.78)	
c_match_munideptpres		-65.11	-72.72	
		(89.34)	(88.60)	
pres_pidmuni		52.96	42.09	
		(105.06)	(105.94)	
s_match_presseat		-1196.20	-1187.83	
		(921.99)	(908.89)	
s_match_muniseatpres		-826.49	-820.72	
		(925.88)	(912.31)	
Aid * Coca	253.48		243.94	
	(158.93)		(160.57)	
Adj. R <sup>2</sup>	0.07	0.07	0.07	0.08
Num. obs.	1055	1055	1055	1055

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Coca Presence' is a dummy variable counting measured coca growth in 2013. Table shows robust standard errors.

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## Printing code for markdown table...
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## Aid's Effect on MODIS Crop Veg Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)
(Intercept)	234.63 **	235.57 **	777.62	787.27 *
	(105.01)	(104.88)	(474.93)	(467.65)
Aid given	201.91 ***	124.69	210.67 ***	135.20 *
	(72.01)	(81.24)	(70.99)	(80.33)
SPI (std dev)	-143.84	-137.42	-199.27 *	-192.12 *

	(108.68)	(108.45)	(110.79)	(110.42)
Muni area	0.07 *** (0.02)	0.07 *** (0.02)	0.07 *** (0.02)	0.07 *** (0.02)
Upstream	-0.00 ** (0.00)	-0.00 *** (0.00)	-0.00 ** (0.00)	-0.00 ** (0.00)
Altitude	-0.01 (0.02)	-0.01 (0.02)	-0.00 (0.02)	-0.01 (0.02)
Coca Presence (1 = Yes)	-94.96 (70.81)	-133.09 (80.92)	-77.24 (74.23)	-115.21 (84.27)
c_match_presdept			-10.82 (97.24)	-22.45 (97.44)
c_match_munidept			-127.18 (123.01)	-132.27 (122.17)
c_match_munideptpres			-112.96 (75.60)	-119.87 (75.19)
pres_pidmuni			61.99 (104.89)	52.04 (105.89)
s_match_presseat			-1095.18 (884.62)	-1087.63 (870.88)
s_match_muniseatpres			-776.64 (891.38)	-771.42 (877.05)
Aid * Coca		230.48 (160.80)		223.06 (162.78)
Adj. R <sup>2</sup>	0.06	0.07	0.07	0.07
Num. obs.	1054	1054	1054	1054

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Coca Presence' is a dummy variable counting measured coca growth in 2013. Table shows robust standard errors.

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## Printing code for markdown table...
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## Aid's Effect on MODIS Crop Cover

	(1)	(2)	(3)	(4)
(Intercept)	-269.10 (192.45)	-269.09 (192.32)	-266.69 (257.79)	-266.79 (256.52)
Aid given	-65.26 ** (28.73)	-66.47 (42.50)	-70.85 ** (32.14)	-70.07 (45.17)
SPI (std dev)	299.74 (243.49)	299.84 (244.94)	312.11 (255.00)	312.04 (256.51)
Muni area	0.04 (0.04)	0.04 (0.04)	0.04 (0.04)	0.04 (0.04)
Upstream	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)

Altitude	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.01 (0.01)
Coca Presence (1 = Yes)	-63.82 (62.95)	-64.42 (71.20)	-62.55 (54.60)	-62.16 (62.24)
c_match_presdept			91.88 (64.34)	92.00 (62.40)
c_match_munidept			182.23 (133.71)	182.28 (132.82)
c_match_munideptpres			96.86 (106.02)	96.93 (104.73)
pres_pidmuni			29.08 (34.45)	29.18 (35.98)
s_match_presseat			-298.53 (327.52)	-298.61 (326.56)
s_match_muniseatpres			-245.58 (274.37)	-245.63 (274.00)
Aid * Coca		3.59 (66.01)		-2.30 (62.43)
Adj. R <sup>2</sup>	0.02	0.01	0.01	0.01
Num. obs.	1055	1055	1055	1055

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Coca Presence' is a dummy variable counting measured coca growth in 2013. Table shows robust standard errors.

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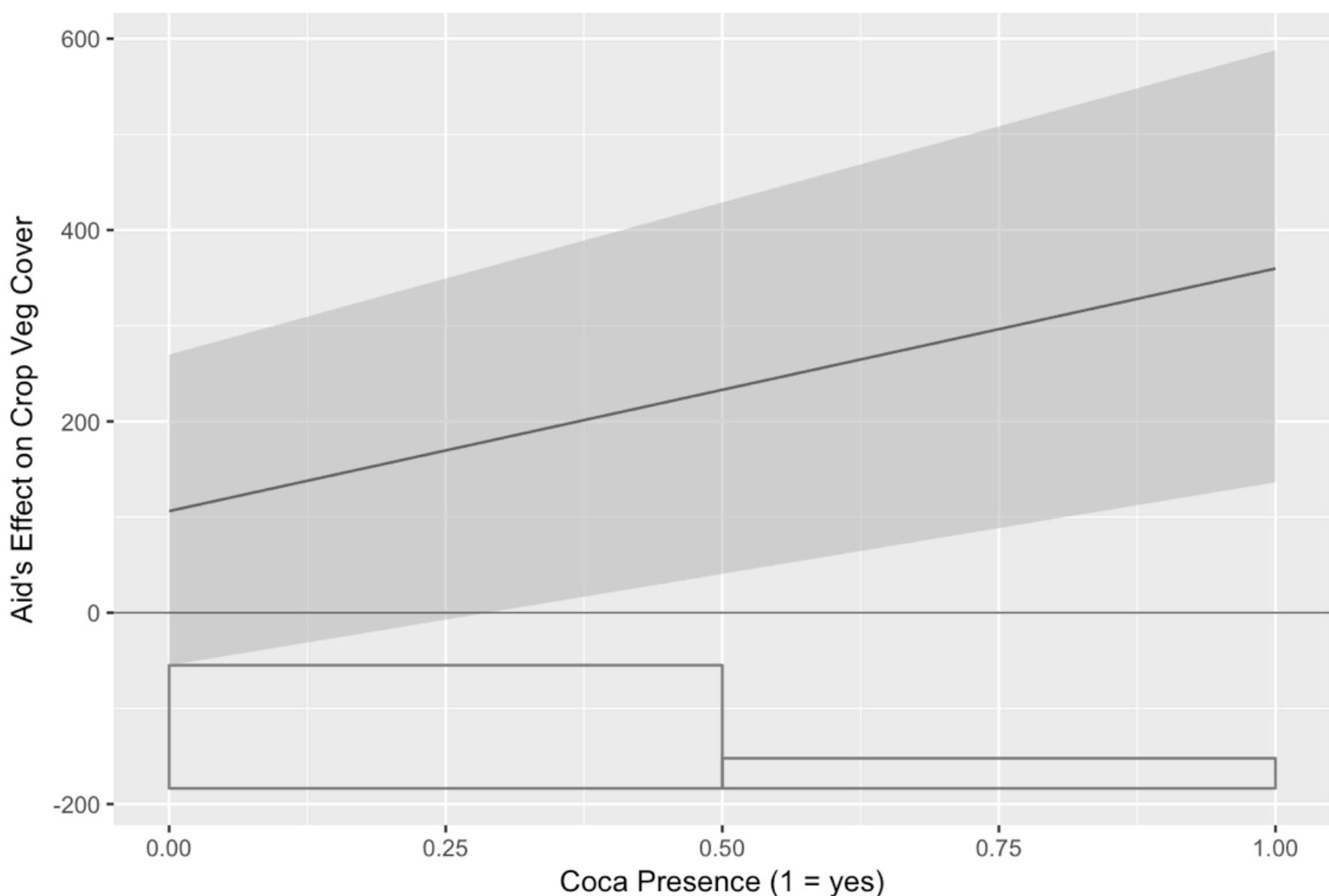
### Aid's Effect on MODIS Crop Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)
(Intercept)	-79.05 <sup>*</sup> (41.92)	-79.24 <sup>*</sup> (41.92)	-62.92 (115.64)	-64.99 (117.32)
Aid given	-42.93 <sup>***</sup> (16.23)	-27.36 (18.11)	-44.36 <sup>***</sup> (16.44)	-28.20 (17.74)
SPI (std dev)	58.88 (54.07)	57.59 (54.17)	60.13 (57.16)	58.61 (57.21)
Muni area	0.00 (0.00)	0.00 (0.00)	0.01 (0.00)	0.01 (0.00)
Upstream	-0.00 <sup>*</sup> (0.00)	-0.00 <sup>*</sup> (0.00)	-0.00 <sup>*</sup> (0.00)	-0.00 <sup>*</sup> (0.00)
Altitude	0.02 <sup>**</sup> (0.01)	0.02 <sup>**</sup> (0.01)	0.01 <sup>*</sup> (0.01)	0.01 <sup>*</sup> (0.01)
Coca Presence (1 = Yes)	-1.72 (9.79)	5.97 (10.71)	-9.37 (10.56)	-1.24 (11.12)
c_match_presdept			32.64	35.13

c_match_munidept		(22.29)	(22.50)
	50.78*	51.87*	
	(28.83)	(28.98)	
c_match_munideptpres		-7.22	-5.74
	(24.22)	(24.19)	
pres_pidmuni		48.72**	50.85**
	(22.41)	(22.43)	
s_match_presseat		-78.80	-80.41
	(165.15)	(168.38)	
s_match_muniseatpres		-137.15	-138.27
	(160.40)	(163.96)	
Aid * Coca		-46.48	-47.75
	(35.16)	(34.72)	
Adj. R <sup>2</sup>	0.03	0.03	0.03
Num. obs.	1054	1054	1054

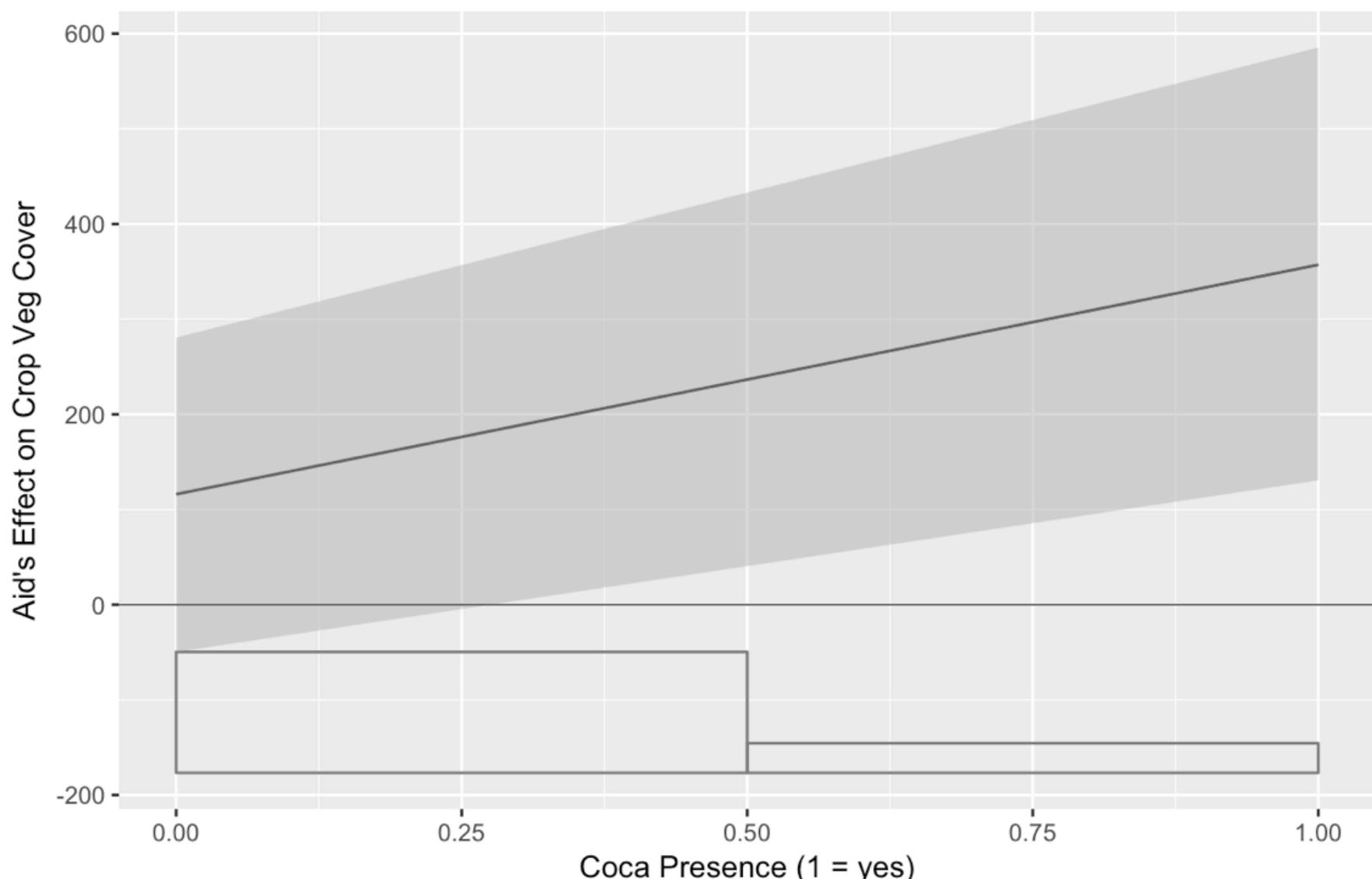
\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Coca Presence' is a dummy variable counting measured coca growth in 2013. Table shows robust standard errors.

### Estimated Coefficient of Aid by Coca Presence (2013)

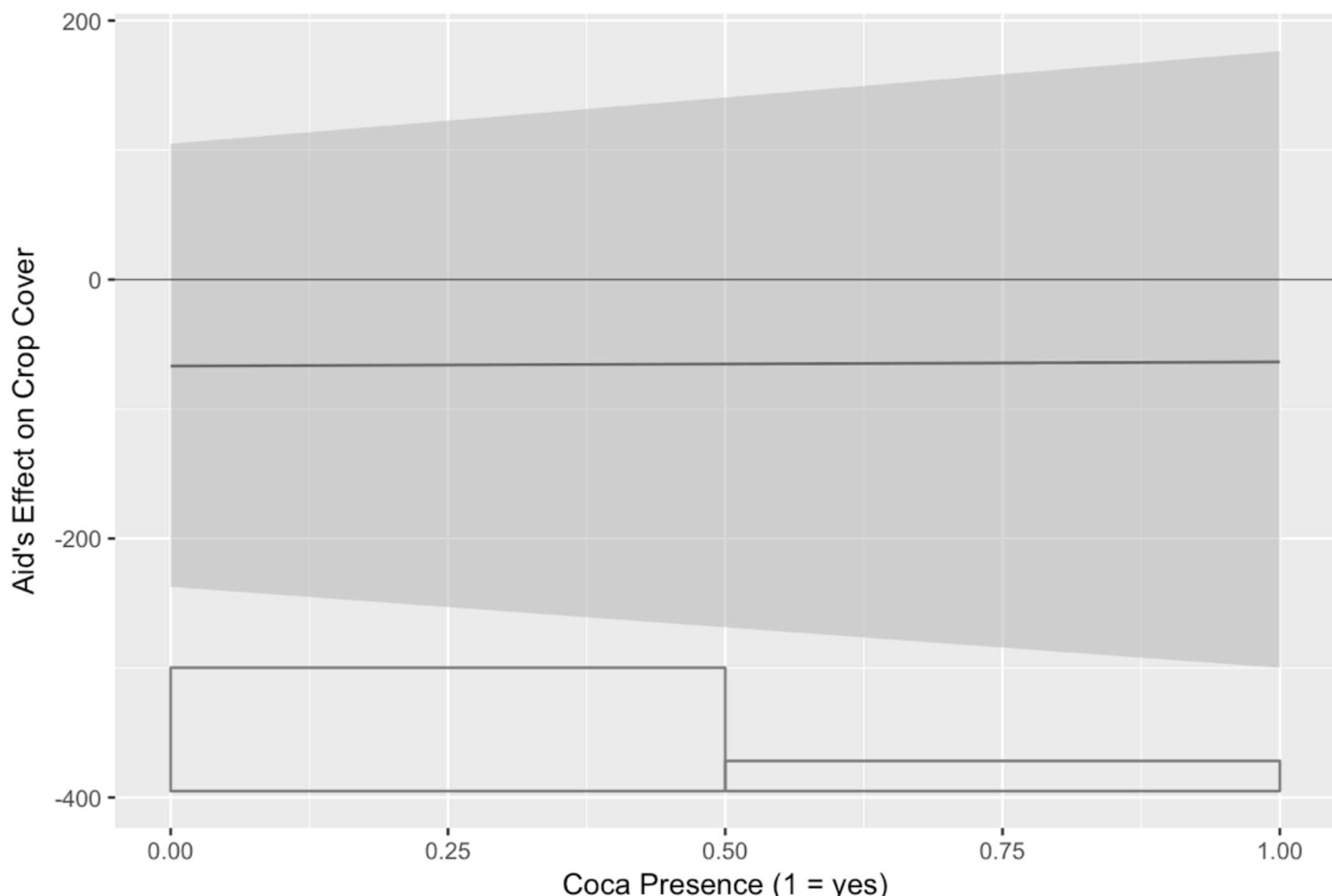


# Estimated Coefficient of Aid by Coca Presence (2013)

controlling for election effects

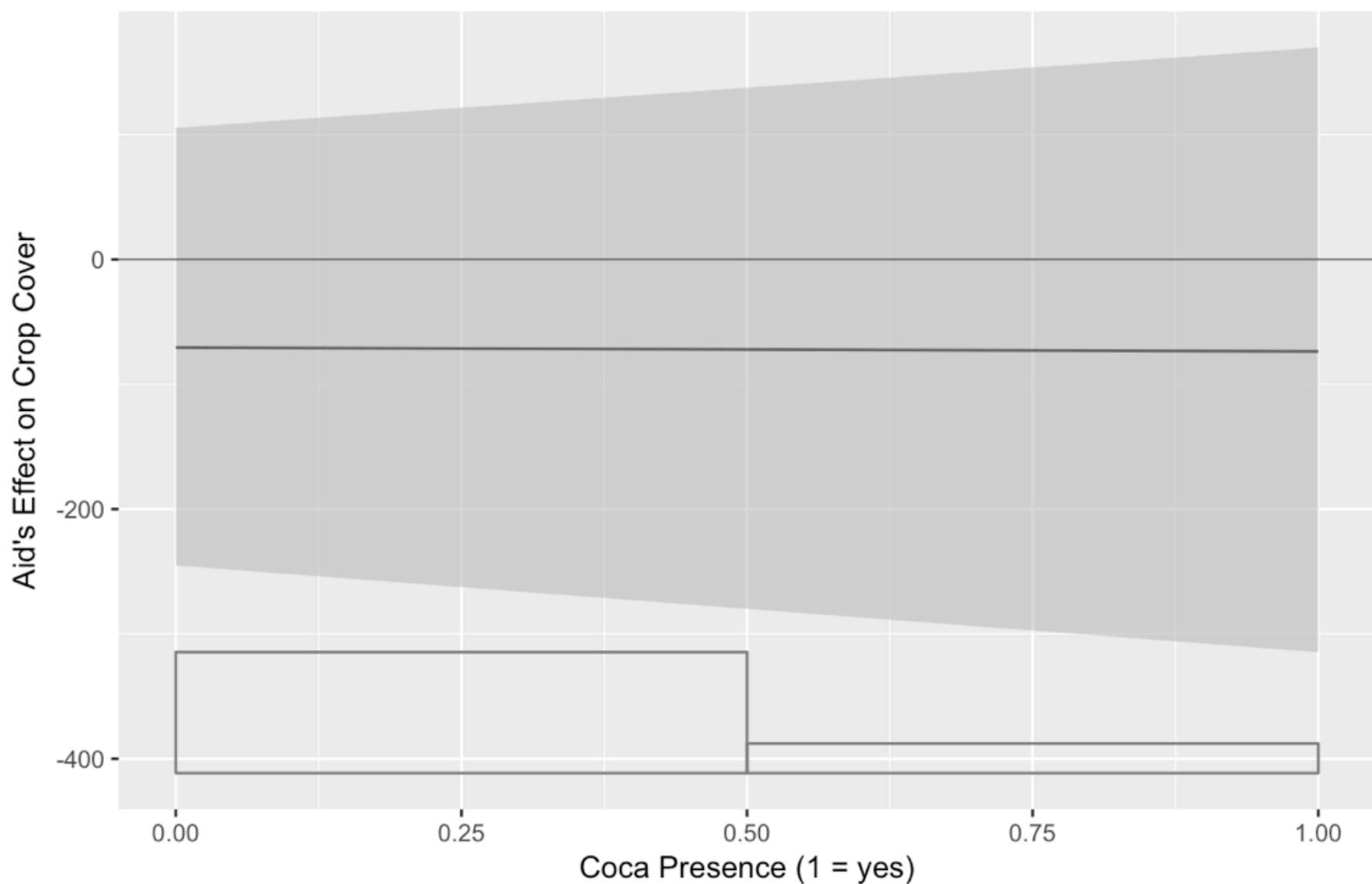


# Estimated Coefficient of Aid by Coca Presence (2013)



# Estimated Coefficient of Aid by Coca Presence (2013)

controlling for election effects



## Interacting Aid, State-Guerrilla Conflict, Coca

### Regression Tables and Marginal Effects Plots

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#### Aid's Effect on MODIS Crop Veg Cover

	(1)	(2)	(3)	(4)
(Intercept)	105.92 (153.65)	115.44 (153.31)	684.40 (564.11)	707.59 (559.86)
Aid given	219.88 *** (71.20)	147.01 ** (70.37)	223.57 *** (70.74)	153.36 ** (70.35)
SPI (std dev)	64.53 (176.06)	62.84 (175.85)	3.80 (183.42)	3.81 (183.20)
Muni area	0.11 *** (0.04)	0.11 *** (0.04)	0.11 *** (0.04)	0.11 *** (0.04)
Upstream	-0.00 ** (0.00)	-0.00 ** (0.00)	-0.00 ** (0.00)	-0.00 ** (0.00)
Altitude	-0.02 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.02)
Exposure to State	190.57 ***	193.54 ***	205.64 ***	207.72 ***

	(70.22)	(70.67)	(73.20)	(73.45)
Exposure to Guerillas	-199.05 *** (71.64)	-192.46 *** (71.47)	-175.57 ** (71.45)	-170.37 ** (71.24)
Coca Presence Avg	-185.58 (119.64)	-230.17 * (129.29)	-176.45 (121.57)	-220.16 * (132.31)
c_match_presdept			-14.50 (107.95)	-28.73 (108.29)
c_match_munidept			-51.54 (146.56)	-55.25 (145.50)
c_match_munideptpres			-80.70 (92.96)	-83.70 (93.07)
pres_pidmuni			113.04 (121.65)	103.81 (122.77)
s_match_presseat			-1317.45 (1010.84)	-1321.90 (1000.95)
s_match_muniseatpres			-997.53 (1019.15)	-1009.18 (1008.13)
Aid * Dispute * Coca		395.95 (323.02)		377.93 (331.85)
Adj. R <sup>2</sup>	0.10	0.10	0.10	0.10
Num. obs.	937	937	937	937

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'State-Guerilla Dispute' = the proportion of years (1998-2009) that government and guerilla forces have a dispute in a given municipality. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

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## Aid's Effect on MODIS Crop Veg Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)
(Intercept)	204.14 * (119.95)	213.11 * (119.92)	793.79 (530.07)	815.59 (525.64)
Aid given	221.65 *** (72.33)	152.52 ** (70.45)	229.25 *** (71.51)	163.00 ** (69.67)
SPI (std dev)	-73.73 (112.88)	-75.25 (112.69)	-140.37 (117.13)	-140.27 (116.81)
Muni area	0.09 *** (0.03)	0.09 *** (0.03)	0.09 *** (0.03)	0.09 *** (0.03)
Upstream	-0.00 ** (0.00)	-0.00 ** (0.00)	-0.00 ** (0.00)	-0.00 ** (0.00)
Altitude	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)

Exposure to State	180.57 *** (68.33)	183.39 *** (68.68)	190.63 *** (70.67)	192.60 *** (70.81)
Exposure to Guerillas	-210.71 *** (70.16)	-204.46 *** (69.73)	-193.31 *** (69.10)	-188.39 *** (68.61)
Coca Presence Avg	-131.58 (106.04)	-173.91 (116.94)	-127.76 (110.56)	-169.02 (122.51)
c_match_presdept			-38.92 (104.69)	-52.33 (105.37)
c_match_munidept			-117.36 (131.72)	-120.81 (130.75)
c_match_munideptpres			-126.01 (81.48)	-128.81 (81.71)
pres_pidmuni			120.23 (121.96)	111.51 (123.32)
s_match_presseat			-1223.14 (963.67)	-1227.39 (953.13)
s_match_muniseatpres			-942.10 (972.41)	-953.12 (960.31)
Aid * Dispute * Coca		375.61 (335.90)		356.53 (344.48)
Adj. R <sup>2</sup>	0.09	0.09	0.09	0.09
Num. obs.	936	936	936	936

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS cropveg trend as the dependent variable. 'State-Guerilla Dispute' = the proportion of years (1998-2009) that government and guerilla forces have a dispute in a given municipality. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

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## Aid's Effect on MODIS Crop Cover

	(1)	(2)	(3)	(4)
(Intercept)	-297.59 (219.16)	-299.75 (218.30)	-318.63 (302.50)	-324.21 (301.26)
Aid given	-47.72 ** (21.54)	-31.13 (25.23)	-57.48 ** (24.87)	-40.57 (31.20)
SPI (std dev)	373.22 (306.13)	373.60 (306.12)	389.90 (319.43)	389.90 (319.60)
Muni area	0.06 (0.05)	0.06 (0.05)	0.06 (0.06)	0.06 (0.06)
Upstream	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Altitude	-0.00	-0.00	-0.00	-0.00

	(0.02)	(0.02)	(0.01)	(0.01)
Exposure to State	15.98 (38.93)	15.30 (39.13)	32.96 (46.01)	32.46 (46.18)
Exposure to Guerillas	-13.02 (43.19)	-14.52 (43.52)	-1.21 (52.62)	-2.46 (53.02)
Coca Presence Avg	-135.09 (121.77)	-124.94 (126.95)	-135.40 (110.73)	-124.87 (116.26)
c_match_presdept			86.05 (60.99)	89.48 (60.00)
c_match_munidept			202.63 (147.75)	203.52 (147.42)
c_match_munideptpres			90.44 (102.20)	91.16 (101.92)
pres_pidmuni			44.80 (37.55)	47.02 (38.80)
s_match_presseat			-282.71 (360.30)	-281.64 (361.90)
s_match_muniseatpres			-260.21 (328.01)	-257.41 (329.49)
Aid * Dispute * Coca		-90.18 (126.93)		-91.03 (123.51)
Adj. R <sup>2</sup>	0.02	0.02	0.02	0.02
Num. obs.	937	937	937	937

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'State-Guerilla Dispute' = the proportion of years (1998-2009) that government and guerilla forces have a dispute in a given municipality. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

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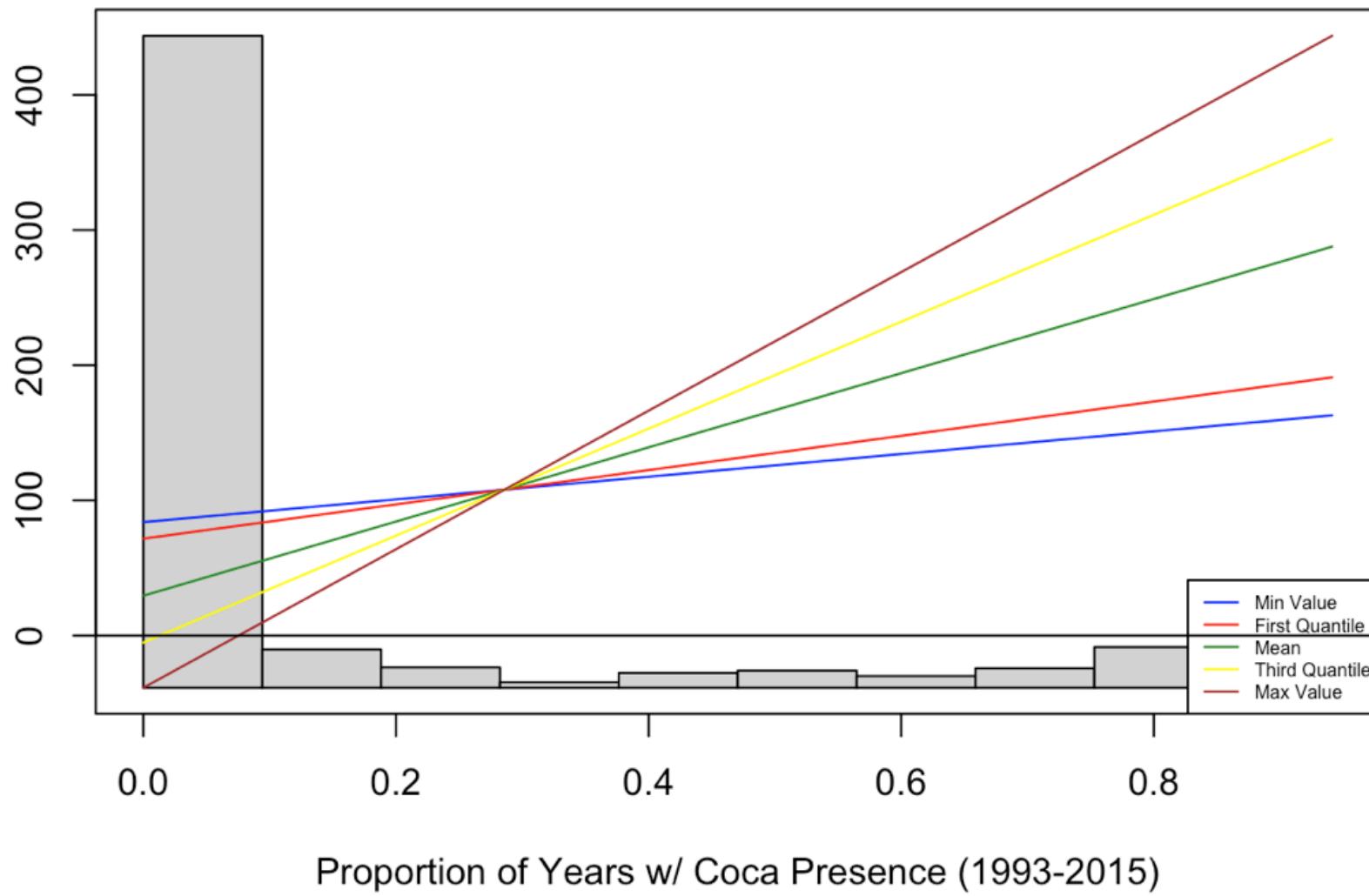
## Aid's Effect on MODIS Crop Cover (without Uribia, La Guajira)

	(1)	(2)	(3)	(4)
(Intercept)	-79.79 * (44.56)	-83.02 * (44.65)	-76.22 (119.12)	-84.69 (122.63)
Aid given	-43.80 *** (16.83)	-18.90 (18.13)	-44.91 *** (17.24)	-19.17 (18.00)
SPI (std dev)	66.63 (56.39)	67.17 (56.23)	70.44 (59.43)	70.40 (59.19)
Muni area	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Upstream	-0.00 * (0.00)	-0.00 * (0.00)	-0.00 * (0.00)	-0.00 * (0.00)

Altitude	0.01*	0.01*	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
Exposure to State	-6.21	-7.23	-0.30	-1.07
	(24.40)	(24.30)	(23.60)	(23.49)
Exposure to Guerillas	-38.89	-41.14	-40.52	-42.43
	(31.49)	(31.48)	(31.62)	(31.59)
Coca Presence Avg	-15.34	-0.09	-27.51	-11.48
	(22.70)	(23.18)	(23.02)	(23.36)
c_match_presdept		31.92	37.13	
		(23.87)	(24.44)	
c_match_munidept		56.78*	58.13*	
		(31.19)	(31.18)	
c_match_munideptpres		-9.95	-8.86	
		(24.56)	(24.54)	
pres_pidmuni		60.72**	64.10**	
		(25.61)	(25.78)	
s_match_presseat		-73.72	-72.07	
		(173.70)	(180.41)	
s_match_muniseatpres		-137.38	-133.10	
		(169.66)	(177.16)	
Aid * Dispute * Coca		-135.32*		-138.49*
		(78.59)		(77.86)
Adj. R <sup>2</sup>	0.03	0.03	0.03	0.04
Num. obs.	936	936	936	936

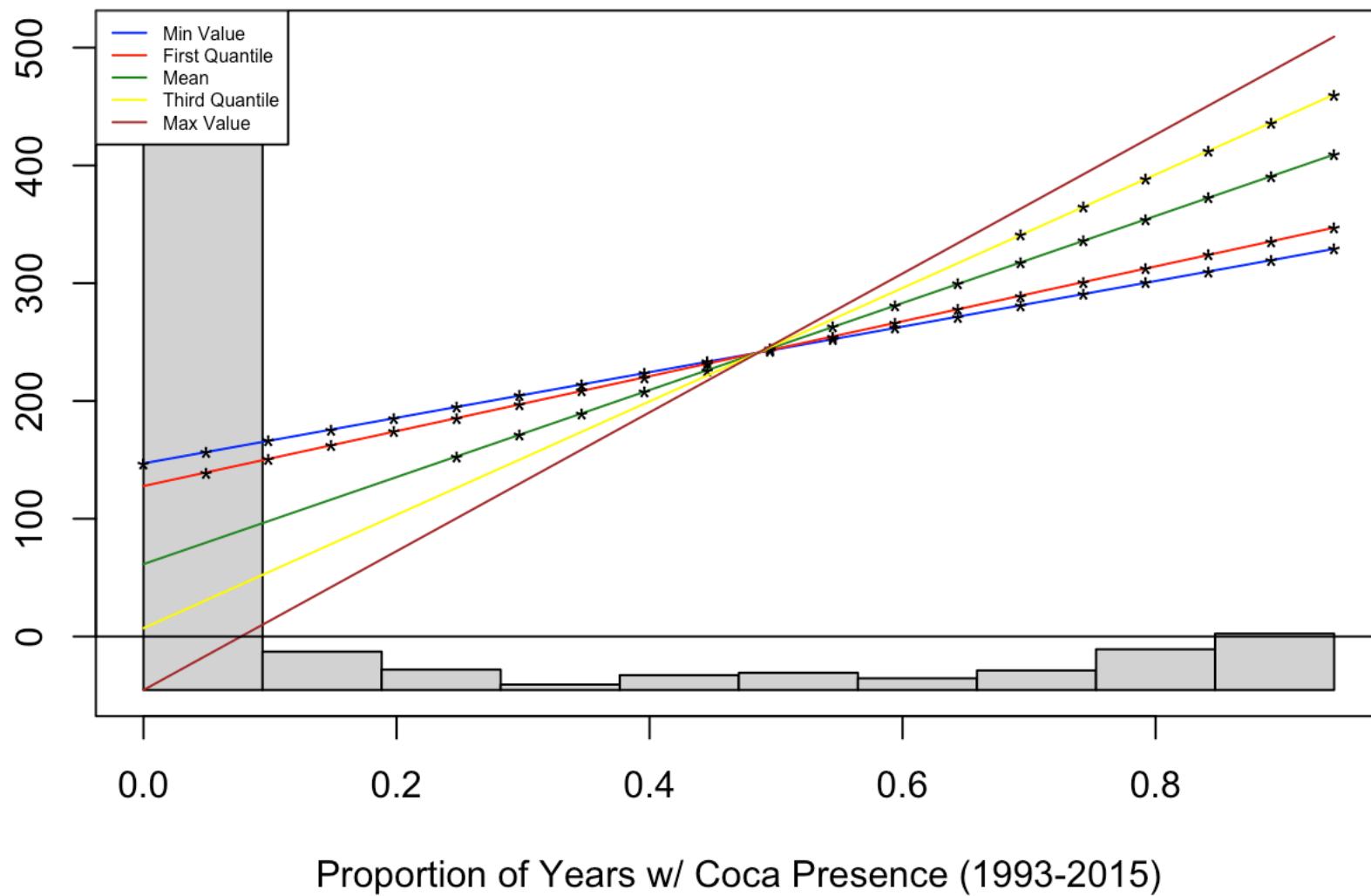
\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. OLS regressions with MODIS crop trend as the dependent variable. 'State-Guerilla Dispute' = the proportion of years (1998-2009) that government and guerilla forces have a dispute in a given municipality. 'c\_match', 's\_match', and 'pres\_pidmuni' variables indicate mutually exclusive categories compared against a category where there is no match in ideology. 'Exposure to State' = proportion of years (1998-2009) that the non-combatant population comes in contact with government forces. 'Exposure to Guerilla' = the same definition, but for guerilla forces. Table shows robust SEs.

Aid's Effect on Crop Veg Cover



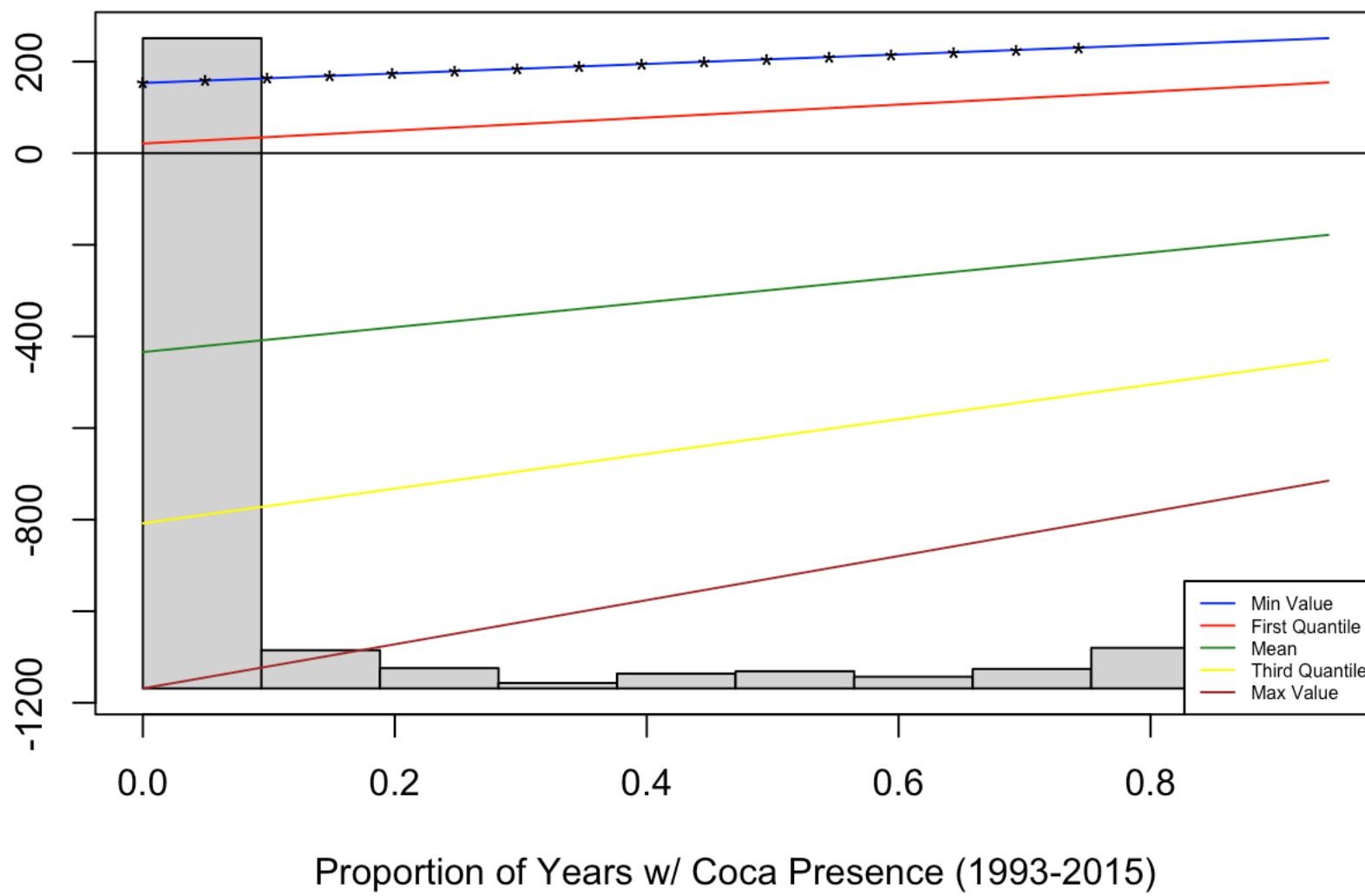
Proportion of Years w/ Coca Presence (1993-2015)

Aid's Effect on Crop Veg Cover

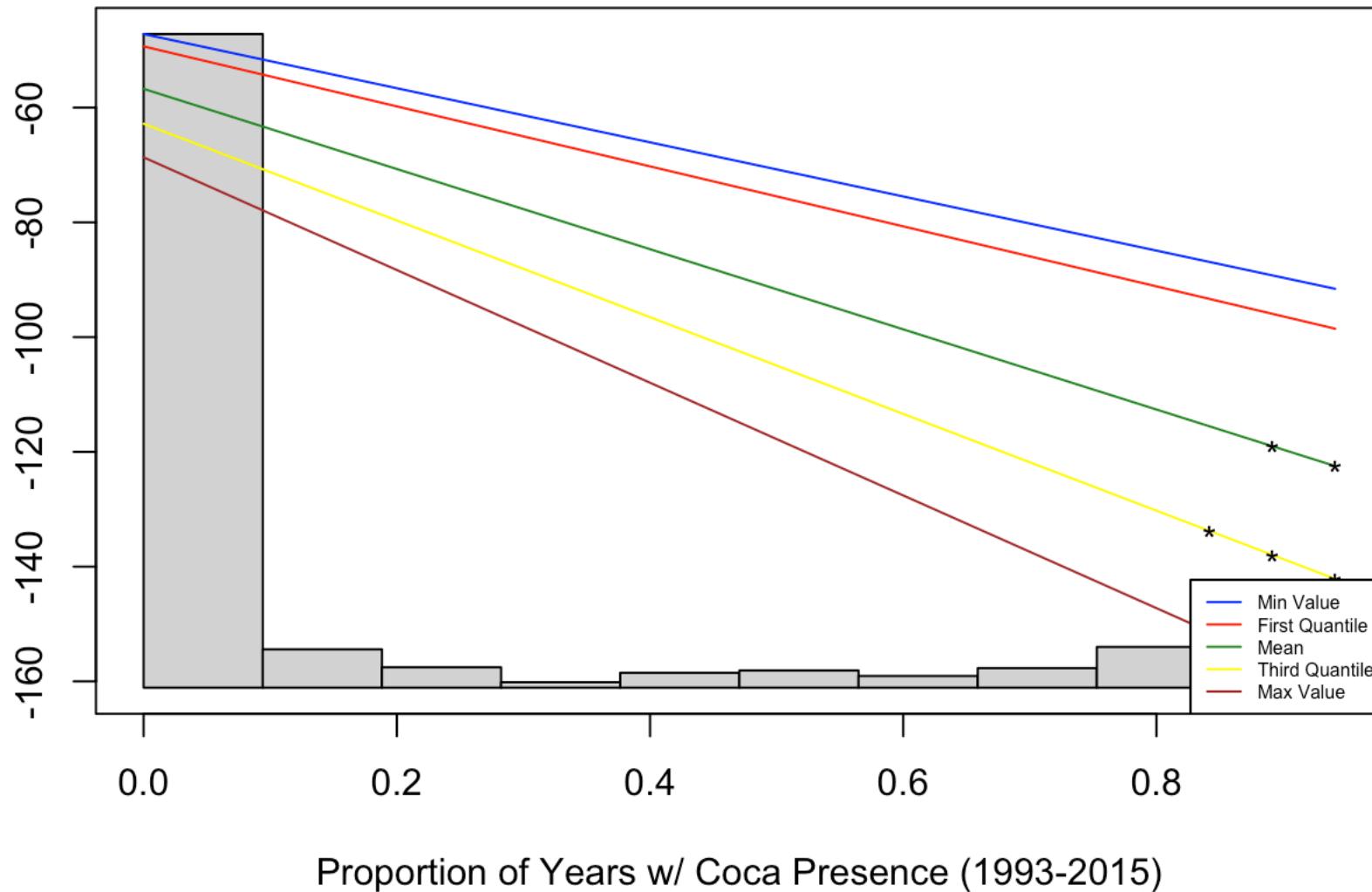


Proportion of Years w/ Coca Presence (1993-2015)

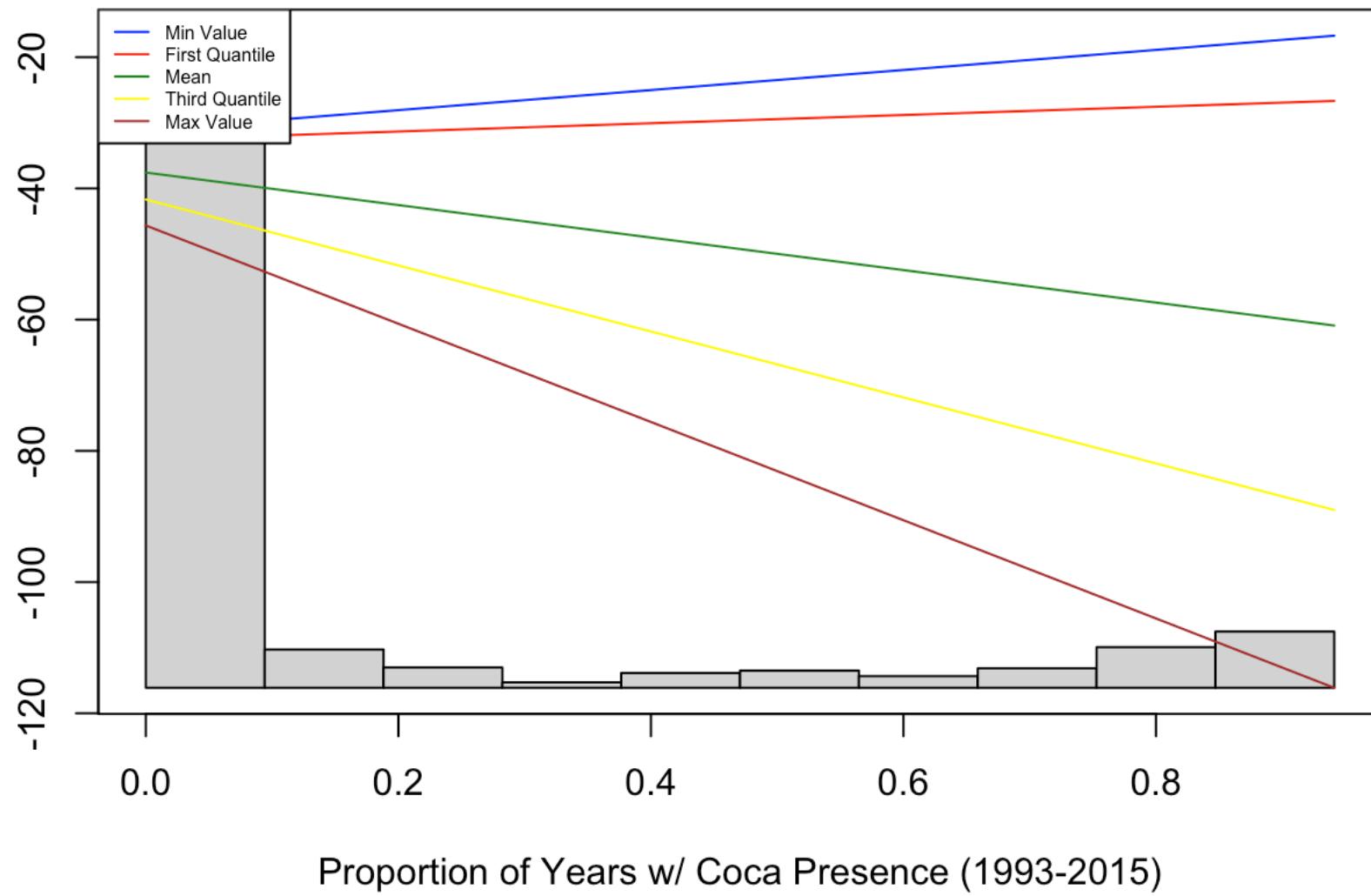
Aid's Effect on Crop Veg Cover



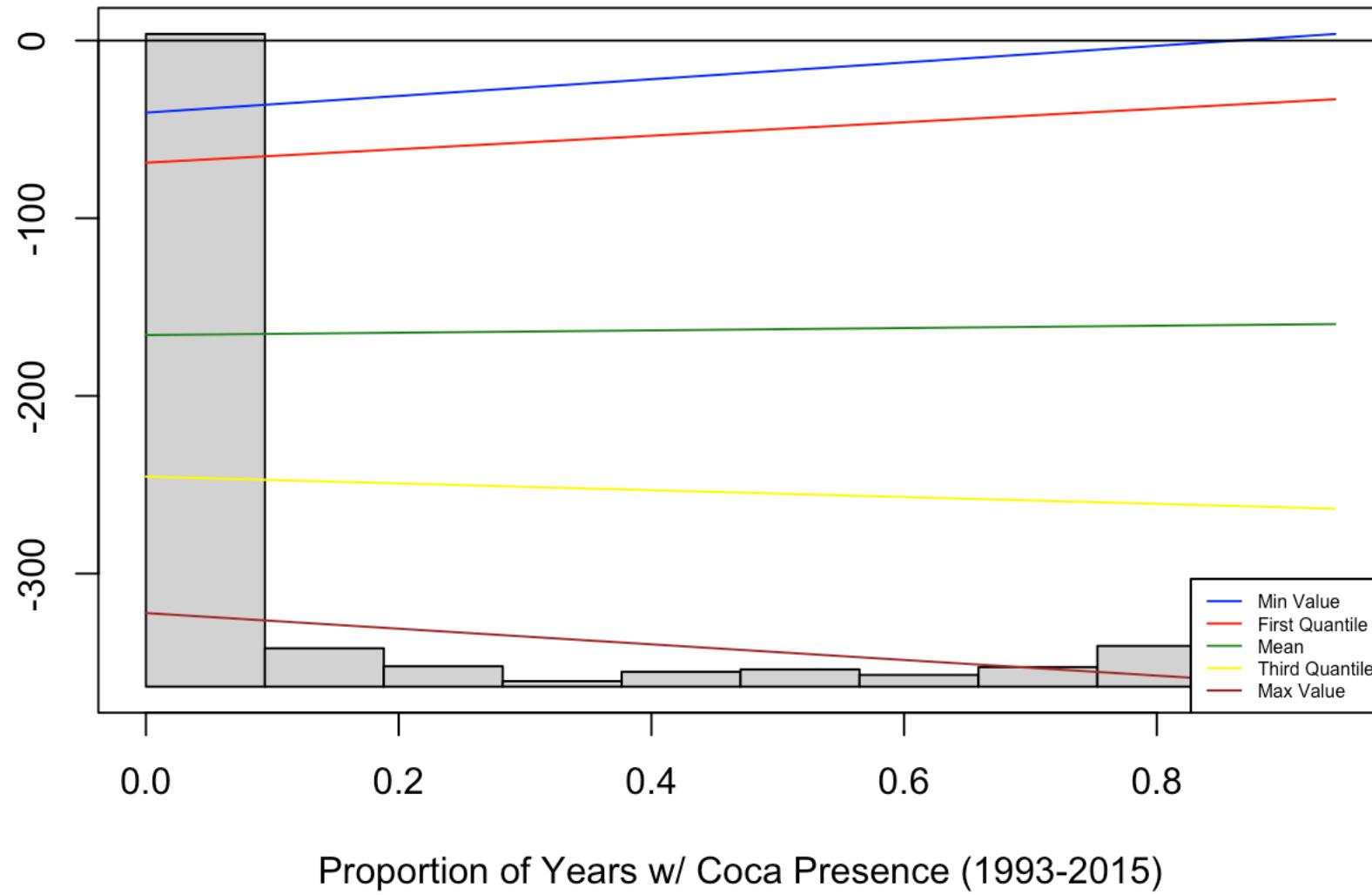
Aid's Effect on Crop Cover



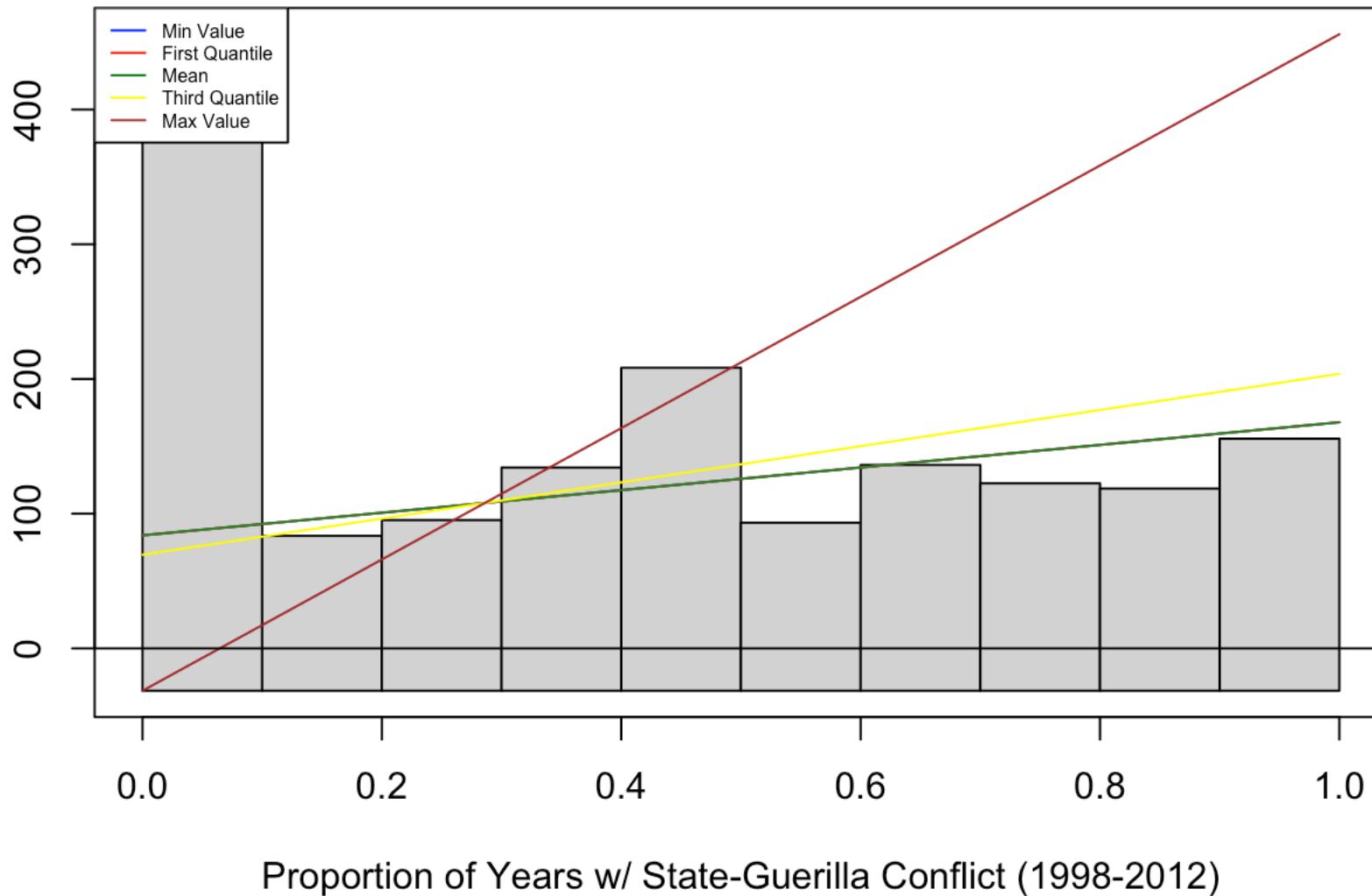
Aid's Effect on Crop Cover



Aid's Effect on Crop Cover

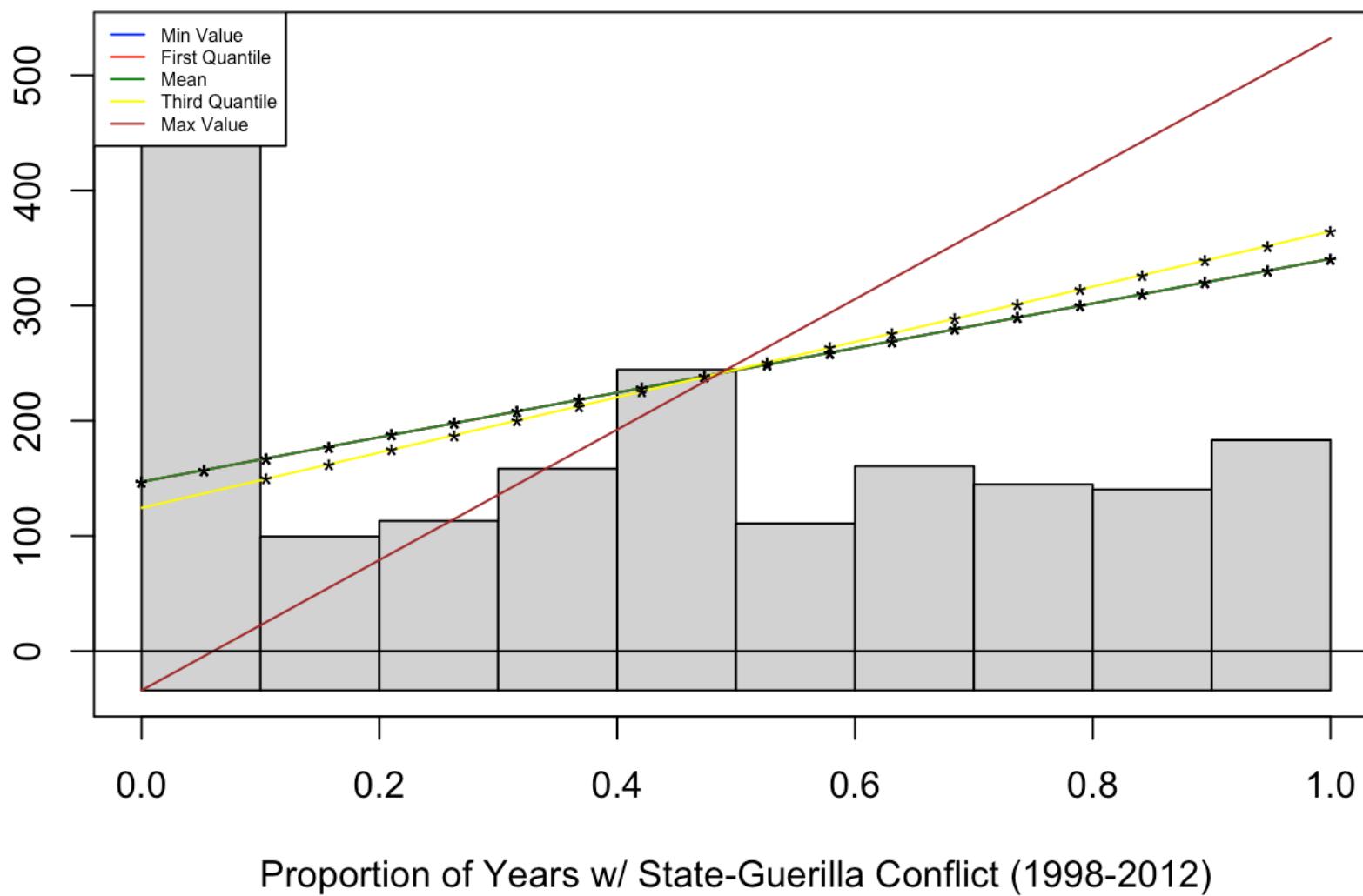


Aid's Effect on Crop Veg Cover



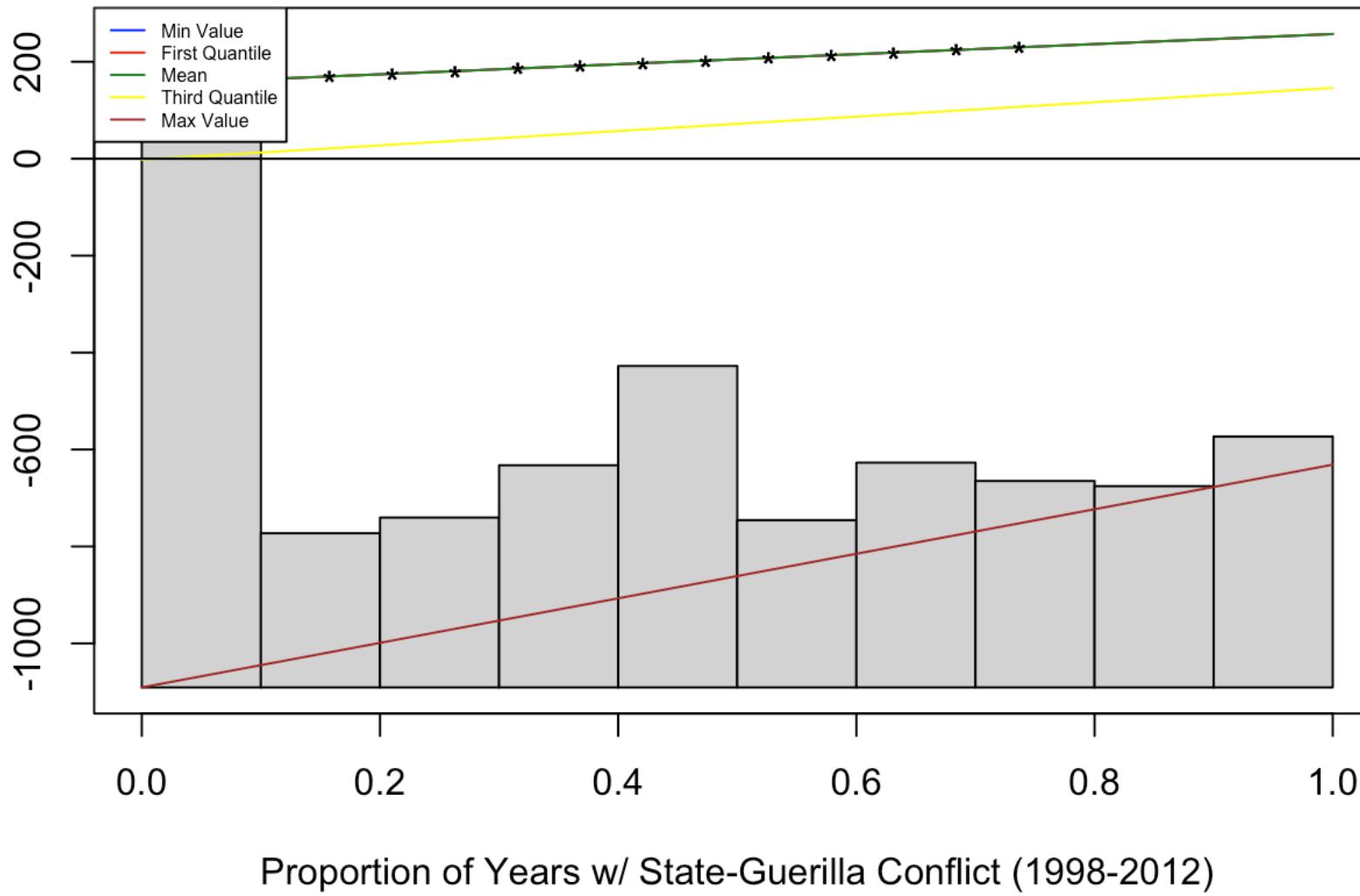
Proportion of Years w/ State-Guerilla Conflict (1998-2012)

Aid's Effect on Crop Veg Cover



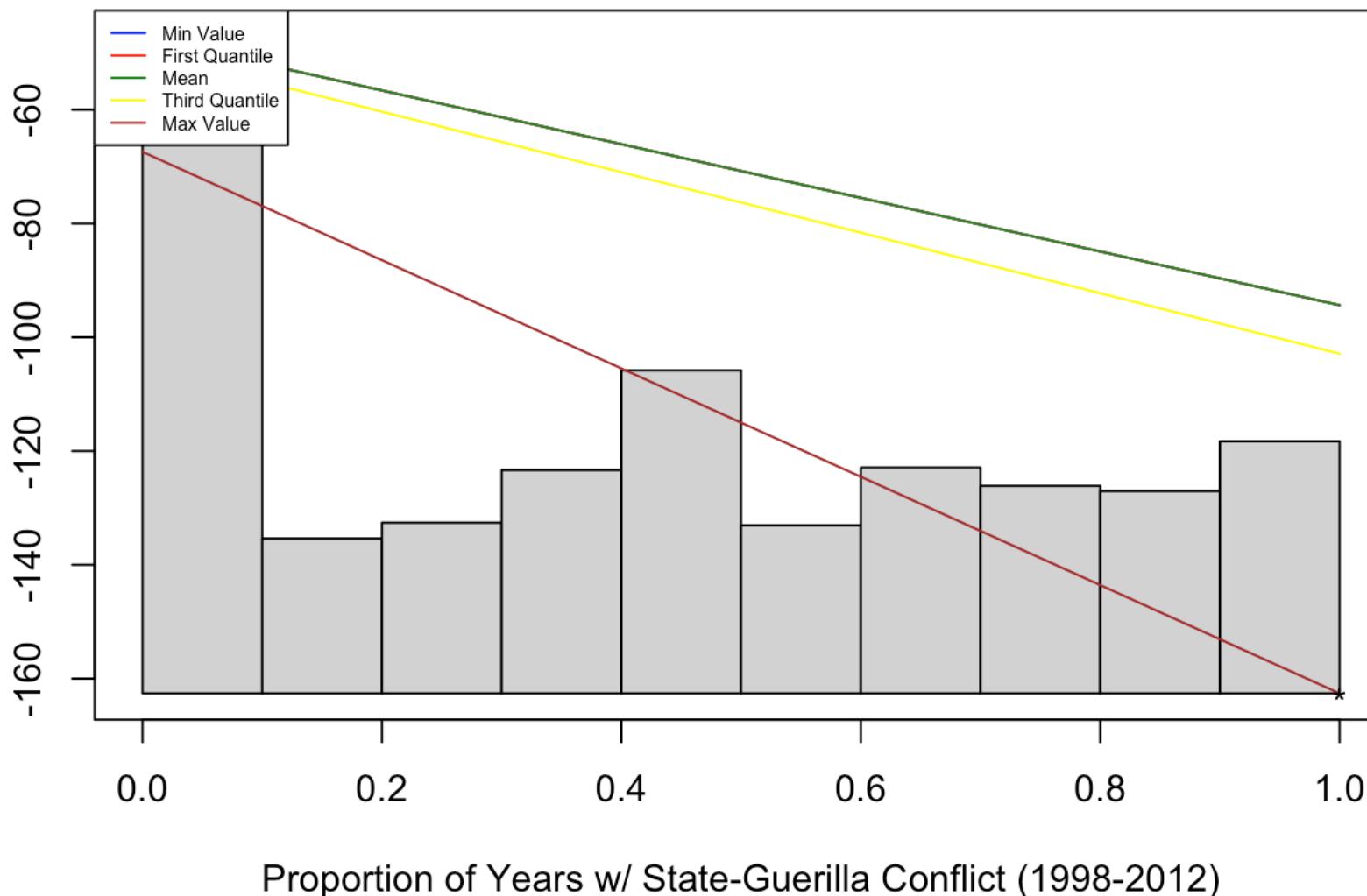
Proportion of Years w/ State-Guerilla Conflict (1998-2012)

Aid's Effect on Crop Veg Cover



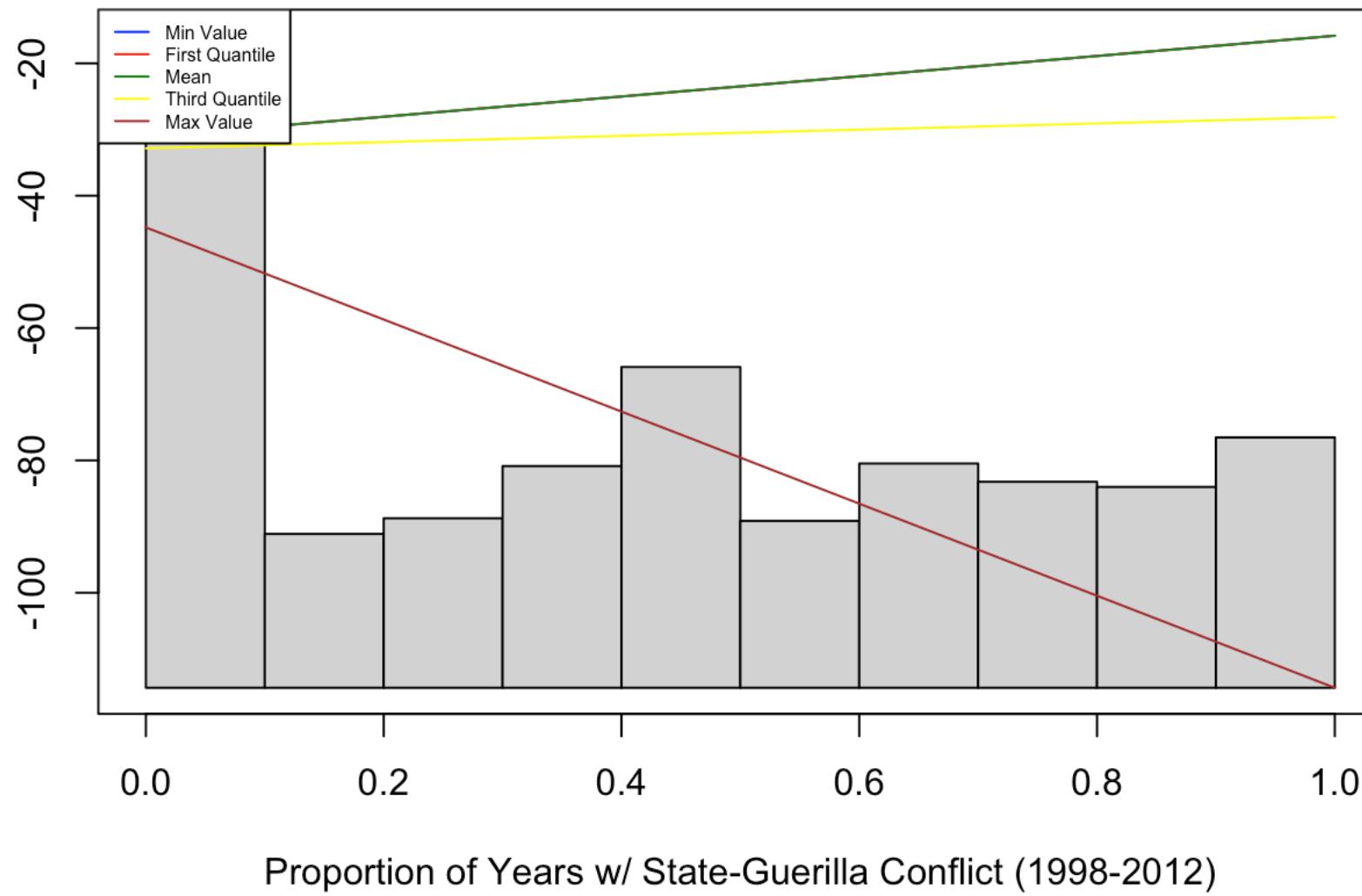
Proportion of Years w/ State-Guerilla Conflict (1998-2012)

Aid's Effect on Crop Cover



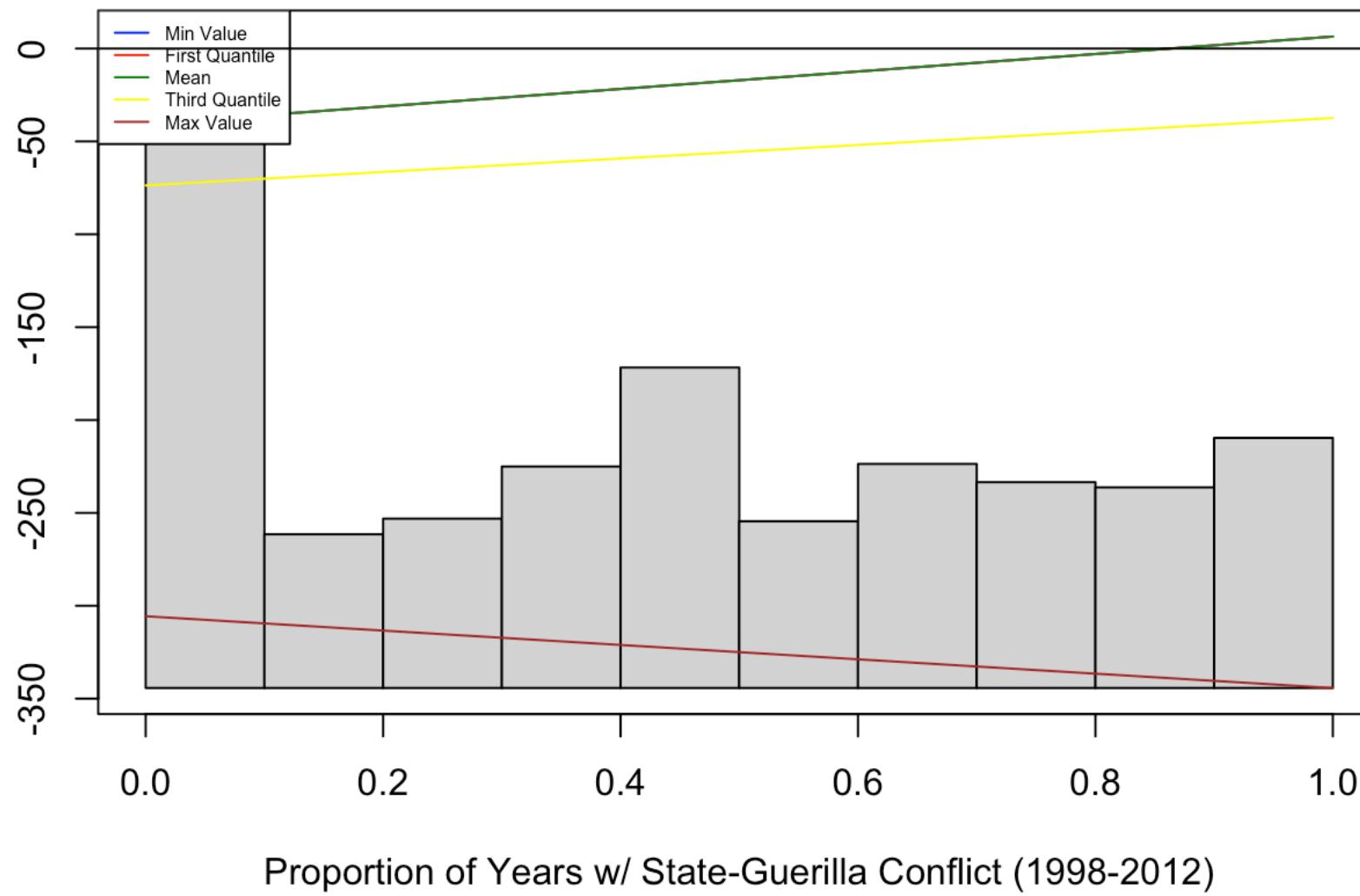
Proportion of Years w/ State-Guerilla Conflict (1998-2012)

Aid's Effect on Crop Cover



Proportion of Years w/ State-Guerilla Conflict (1998-2012)

Aid's Effect on Crop Cover



Proportion of Years w/ State-Guerilla Conflict (1998-2012)

# Missingness: Coca Presence & State-Guerilla Dispute

The “Coca Presence” variables do not have a real issue with missing values in the cross-sectional data. The variable measuring the proportion of municipalities with coca growth from 1998-2015 only have two municipalities in which there are 0 measurements available across the time period. “Illegal Crops”, the dummy variable for coca presence in 2013 has no missing values. As a reminder, these two variables come from separate sources. It is also worth noting that “no missing values” does not mean that the panel data is complete, i.e. it’s possible for ‘coca presence’ to only have a few missing values for any given municipality between 1998 and 2015. (This is something we can go back and check).

The violence data from CERAC does have some issues with missing values. The ‘State-Guerilla Dispute’ and ‘Population Exposure to Conflict’ variables each have 137 missing values. This means that there are 137 municipalities for which there are no measurements for these conflict variables. They also happen to be the same municipalities.

A book chapter on the CERAC conflict data spends a few pages on the problem of missing data.<sup>1</sup> The authors use descriptive statistics and basic visualizations to demonstrate that missingness seems to be tied to institutional development, and that it has decreased greatly across all municipalities over time. A bulk of the missing data come from Amazonas, Guainía, and Vaupés, which are sparsely populated and far from the areas of interest. However, the chapter doesn’t provide any statistical tests for any conjectures. The tables below begin to fill this void.

The table below seems to confirm some of the thinking about the departments that are mostly comprised of the Amazon — municipalities with a larger population seem to be less likely to have missing data in the conflict measures of interest. It’s possible that this is largely driven by the sparsely populated Amazonía region. The table also shows that municipalities with a higher incidence of conflict tend to be less likely to have missing data. Lastly, there are two “displacement” variables that estimate a lower probability of missing values in the municipalities that have a higher estimation of displaced persons. Although, these estimates do not fall below the .1 or .05 level.

## Logit Regression Tables

```
## # A tibble: 2 x 2
##   `is.na(vio_34_mean)`    n
##                 <lgl> <int>
## 1             FALSE     984
## 2             TRUE     137
```

```
## # A tibble: 1 x 2
##   `is.na(vio_13)`    n
##                 <lgl> <int>
## 1             FALSE   1121
```

```

## # A tibble: 2 x 2
##   `is.na(illegal_crops)`    n
##                 <lgl> <int>
## 1             FALSE    1119
## 2              TRUE      2

```

```

## # A tibble: 2 x 2
##   `is.na(vio_31_mean)`    n
##                 <lgl> <int>
## 1             FALSE    984
## 2              TRUE    137

```

```

## # A tibble: 2 x 2
##   `is.na(vio_32_mean)`    n
##                 <lgl> <int>
## 1             FALSE    984
## 2              TRUE    137

```

```

## Printing code for markdown table...

```

## Predicting Missing Values in Key Violence Measures

	(1)	(2)	(3)	(4)
(Intercept)	1.81 *** (0.42)	2.16 *** (0.38)	1.71 *** (0.45)	2.10 *** (0.44)
Muni area	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Altitude	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Conflict Incidence	-1.70 *** (0.25)	-1.72 *** (0.24)	-1.70 *** (0.26)	-1.82 *** (0.27)
Coca Presence Avg	0.59 (0.90)	0.55 (0.78)	0.75 (0.97)	0.44 (0.92)
People Displaced ('Chapman')	-0.00 * (0.00)	-0.00 * (0.00)		
People Displaced ('Lincoln-Petersen')			-0.00 * (0.00)	-0.00 (0.00)
Avg Municipality Population	-0.00 *** (0.00)	-0.00 *** (0.00)	-0.00 *** (0.00)	-0.00 *** (0.00)
AIC	502.97	552.53	436.97	457.17
BIC	537.72	582.66	471.34	486.91
Log Likelihood	-244.49	-270.26	-211.48	-222.59
Deviance	488.97	540.53	422.97	445.17

\*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. Logit regression estimating the likelihood of a missing value for 'State-Guerilla Dispute' and the 'Population Exposure' variables (missing values are consistent for the same municipalities in the CERAC database). There are 137 missing values, i.e. municipalities not represented in the dispute and exposure variables.

## Thoughts and Takeaways

It seems pretty clear (from this analysis anyway) that there are differences between aid's relationship with cropland coverage vs. its relationship with cropland/natural vegetation cover. As a reminder, the **crop** variable is the MODIS cropland coverage measurement defined as "lands covered with temporary crops followed by harvest and a bare soil period (e.g., single and multiple cropping systems). Note that perennial woody crops will be classified as the appropriate forest or shrub land cover type."<sup>2</sup>. **Cropveg** is a MODIS land cover measurement defined as "lands with a mosaic of croplands, forests, shrubland, and grasslands in which no one component comprises more than 60% of the landscape."

There does not appear to be much of an effect on cropland due to aid targeting in municipalities. However, there does appear to be a relationships with aid targeting and the cropland/natural vegetation coverage. Since we know that there is not an observed change in cropland coverage, the positive trend we generally see for aid both unconditionally and conditioned by coca or conflict, must be coming from increases in natural vegetation (forests, grasslands, shrubs) in aid targeted areas. What is significant about this increase in natural vegetation? Here a few things to think about:

- Is the increase in vegetation due to some sort of perennial woody crop that is now planted due to agricultural aid? Coffee is one example of a perennial woody crop, and the coffee industry has grown rapidly in recent years.
- Is the increase in natural vegetation due to a population's displacement or movement in the previous years? People abandon or leave croplands and natural vegetation creeps in. Aid then comes in after a population has moved and natural vegetation starts to creep in at that same time period.
- Is the increase in natural vegetation related to coca fields being abandoned and being replaced with something else?

It would be helpful to look at some examples of agricultural aid projects and see exactly their intentions and goals. For example, are World Bank agricultural aid projects looking to explicitly target coca crops or are these aid projects looking to help plant something new?

1. Granada, Soledad, Jorge Restrepo, and Camilo Sanchez Meertens. *Guerra y Violencias en Colombia: Herramientas e interpretaciones*, "Controlando la medición: alcances y limitaciones de la información en conflictos armados". p. 203-232. ↪
2. "Perennial" meaning a crop that stays for two years or more. ↪