

Descriptives of tract states

Table of contents

TRACT states	2
Ohio	2
Pennsylvania	8
Colorado	15
Maryland	22
Massachusetts	28
Minnesota	34
North Carolina	39
Indiana	46
Oregon	51
New Hampshire	57
Wisconsin	62
Model summaries	68
Lead counts	68
Median annual income	69
House price median	72
Building period	74
Test counts	76
Pediatricians	76

```
library(kableExtra)
library(tidyverse)
library(jsonlite)
source(".././init.R")
source("load_and_preprocess.R")
```

Getting metadata

```
# get metadata from ~US root
metadata <- fromJSON("../metadata.json")
# extract required metadata (lists)
zip_states <- metadata$zip_states
tract_states <- metadata$tract_states
```

```
source("compute_descriptives.R")
```

TRACT states

```
print(tract_states)
```

```
[1] "OH" "PA" "CO" "MD" "MA" "MN" "NYC" "NC" "IN" "OR" "NH" "WI"
```

Ohio

```
oh_summary <- data_summary("OH", year = NULL)
```

```
[1] "Loading OH from processed_data"
```

```
Rows: 94292 Columns: 6
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (4): state, BLL_geq_5, BLL_geq_10, tested
```

```
dbl (2): tract, year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

year	n_obs	lead_cens_5	lead_nocons_5	lead_censR_5	lead_cens_10	lead_nocons_10	lead_censR_10	test_cens	test_censR	sup_threshold_5	sup_threshold_10	median_lead_5	q75_lead_5	max_lead_5	median_lead_10	q75_lead_10	max_lead_10
2005	4360	1990	2370	0.4564220	1502	2858	0.3444854	308	0.0796422	4	4	5	9	120	0	5	31
2006	4330	2084	2246	0.4812933	1426	2904	0.3293303	256	0.0591224	4	4	5	8	98	0	5	21
2007	4254	1904	2350	0.4475787	1474	2780	0.3464974	200	0.0470146	4	4	5	8	100	0	5	25
2008	4232	2004	2228	0.4735350	1344	2888	0.3175903	186	0.0489509	4	4	5	7	96	0	5	18
2009	4344	2114	2230	0.4866483	1408	2876	0.3379374	222	0.0511050	4	4	5	6	90	0	5	14
2010	4722	2334	2188	0.5366370	1350	3372	0.2858658	152	0.0321898	4	4	5	5	80	0	5	14
2011	4808	2402	2406	0.4995840	1182	3626	0.2458403	114	0.0237105	4	4	5	5	40	0	5	12
2012	4808	2348	2460	0.4883527	1142	3666	0.2375208	44	0.0091514	4	4	5	5	46	0	5	12
2013	4788	2406	2382	0.5025063	1084	3704	0.2263993	34	0.0071011	4	4	5	5	41	0	5	13
2014	4846	2096	2750	0.4325217	1024	3822	0.2113883	72	0.0148576	4	4	5	5	31	0	5	13
2015	4842	2160	2682	0.4460967	1260	3582	0.2692230	542	0.1119372	4	4	5	5	28	0	5	14

Warning in `datasummary_skim_numeric(data, output = output, fmt = fmt, histogram = histogram, : The histogram argument is only supported for (a) output types "default", "html", or "kableExtra"; (b) writing to file paths with extensions ".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to PDF or HTML. Use `histogram=FALSE` to silence this warning.`

```
oh_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

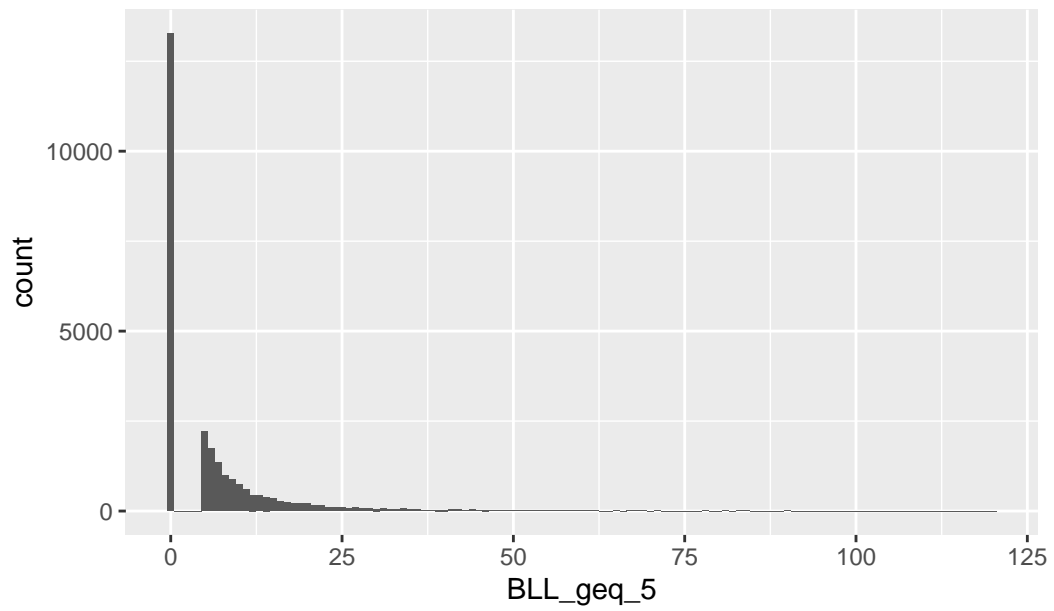
```
oh_summary[[2]]
```

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
BLL_geq_5	87	0	5.6	7.1	0.0	5.0	120.0
BLL_geq_10	24	0	1.7	2.6	0.0	0.0	31.0
tested	251	0	40.5	32.5	5.0	33.0	520.0
year	11	0	2010.2	3.2	2005.0	2010.0	2015.0
tested_ell	1	0	5.0	0.0	5.0	5.0	5.0
ell_5	1	0	4.0	0.0	4.0	4.0	4.0
ell_10	1	0	4.0	0.0	4.0	4.0	4.0
median_annual_incomeE	2359	0	0.0	1.0	-2.5	-0.1	5.5
house_price_medianE	1503	0	0.0	1.0	-1.6	-0.2	6.2
poor_fam_propE	2403	0	-0.0	1.0	-1.1	-0.3	5.6
black_ppl_propE	2253	0	-0.0	1.0	-0.6	-0.5	3.5
bp_pre_1959E_prop	2455	0	0.0	1.0	-1.8	-0.1	2.0
svi_socioeconomic_pctile	2178	0	-0.0	1.0	-2.2	0.0	1.6
ped_per_100k	69	0	-0.0	1.0	-1.3	-0.3	2.3
under_yo5_pplE	534	0	227.4	136.7	5.0	203.0	1263.0

```
oh_summary[[3]]
```

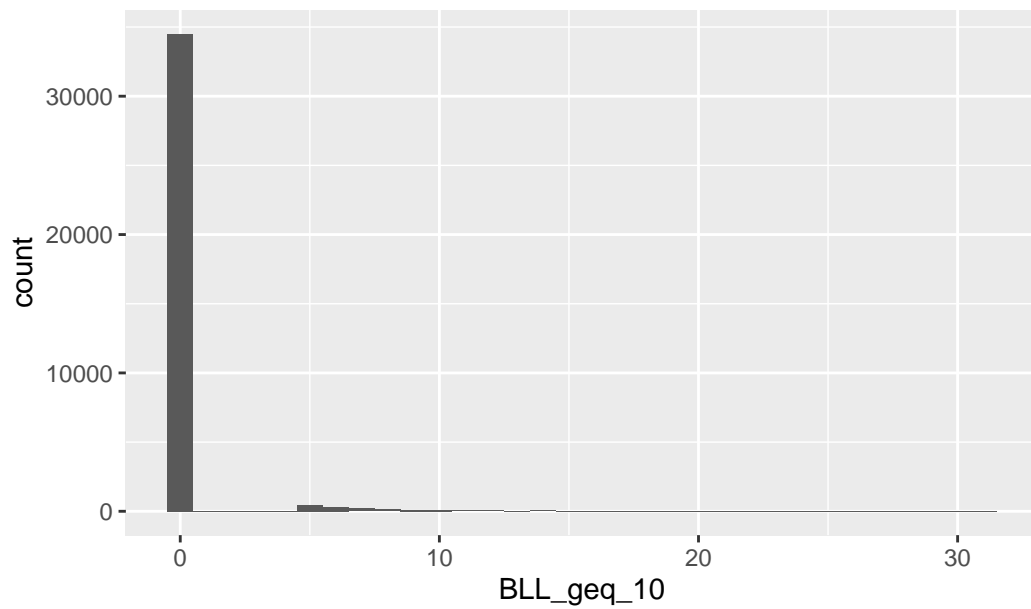
```
[[1]]
```

Distribution of non-censored BLL_geq_5 values

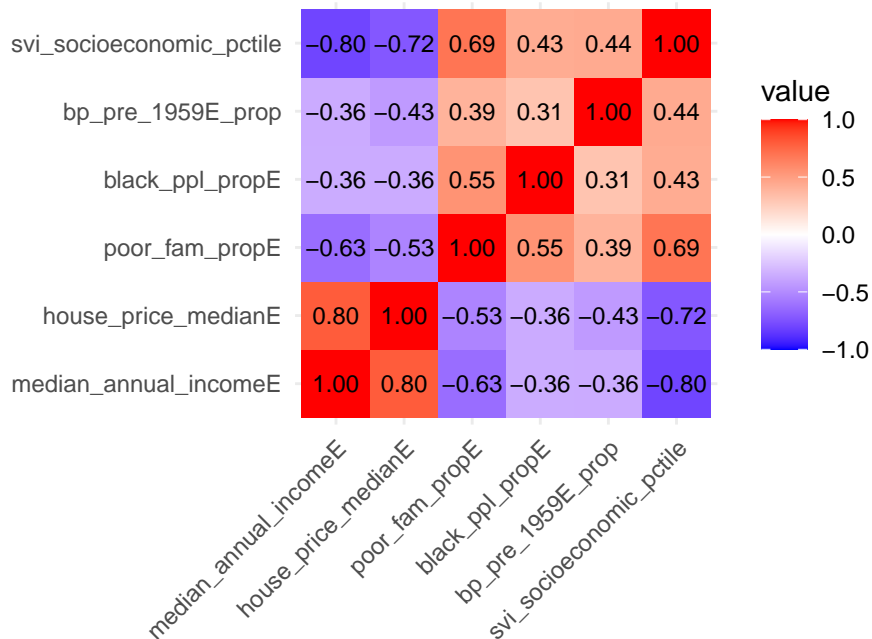


[[2]]

Distribution of non-censored BLL_geq_10 values



```
oh_summary[[4]]
```



```
oh_lead_model <- lead_count_model_summary("OH", year = 2010)
```

```
[1] "Loading OH from processed_data"
```

```
Rows: 94292 Columns: 6
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (4): state, BLL_geq_5, BLL_geq_10, tested
```

```
dbl (2): tract, year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

Loading required package: cmdstanr

This is cmdstanr version 0.6.1

- CmdStanR documentation and vignettes: mc-stan.org/cmdstanr
- CmdStan path: /Users/lasse/.cmdstan/cmdstan-2.33.0
- CmdStan version: 2.33.0

A newer version of CmdStan is available. See `?install_cmdstan()` to install it.

To disable this check set option or environment variable `CMDSTANR_NO_VER_CHECK=TRUE`.

Loading required package: bayesplot

This is bayesplot version 1.10.0

- Online documentation and vignettes at mc-stan.org/bayesplot
- bayesplot theme set to `bayesplot::theme_default()`
 - * Does `_not_` affect other ggplot2 plots
 - * See `?bayesplot_theme_set` for details on theme setting

Warning in `readLines(stan_file)`: incomplete final line found on
'poisson_many_X_suppression.stan'

Chain 1 Initialization between (-2, 2) failed after 100 attempts.

Chain 1 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 1 Initialization failed.

Chain 2 Initialization between (-2, 2) failed after 100 attempts.

Chain 2 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 2 Initialization failed.

Chain 3 Initialization between (-2, 2) failed after 100 attempts.

Chain 3 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 3 Initialization failed.

Chain 4 Initialization between (-2, 2) failed after 100 attempts.

Chain 4 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 4 Initialization failed.

Warning: No chains finished successfully. Unable to retrieve the fit.

Error: No chains finished successfully. Unable to retrieve the draws.

```
oh_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

Error in `knitr::kable(oh_lead_model$table)`: object 'oh_lead_model' not found

```
oh_lead_model$plot
```

Error in eval(expr, envir, enclos): object 'oh_lead_model' not found

```
oh_test_model <- test_count_model_summary("OH", year = 2012)
```

```
[1] "Loading OH from processed_data"
```

Rows: 94292 Columns: 6

-- Column specification -----

Delimiter: ","

chr (4): state, BLL_geq_5, BLL_geq_10, tested

dbl (2): tract, year

i Use `spec()` to retrieve the full column specification for this data.

i Specify the column types or set `show_col_types = FALSE` to quiet this message.

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.

i Please use `if_any()` or `if_all()` instead.

```
[1] "Additional features added: "
```

Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'

Warning: Using an external vector in selections was deprecated in tidyselect 1.1.0.

i Please use `all_of()` or `any_of()` instead.

Was:

```
data %>% select(features)
```

Now:

```
data %>% select(all_of(features))
```

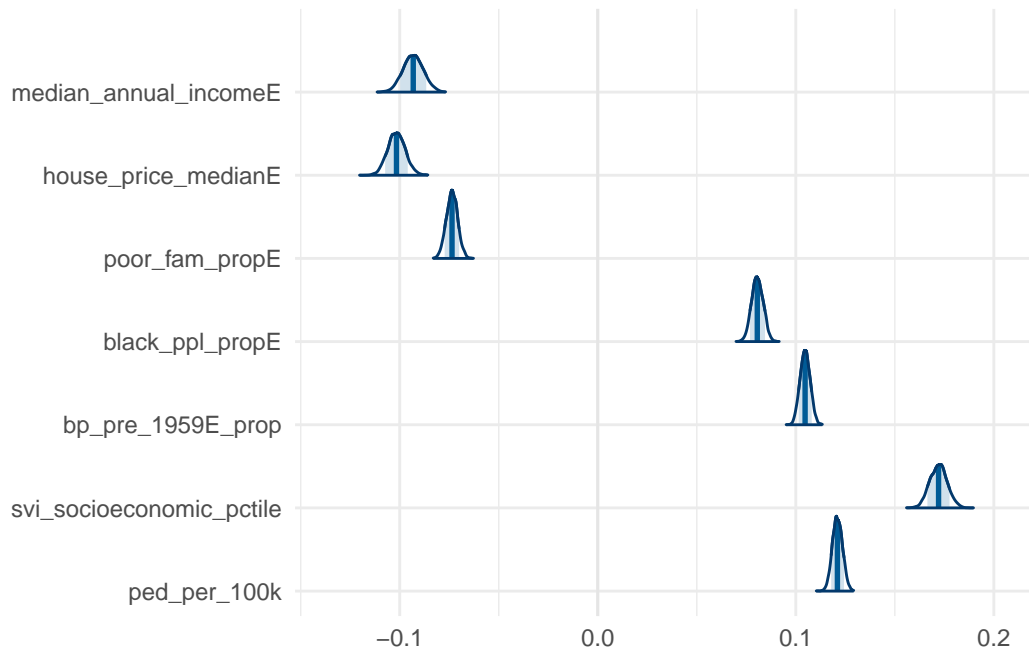
See <<https://tidyselect.r-lib.org/reference/faq-external-vector.html>>.

Warning: Dropping 'draws_df' class as required metadata was removed.

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp_	6.194620e+05	6.194620e+05	2.0116219	1.4826000	6.194580e+05	6.194650e+05	1.000911	1836.657	2457.684
alpha	-1.651364e+00	-1.651360e+00	0.0022938	0.0023277	-1.655150e+00	-1.647700e+00	1.000444	5119.312	2793.328
median_annual_incomeE	-9.318580e-02	-9.317430e-02	0.0051047	0.0051560	-1.014858e-01	-8.471790e-02	1.001424	2725.515	3079.471
house_price_medianE	-1.016107e-01	-1.016445e-01	0.0044728	0.0044130	-1.088647e-01	-9.409640e-02	1.001257	3074.607	2698.200
poor_fam_propE	-7.361550e-02	-7.359210e-02	0.0028618	0.0028440	-7.837580e-02	-6.891950e-02	1.000581	4513.340	3019.132
black_ppl_propE	8.062130e-02	8.054720e-02	0.0029177	0.0029613	7.589330e-02	8.529990e-02	1.000487	4148.391	3114.759
bp_pre_1959E_prop	1.047109e-01	1.046835e-01	0.0025370	0.0025701	1.005554e-01	1.088602e-01	1.001537	4670.565	3060.612
svi_socioeconomic_pctile	1.720622e-01	1.720785e-01	0.0043842	0.0044063	1.649594e-01	1.793004e-01	1.002605	3554.233	2643.905
ped_per_100k	1.210446e-01	1.210050e-01	0.0025489	0.0025797	1.169156e-01	1.252270e-01	1.000929	3963.602	3119.774

```
oh_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
oh_test_model$plot
```



Pennsylvania

```
pa_summary <- data_summary("PA", year = NULL)
```

```
[1] "Loading PA from processed_data"
```


year	n_obs	lead_cens_5	lead_nocens_5	lead_censR_5	lead_cens_10	lead_nocens_10	lead_censR_10	test_cens	test_censR	sup_threshold_5	sup_threshold_10	median_lead_5	q75_lead_5	max_lead_5	median_lead_10	q75_lead_10	max_lead_10
2005	2153	1057	1096	0.4909429	965	1188	0.4482118	292	0.1356247	4	4	5	9	267	5	5	102
2006	2174	1049	1125	0.4825207	865	1309	0.3978841	197	0.0961664	4	4	5	8	198	5	5	65
2007	2171	1009	1102	0.4647628	817	1354	0.3763243	143	0.0658683	4	4	5	8	187	0	5	62
2008	2200	1096	1104	0.4981818	804	1396	0.3654545	191	0.0868182	4	4	5	6	160	0	5	45
2009	2124	1361	763	0.6407721	1094	1030	0.5150659	644	0.3032015	4	4	5	5	128	5	5	38
2010	2083	1402	661	0.6769628	1128	935	0.5407765	919	0.3969947	4	4	5	5	96	5	5	29
2011	1945	1387	558	0.7131105	1176	769	0.6946272	930	0.4781491	4	4	5	5	55	5	5	22
2012	1865	1385	480	0.7426273	1184	681	0.6348525	972	0.5211796	4	4	5	5	51	5	5	17
2013	1766	1396	370	0.7904870	1202	564	0.6806342	1012	0.5730464	4	4	5	5	32	5	5	9
2014	1722	1382	340	0.8025552	1196	526	0.6945412	1048	0.6055047	4	4	5	5	34	5	5	5
2015	799	760	39	0.9511890	718	81	0.8986233	696	0.8710889	4	4	5	5	5	5	5	5

Warning: One or more parsing issues, call `problems()` on your data frame for details, e.g.:

```
dat <- vroom(...)
problems(dat)
```

Rows: 43340 Columns: 6

-- Column specification -----

Delimiter: ","

chr (4): state, BLL_geq_5, BLL_geq_10, tested

dbl (2): tract, year

i Use `spec()` to retrieve the full column specification for this data.
i Specify the column types or set `show_col_types = FALSE` to quiet this message.

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.

i Please use `if_any()` or `if_all()` instead.

[1] "Additional features added: "

Warning in datasummaryskim_numeric(data, output = output, fmt = fmt, histogram = histogram, : The histogram argument is only supported for (a) output types "default", "html", or "kableExtra"; (b) writing to file paths with extensions ".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to PDF or HTML. Use `histogram=FALSE` to silence this warning.

```
pa_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

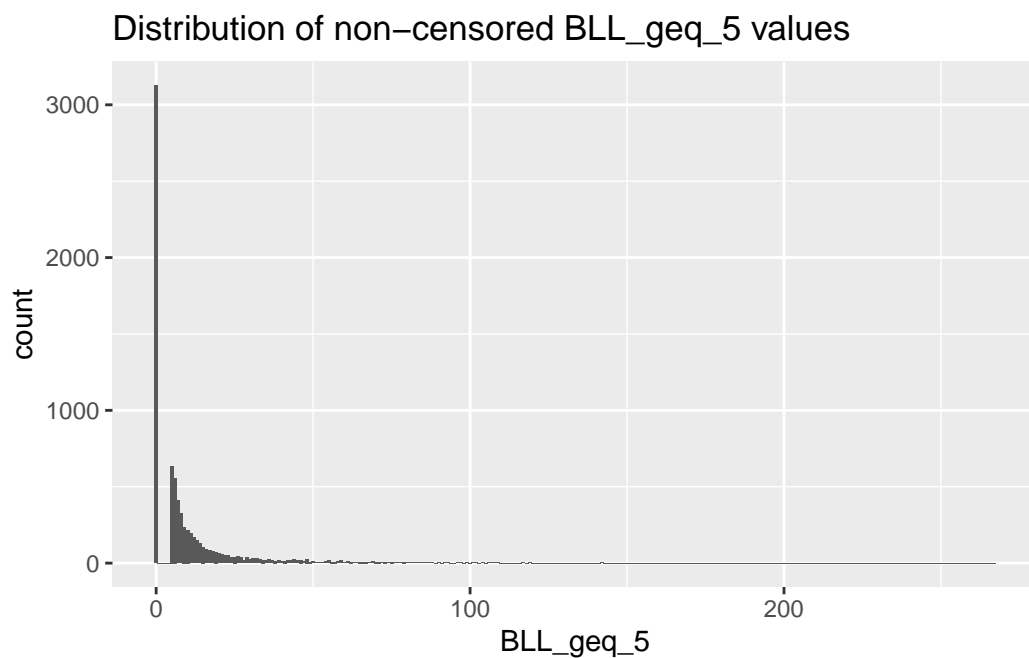
```
pa_summary[[2]]
```

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
BLL_geq_5	120	0	7.0	10.7	0.0	5.0	267.0
BLL_geq_10	37	0	3.2	3.3	0.0	5.0	102.0

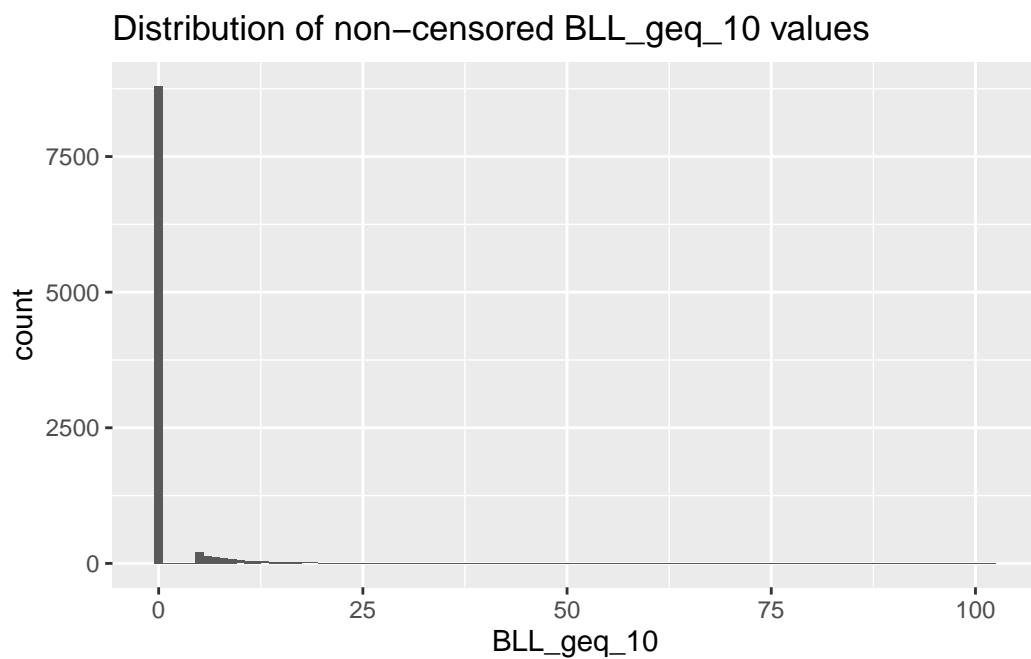
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
tested	254	0	20.6	30.5	5.0	9.0	451.0
year	11	0	2009.5	3.0	2005.0	2009.0	2015.0
tested_ell	1	0	5.0	0.0	5.0	5.0	5.0
ell_5	1	0	4.0	0.0	4.0	4.0	4.0
ell_10	1	0	4.0	0.0	4.0	4.0	4.0
median_annual_incomeE	2166	0	-0.1	1.0	-2.5	-0.2	6.6
house_price_medianE	1568	0	-0.1	0.9	-1.4	-0.3	7.8
poor_fam_propE	2211	0	0.1	1.0	-1.0	-0.3	6.0
black_ppl_propE	2070	0	0.1	1.0	-0.6	-0.4	4.0
bp_pre_1959E_prop	2248	0	0.1	1.0	-2.2	0.2	1.9
svi_socioeconomic_pctile	2025	0	0.1	1.0	-1.9	0.1	1.8
ped_per_100k	53	0	0.0	0.8	-1.4	-0.4	14.3
under_yo5_pplE	514	0	220.2	137.6	7.0	191.0	1150.0

```
pa_summary[[3]]
```

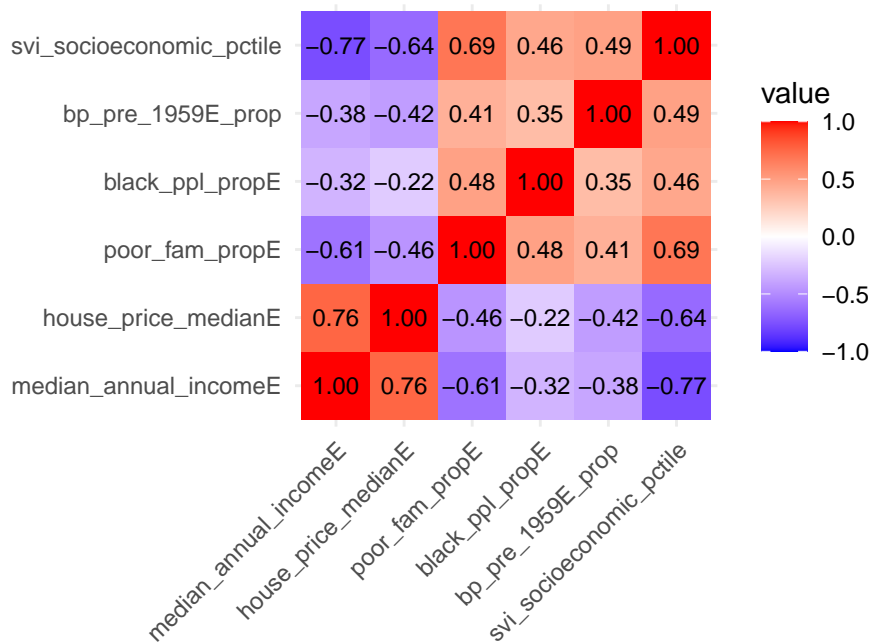
```
[[1]]
```



```
[[2]]
```



```
pa_summary[[4]]
```



```
pa_lead_model <- lead_count_model_summary("PA", year = 2007)
```

```
[1] "Loading PA from processed_data"
```

Warning: One or more parsing issues, call `problems()` on your data frame for details, e.g.:

```
dat <- vroom(...)
problems(dat)
```

Rows: 43340 Columns: 6

-- Column specification -----

Delimiter: ","

chr (4): state, BLL_geq_5, BLL_geq_10, tested

dbl (2): tract, year

i Use `spec()` to retrieve the full column specification for this data.

i Specify the column types or set `show_col_types = FALSE` to quiet this message.

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.

i Please use `if_any()` or `if_all()` instead.

```
[1] "Additional features added: "
```

Warning in readLines(stan_file): incomplete final line found on

'poisson_many_X_suppression.stan'

Chain 1 Initialization between (-2, 2) failed after 100 attempts.

Chain 1 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 1 Initialization failed.

Chain 2 Initialization between (-2, 2) failed after 100 attempts.

Chain 2 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 2 Initialization failed.

Chain 4 Initialization between (-2, 2) failed after 100 attempts.

Chain 4 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 4 Initialization failed.

Warning: Using an external vector in selections was deprecated in tidyselect 1.1.0.

i Please use `all_of()` or `any_of()` instead.

Was:

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp__	35257.0140000	35257.4000000	1.9436311	1.7049900	35253.2000000	35259.5000000	1.0001842	430.0103	511.8687
alpha	-3.7306944	-3.7297750	0.0120594	0.0121647	-3.7508350	-3.7118260	1.0086244	1250.3692	842.7605
median_annual_incomeE	-0.1513797	-0.1513825	0.0178708	0.0172501	-0.1813049	-0.1221928	1.0045010	706.8704	576.2699
house_price_medianE	0.0003977	0.0003557	0.0171585	0.0171314	-0.0268372	0.0295100	1.0060569	691.9898	519.7427
poor_fam_propE	0.0329344	0.0330686	0.0075251	0.0076820	0.0207498	0.0455362	0.9997347	941.3845	643.0202
black_ppl_propE	0.1608820	0.1608300	0.0054936	0.0057021	0.1520536	0.1700905	0.9994794	1065.2261	743.6657
bp_pre_1959E_prop	0.3141247	0.3141120	0.0112814	0.0110735	0.2959321	0.3330031	0.9998343	878.8306	457.2806
svi_socioeconomic_pctile	0.5302099	0.5307375	0.0151655	0.0146036	0.5046672	0.5532668	1.0028860	795.2501	651.3333

```
data %>% select(fit_features)
```

```
# Now:
```

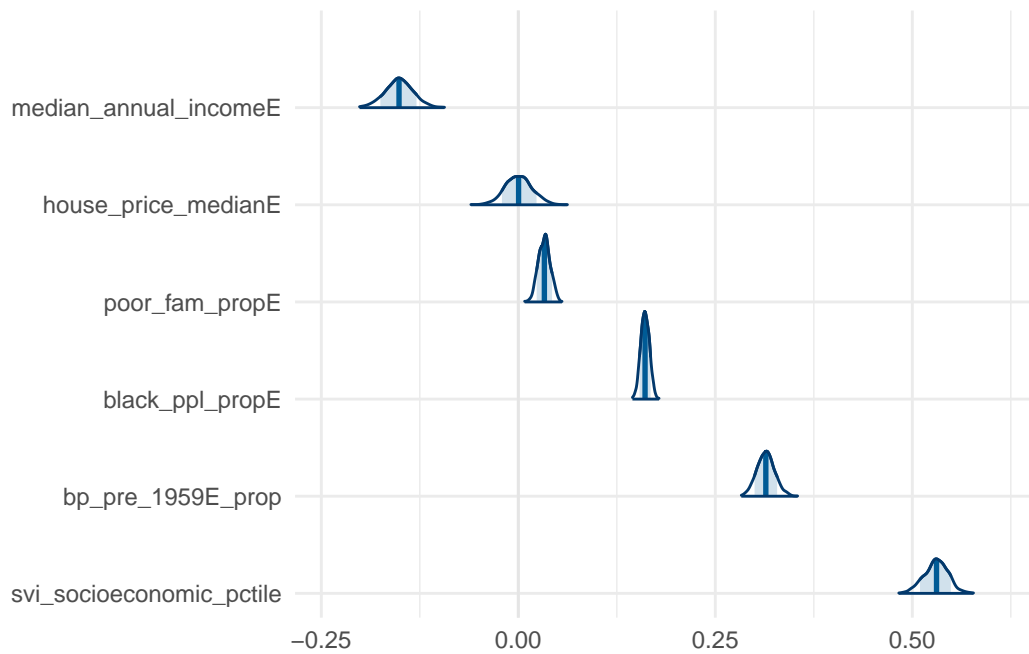
```
data %>% select(all_of(fit_features))
```

See <https://tidyselect.r-lib.org/reference/faq-external-vector.html>.

Warning: Dropping 'draws_df' class as required metadata was removed.

```
pa_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
pa_lead_model$plot
```



```
pa_test_model <- test_count_model_summary("PA", year = 2007)
```

```
[1] "Loading PA from processed_data"
```

Warning: One or more parsing issues, call ``problems()`` on your data frame for details, e.g.:

```
dat <- vroom(...)
problems(dat)
```

Rows: 43340 Columns: 6

-- Column specification -----

Delimiter: ","

chr (4): state, BLL_geq_5, BLL_geq_10, tested

dbl (2): tract, year

i Use ``spec()`` to retrieve the full column specification for this data.

i Specify the column types or set ``show_col_types = FALSE`` to quiet this message.

Warning: Using ``across()`` in ``filter()`` was deprecated in dplyr 1.0.8.

i Please use ``if_any()`` or ``if_all()`` instead.

```
[1] "Additional features added: "
```

Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'

Chain 3 Initialization between (-2, 2) failed after 100 attempts.

Chain 3 Try specifying initial values, reducing ranges of constrained values, or reparameterize.

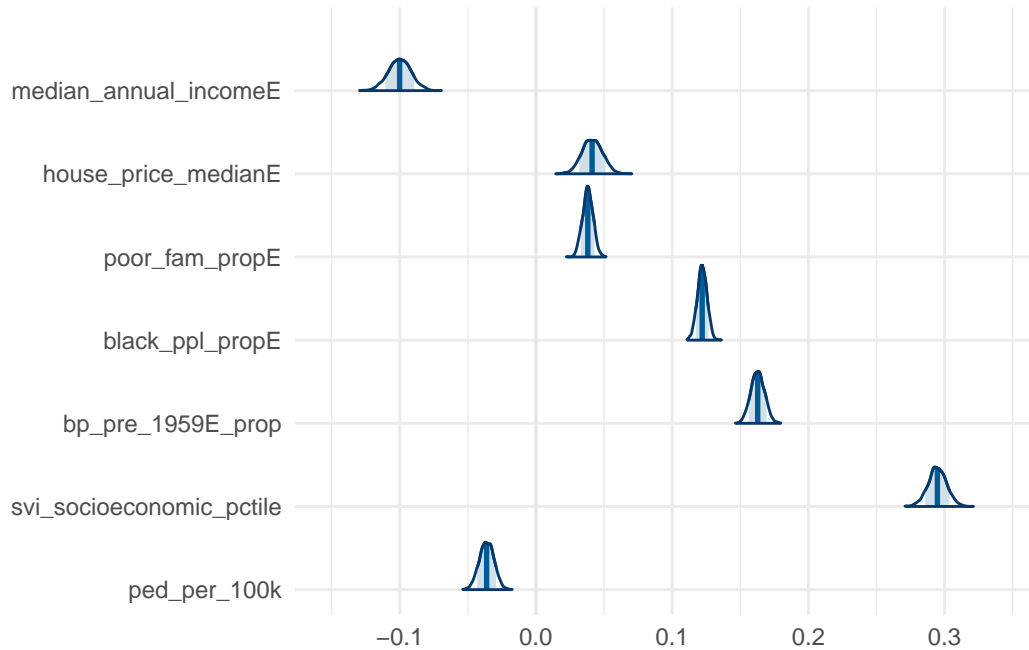
Chain 3 Initialization failed.

Warning: Dropping 'draws_df' class as required metadata was removed.

```
pa_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
pa_test_model$plot
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp_	2.250390e+05	2.250390e+05	1.9788743	1.4826000	2.250350e+05	2.250420e+05	0.9995291	1340.305	1899.279
alpha	-1.984931e+00	-1.984925e+00	0.0043720	0.0043366	-1.992130e+00	-1.977780e+00	1.0009139	4975.997	2138.001
median_annual_incomeE	-1.000794e-01	-1.001350e-01	0.0083239	0.0082558	-1.140785e-01	-8.627240e-02	1.0003119	2327.550	1750.657
house_price_medianE	4.132650e-02	4.118940e-02	0.0074528	0.0075303	2.918500e-02	5.355680e-02	1.0003834	2742.998	2340.503
poor_fam_propE	3.803320e-02	3.804760e-02	0.0039048	0.0038567	3.145230e-02	4.433420e-02	1.0008859	3680.613	2226.675
black_ppl_propE	1.220353e-01	1.220260e-01	0.0035988	0.0035256	1.161181e-01	1.279688e-01	1.0006057	3595.367	2459.741
bp_pre_1959E_prop	1.627662e-01	1.627840e-01	0.0050069	0.0050445	1.545506e-01	1.710466e-01	1.0001518	3729.433	2036.476
svi_socioeconomic_pctile	2.946981e-01	2.947100e-01	0.0069417	0.0066784	2.834115e-01	3.061155e-01	0.9996424	2805.704	2133.852
ped_per_100k	-3.621160e-02	-3.623600e-02	0.0053558	0.0054305	-4.498530e-02	-2.758630e-02	1.0017233	3060.593	2445.706



Colorado

```
co_summary <- data_summary("CO", year = NULL)
```

```
[1] "Loading CO from processed_data"
```

```
Rows: 6245 Columns: 6
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (5): tract, tested, BLL_geq_5, BLL_geq_10, state
```

```
dbl (1): year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

year	n_obs	lead_cens_5	lead_nocens_5	lead_censR_5	lead_cens_10	lead_nocens_10	lead_censR_10	test_cens	test_censR	sup_threshold_5	sup_threshold_10	median_lead_5	q75_lead_5	max_lead_5	median_lead_10	q75_lead_10	max_lead_10
2010	884	689	195	0.7794118	872	12	0.9864253	30	0.0339367	2	2	3	3	32	3	3	6
2011	884	689	195	0.7794118	872	12	0.9864253	30	0.0339367	2	2	3	3	32	3	3	6
2012	884	689	195	0.7794118	872	12	0.9864253	30	0.0339367	2	2	3	3	32	3	3	6
2013	884	689	195	0.7794118	872	12	0.9864253	30	0.0339367	2	2	3	3	32	3	3	6
2014	884	689	195	0.7794118	872	12	0.9864253	30	0.0339367	2	2	3	3	32	3	3	6

i Specify the column types or set `show_col_types = FALSE` to quiet this message.

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.

i Please use `if_any()` or `if_all()` instead.

```
[1] "Additional features added: "
```

Warning in datasummary_skim_numeric(data, output = output, fmt = fmt, histogram = histogram, : The histogram argument is only supported for (a) output types "default", "html", or "kableExtra"; (b) writing to file paths with extensions ".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to PDF or HTML. Use `histogram=FALSE` to silence this warning.

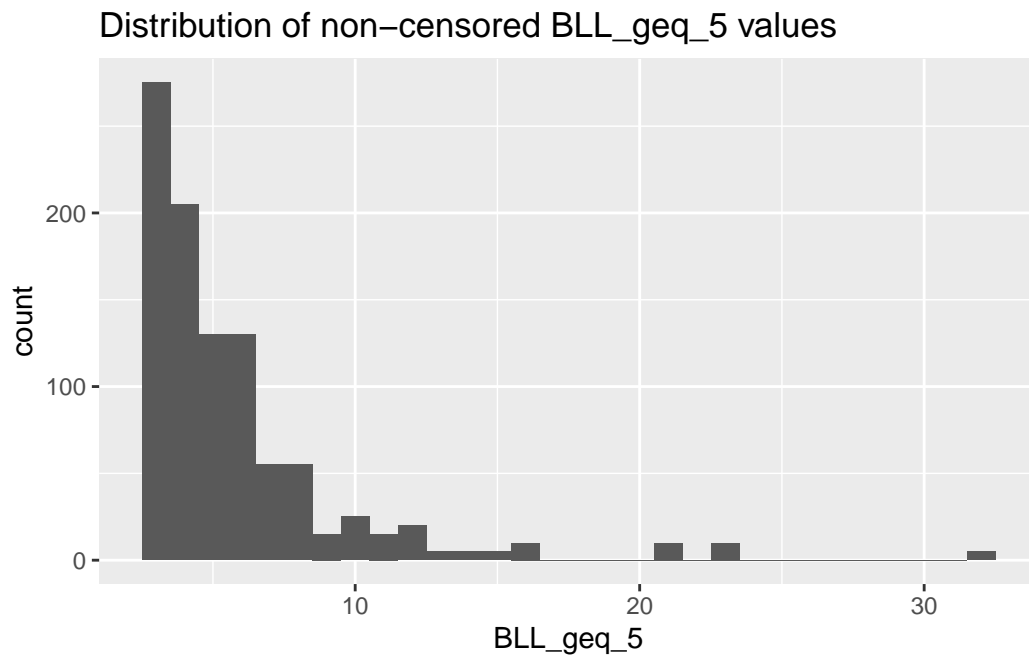
```
co_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
co_summary[[2]]
```

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
tested	215	0	64.5	79.8	3.0	35.0	554.0
BLL_geq_5	17	0	3.6	2.2	3.0	3.0	32.0
BLL_geq_10	4	0	3.0	0.2	3.0	3.0	6.0
year	5	0	2012.0	1.4	2010.0	2012.0	2014.0
tested_ell	1	0	3.0	0.0	3.0	3.0	3.0
ell_5	1	0	2.0	0.0	2.0	2.0	2.0
ell_10	1	0	2.0	0.0	2.0	2.0	2.0
median_annual_incomeE	873	0	0.1	1.0	-2.7	-0.1	5.0
house_price_medianE	817	0	0.0	1.0	-1.8	-0.1	8.3
poor_fam_propE	871	0	-0.1	0.9	-1.1	-0.4	4.2
black_ppl_propE	727	0	-0.1	0.9	-0.6	-0.4	5.5
bp_pre_1959E_prop	810	0	-0.1	1.0	-0.9	-0.6	3.0
svi_socioeconomic_pctile	841	0	-0.1	0.9	-1.4	-0.2	2.0
ped_per_100k	30	0	-0.1	0.9	-1.4	-0.1	2.5
under_yo5_pplE	440	0	248.9	167.1	6.0	215.0	1444.0

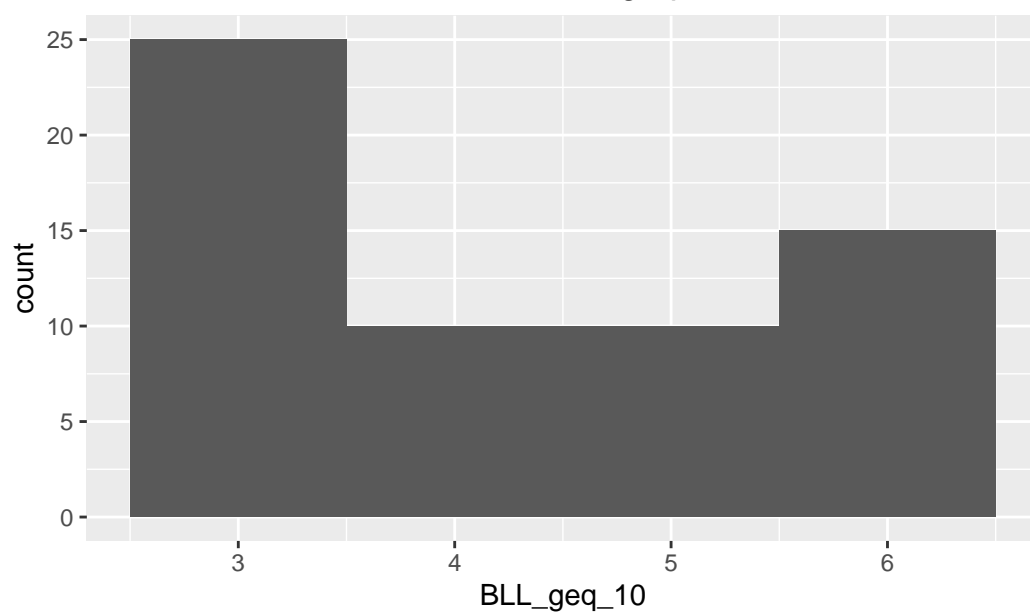

```
co_summary[[3]]
```

```
[[1]]
```

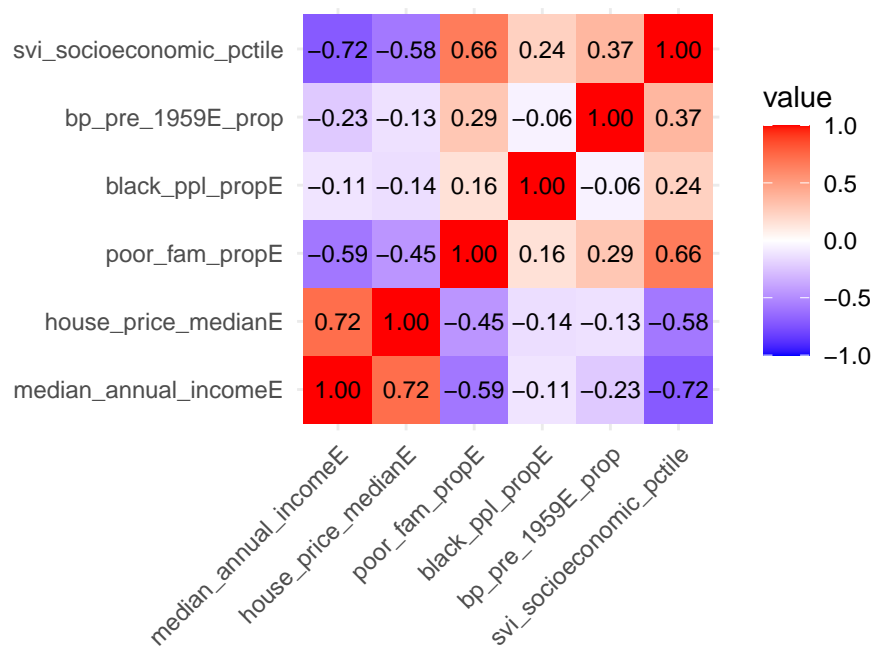


```
[[2]]
```

Distribution of non-censored BLL_geq_10 values



```
co_summary[[4]]
```



```
co_lead_model <- lead_count_model_summary("CO", year = 2014)
```

```
[1] "Loading CO from processed_data"
```

```
Rows: 6245 Columns: 6
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (5): tract, tested, BLL_geq_5, BLL_geq_10, state
```

```
dbl (1): year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

```
Warning in readLines(stan_file): incomplete final line found on
```

```
'poisson_many_X_suppression.stan'
```

```
Chain 1 Initialization between (-2, 2) failed after 100 attempts.
```

```
Chain 1 Try specifying initial values, reducing ranges of constrained values, or reparameterizing the distribution.
```

```
Chain 1 Initialization failed.
```

```
Chain 2 Initialization between (-2, 2) failed after 100 attempts.
```

```
Chain 2 Try specifying initial values, reducing ranges of constrained values, or reparameterizing the distribution.
```

```
Chain 2 Initialization failed.
```

```
Chain 4 Initialization between (-2, 2) failed after 100 attempts.
```

```
Chain 4 Try specifying initial values, reducing ranges of constrained values, or reparameterizing the distribution.
```

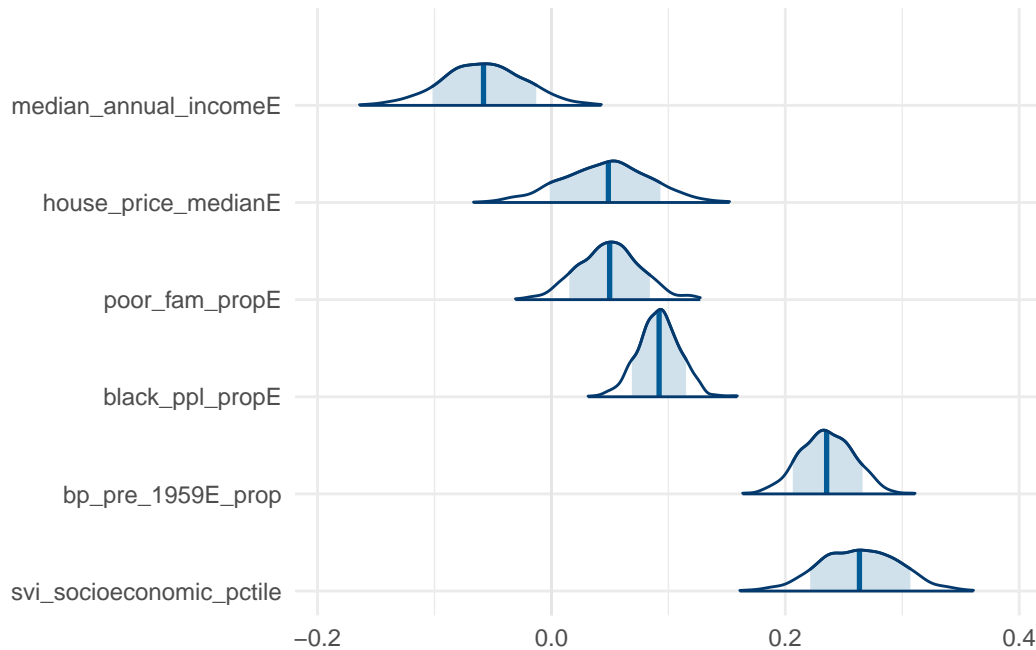
```
Chain 4 Initialization failed.
```

```
Warning: Dropping 'draws_df' class as required metadata was removed.
```

```
co_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
co_lead_model$plot
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp	446.4901490	446.7945000	1.8771663	1.8376827	442.9280500	449.0021500	0.9991157	408.4491	577.4492
alpha	-4.9126793	-4.9123350	0.0291331	0.0296372	-4.9616640	-4.8649400	1.0001573	936.1579	805.4218
median_annual_incomeE	-0.0581362	-0.0581259	0.0349540	0.0345487	-0.1164392	-0.0004449	1.0042648	883.4665	617.8326
house_price_medianE	0.0467355	0.0487096	0.0372993	0.0383601	-0.0149842	0.1073177	1.0020611	961.3042	531.8211
poor_fam_propE	0.0495782	0.0497379	0.0268526	0.0258176	0.0063848	0.0935094	1.0006977	930.4066	640.6201
black_ppl_propE	0.0919496	0.0920673	0.0180966	0.0172776	0.0632228	0.1217876	1.0025877	924.9925	640.4531
bp_pre_1959E_prop	0.2355851	0.2353325	0.0229657	0.0240522	0.1989706	0.2724313	0.9990917	1239.9742	832.1673
svi_socioeconomic_pctile	0.2636337	0.2633655	0.0336711	0.0359508	0.2091805	0.3172320	1.0008065	904.9246	773.1359



```
co_test_model <- test_count_model_summary("C0", year = 2014)
```

```
[1] "Loading C0 from processed_data"
```

```
Rows: 6245 Columns: 6
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (5): tract, tested, BLL_geq_5, BLL_geq_10, state
```

```
dbl (1): year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp__	2.012153e+05	2.012160e+05	2.0023292	1.4826000	2.012120e+05	2.012180e+05	1.0006912	1794.062	2432.439
alpha	-1.484496e+00	-1.484520e+00	0.0047959	0.0049667	-1.492250e+00	-1.476609e+00	1.0015194	4284.249	2872.142
median_annual_incomeE	-8.272940e-02	-8.260870e-02	0.0082958	0.0083242	-9.640770e-02	-6.916130e-02	1.0026580	2524.272	2232.774
house_price_medianE	1.505131e-01	1.505245e-01	0.0073071	0.0075331	1.385172e-01	1.622913e-01	0.9999511	3108.484	2583.798
poor_fam_propE	-3.474540e-02	-3.484850e-02	0.0053931	0.0053385	-4.351760e-02	-2.584430e-02	0.9997444	4215.607	2872.387
black_ppl_propE	9.895080e-02	9.893450e-02	0.0033304	0.0032913	9.338970e-02	1.043831e-01	0.9997936	4238.992	3113.293
bp_pre_1959E_prop	1.003238e-01	1.002810e-01	0.0045107	0.0045820	9.302470e-02	1.077821e-01	1.0017952	3957.234	3152.782
svi_socioeconomic_pctile	4.805149e-01	4.802405e-01	0.0071594	0.0070372	4.686986e-01	4.925462e-01	1.0012403	3234.623	2530.870
ped_per_100k	1.364274e-01	1.364430e-01	0.0043677	0.0043262	1.291943e-01	1.435321e-01	1.0007776	3948.967	3244.089

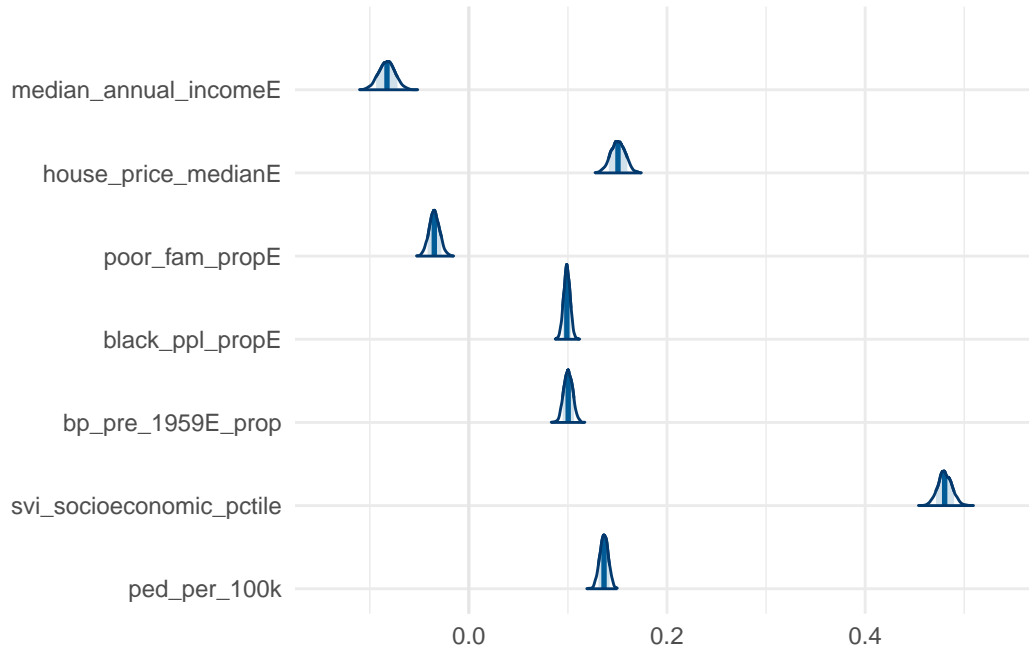
```
[1] "Additional features added: "
```

```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

```
Warning: Dropping 'draws_df' class as required metadata was removed.
```

```
co_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
co_test_model$plot
```



year	n_obs	lead_cens_5	lead_nocens_5	lead_censR_5	lead_cens_10	lead_nocens_10	lead_censR_10	test_cens	test_censR	sup_threshold_5	sup_threshold_10	median_lead_5	q75_lead_5	max_lead_5	median_lead_10	q75_lead_10	max_lead_10
2005	798	0	798	0	0	798	0	0	0	0	0	3	7	99	0	1	28
2006	791	0	791	0	0	791	0	0	0	0	0	4	9	85	0	1	26
2007	793	0	793	0	0	793	0	0	0	0	0	3	7	98	0	1	22
2008	786	0	786	0	0	786	0	0	0	0	0	2	5	77	0	1	15
2009	789	0	789	0	0	789	0	0	0	0	0	2	4	72	0	0	12
2010	778	0	778	0	0	778	0	0	0	0	0	1	4	79	0	0	13
2011	804	0	804	0	0	804	0	0	0	0	0	1	3	66	0	0	11
2012	795	0	795	0	0	795	0	0	0	0	0	1	2	45	0	0	8
2013	792	0	792	0	0	792	0	0	0	0	0	1	2	44	0	0	7
2014	794	0	794	0	0	794	0	0	0	0	0	1	2	47	0	0	17
2015	798	0	798	0	0	798	0	0	0	0	0	1	2	64	0	0	23

Maryland

```
md_summary <- data_summary("MD", year = NULL)
```

```
[1] "Loading MD from processed_data"
```

```
Rows: 13304 Columns: 7
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (2): state, county
```

```
dbl (5): year, tract, tested, BLL_geq_5, BLL_geq_10
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

```
Warning in datasummary_skim_numeric(data, output = output, fmt = fmt, histogram
= histogram, : The histogram argument is only supported for (a) output types
"default", "html", or "kableExtra"; (b) writing to file paths with extensions
".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to
PDF or HTML. Use `histogram=FALSE` to silence this warning.
```

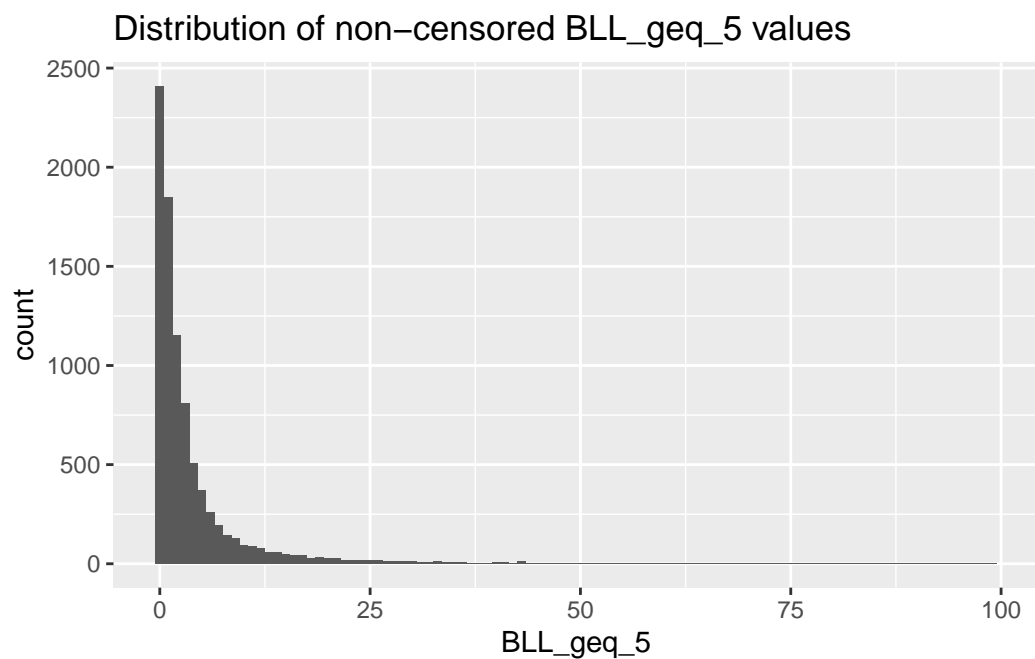
```
md_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
md_summary[[2]]
```

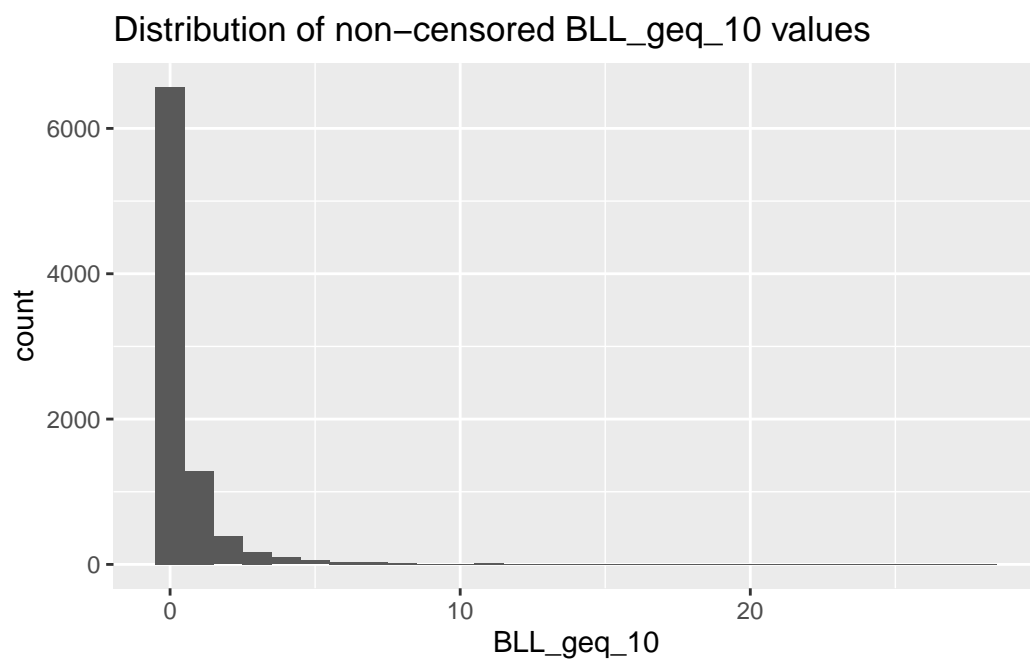
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
year	11	0	2010.0	3.2	2005.0	2010.0	2015.0
tested	282	0	75.4	47.5	1.0	66.0	448.0
BLL_geq_5	72	0	3.9	7.3	0.0	2.0	99.0
BLL_geq_10	25	0	0.5	1.6	0.0	0.0	28.0
tested_ell	1	0	1.0	0.0	1.0	1.0	1.0
ell_5	1	0	0.0	0.0	0.0	0.0	0.0
ell_10	1	0	0.0	0.0	0.0	0.0	0.0
median_annual_incomeE	801	0	-0.1	1.0	-2.5	-0.2	5.3
house_price_medianE	744	0	-0.0	1.0	-1.6	-0.2	8.9
poor_fam_propE	802	0	0.1	1.0	-0.9	-0.3	7.7
black_ppl_propE	802	0	0.0	1.0	-1.0	-0.4	2.1
bp_pre_1959E_prop	807	0	0.2	1.0	-1.2	0.0	2.2
svi_socioeconomic_pctile	777	0	0.1	1.0	-1.3	-0.0	2.3
ped_per_100k	20	0	0.1	1.0	-1.4	-0.3	1.4
under_yo5_pplE	411	0	255.9	155.4	19.0	226.0	984.0

```
md_summary[[3]]
```

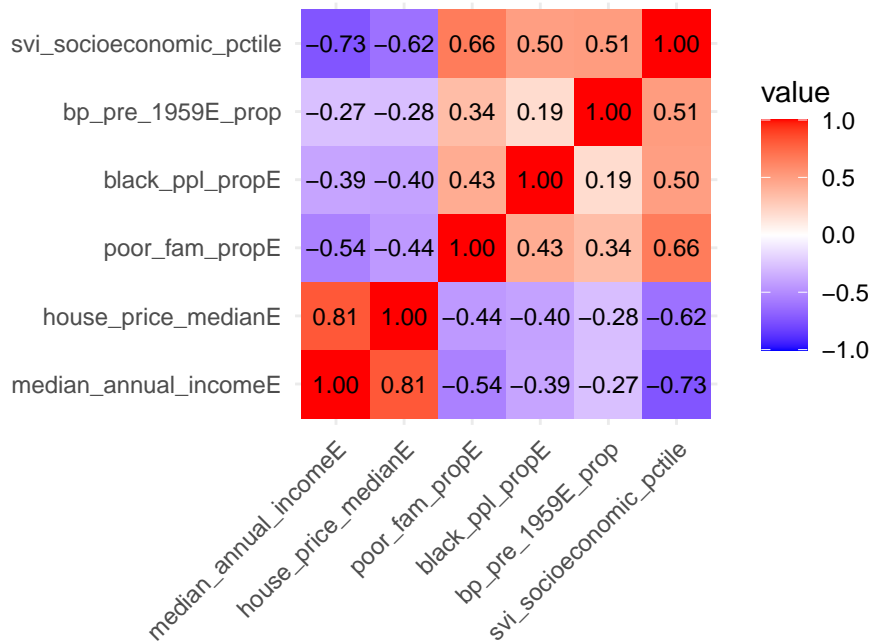
```
[[1]]
```



```
[[2]]
```



```
md_summary[[4]]
```

```
md_lead_model <- lead_count_model_summary("MD", year = 2011)
```

```
[1] "Loading MD from processed_data"
```

```
Rows: 13304 Columns: 7
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (2): state, county
```

```
dbl (5): year, tract, tested, BLL_geq_5, BLL_geq_10
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

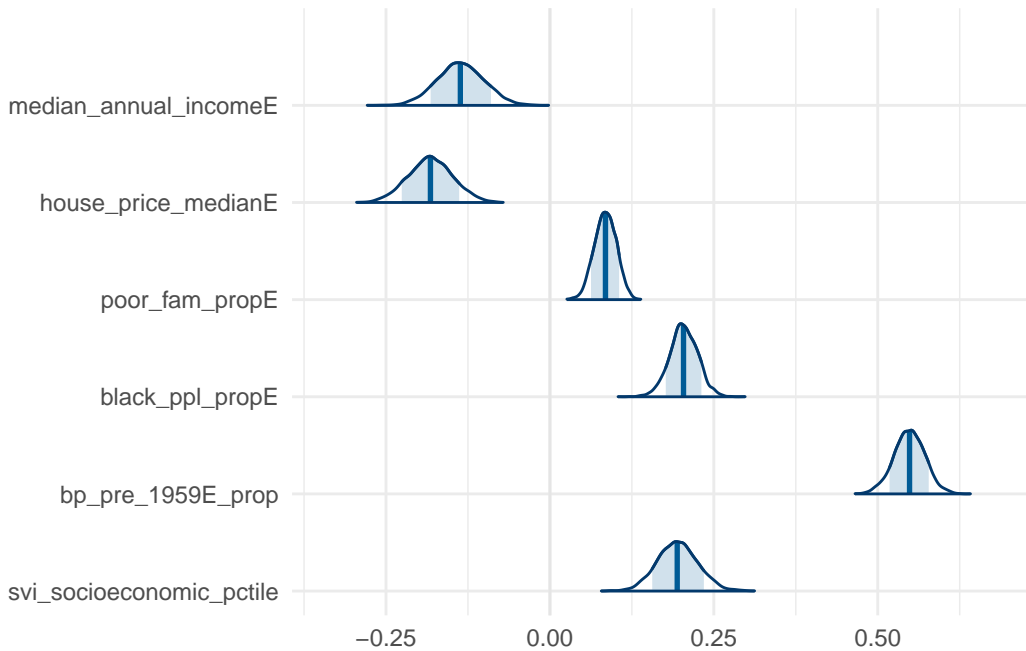
```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp	669.0672810	669.3650000	1.8906335	1.7546571	665.5325000	671.5492000	1.000992	1841.637	2363.269
alpha	-5.2338750	-5.2336450	0.0330202	0.0332770	-5.2887975	-5.1800030	1.002595	5422.436	2869.986
median_annual_incomeE	-0.1362481	-0.1365940	0.0356771	0.0356143	-0.1943974	-0.0782563	1.000879	5429.459	2637.739
house_price_medianE	-0.1821090	-0.1822330	0.0340467	0.0335512	-0.2384659	-0.1244956	1.003254	5096.199	2847.454
poor_fam_propE	0.0845397	0.0847003	0.0167427	0.0171112	0.0569020	0.1116220	1.000813	5369.122	2515.452
black_ppl_propE	0.2039557	0.2037400	0.0214703	0.0210203	0.1685318	0.2381062	0.999502	5434.263	2574.675
bp_pre_1959E_prop	0.5482337	0.5484955	0.0237217	0.0235696	0.5081432	0.5864123	1.001792	5384.718	2961.415
svi_socioeconomic_pctile	0.1948298	0.1941215	0.0312348	0.0304563	0.1439818	0.2468492	1.000737	4357.364	3040.581

Warning: Dropping 'draws_df' class as required metadata was removed.

```
md_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
md_lead_model$plot
```



```
md_test_model <- test_count_model_summary("MD", year = 2011)
```

```
[1] "Loading MD from processed_data"
```

```
Rows: 13304 Columns: 7
```

```
-- Column specification -----
```

```
Delimiter: ","
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp_	2.049555e+05	2.049560e+05	2.0047358	1.4826000	2.049520e+05	2.049580e+05	1.001152	1734.460	2448.598
alpha	-1.315071e+00	-1.314990e+00	0.0044567	0.0045219	-1.322360e+00	-1.307910e+00	1.001705	4583.015	3062.852
median_annual_incomeE	-1.580697e-01	-1.580030e-01	0.0089425	0.0088637	-1.726524e-01	-1.435737e-01	1.001161	3118.966	2672.649
house_price_medianE	1.111424e-01	1.111340e-01	0.0073810	0.0075279	9.928500e-02	1.232741e-01	1.000508	3368.562	2864.391
poor_fam_propE	-5.692550e-02	-5.684950e-02	0.0048249	0.0049756	-6.469240e-02	-4.896080e-02	1.000330	4898.592	3226.094
black_ppl_propE	7.689390e-02	7.688570e-02	0.0047892	0.0047587	6.875300e-02	8.490840e-02	1.001129	4265.149	2855.704
bp_pre_1959E_prop	1.749625e-01	1.750195e-01	0.0051592	0.0051654	1.665380e-01	1.833064e-01	1.001367	3393.367	2727.511
svi_socioeconomic_pctile	9.788850e-02	9.794580e-02	0.0073202	0.0073184	8.564210e-02	1.095660e-01	1.000749	3218.997	2709.622
ped_per_100k	3.125110e-02	3.129420e-02	0.0046689	0.0047800	2.363480e-02	3.888670e-02	1.001496	4222.035	3244.654

```
chr (2): state, county
```

```
dbl (5): year, tract, tested, BLL_geq_5, BLL_geq_10
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

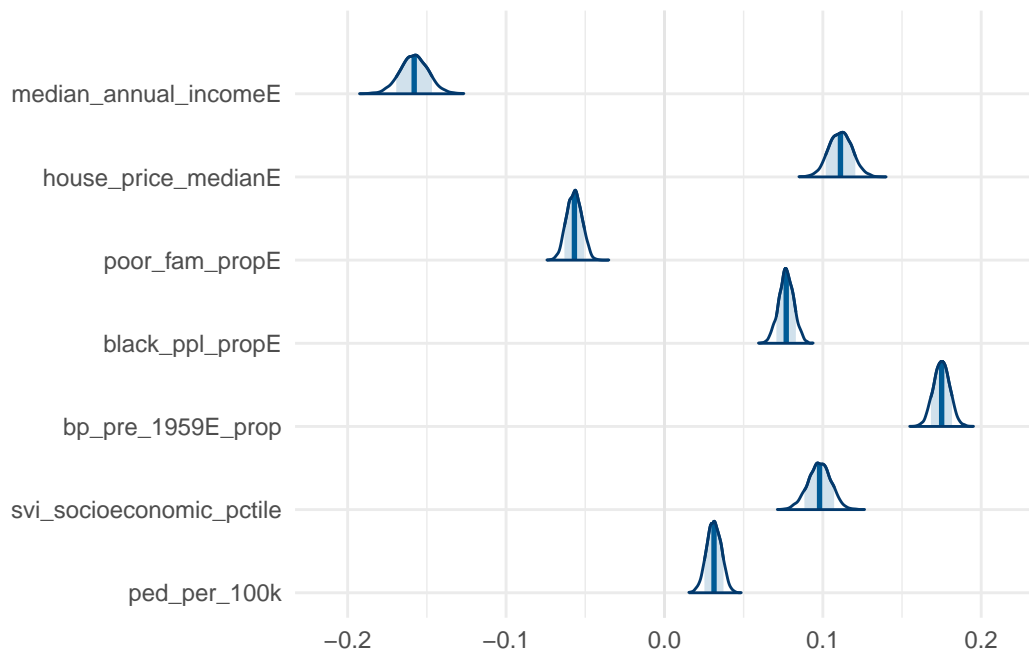
```
[1] "Additional features added: "
```

```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

```
Warning: Dropping 'draws_df' class as required metadata was removed.
```

```
md_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
md_test_model$plot
```



Massachusetts

```
ma_summary <- data_summary("MA", year = NULL)
```

```
[1] "Loading MA from processed_data"
```

```
Rows: 16192 Columns: 6
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (3): state, town, BLL_geq_5
```

```
dbl (3): year, tested, tract
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

year	n_obs	lead_cens_5	lead_nocens_5	lead_censR_5	test_cens	test_censR	sup_threshold_5	median_lead_5	q75_lead_5	max_lead_5
2005	948	465	483	0.4905063	0	0	4	5	9	81
2006	964	518	446	0.5373444	0	0	4	5	9	77
2007	961	547	414	0.5691988	0	0	4	5	8	60
2008	955	550	405	0.5759162	0	0	4	5	6	53
2009	968	583	385	0.6022727	0	0	4	5	5	46
2010	966	567	399	0.5869565	0	0	4	5	5	37
2011	996	573	423	0.5753012	0	0	4	5	5	32
2012	1012	584	428	0.5770751	0	0	4	5	5	36
2013	1010	577	433	0.5712871	0	0	4	5	5	28
2014	1016	576	440	0.5669291	0	0	4	5	5	41
2015	1031	582	449	0.5645005	0	0	4	5	5	25

Warning in `datasummary_skim_numeric(data, output = output, fmt = fmt, histogram = histogram, : The histogram argument is only supported for (a) output types "default", "html", or "kableExtra"; (b) writing to file paths with extensions ".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to PDF or HTML. Use `histogram=FALSE` to silence this warning.`

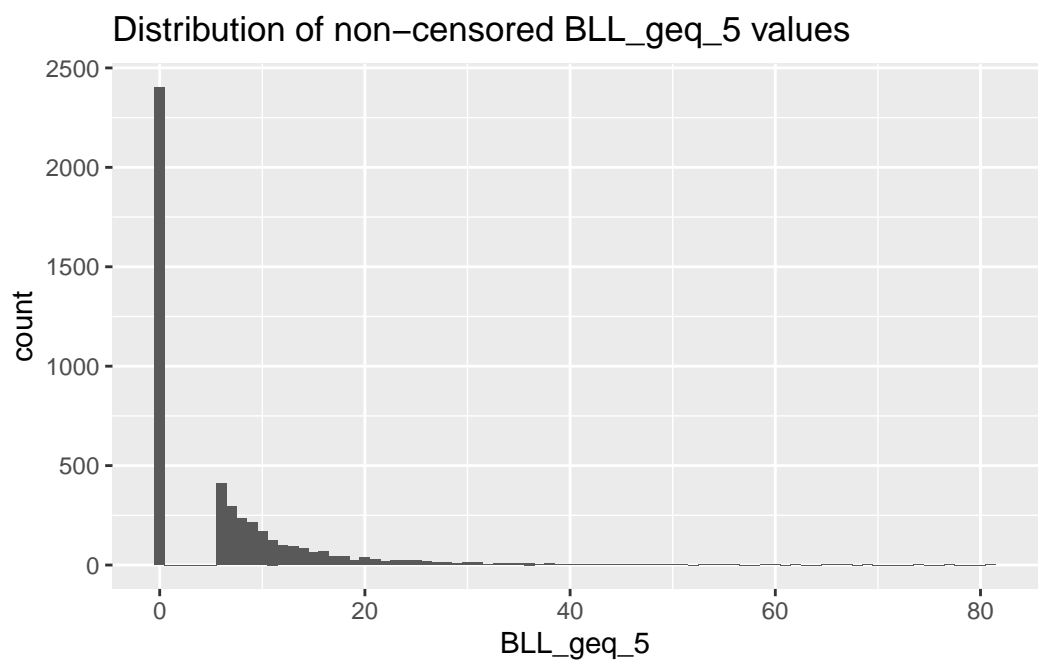
```
ma_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
ma_summary[[2]]
```

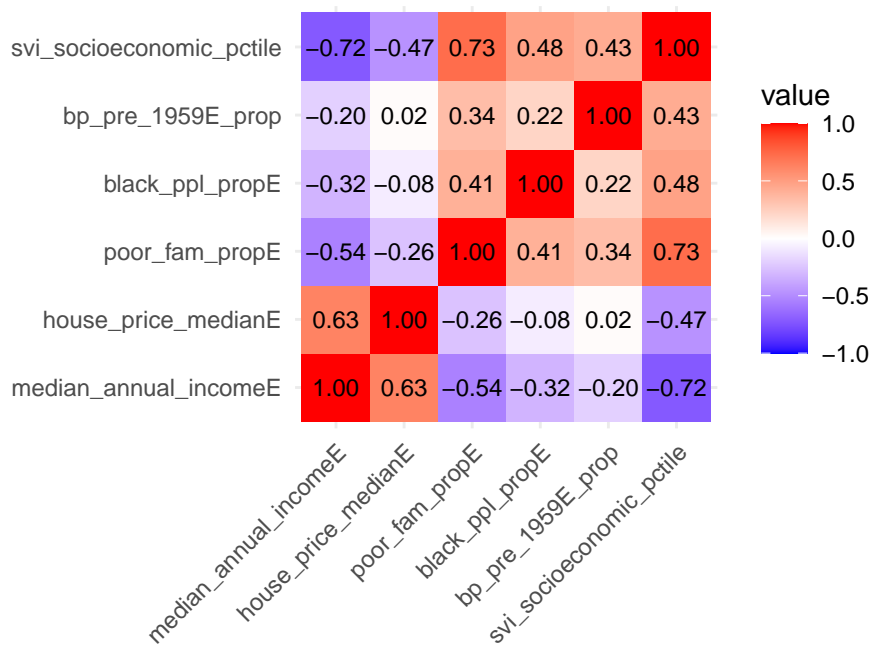
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
year	11	0	2010.1	3.2	2005.0	2010.0	2015.0
BLL_geq_5	62	0	5.5	5.9	0.0	5.0	81.0
tested	395	0	138.6	68.4	1.0	130.0	454.0
tested_ell	1	0	1.0	0.0	1.0	1.0	1.0
ell_5	1	0	4.0	0.0	4.0	4.0	4.0
median_annual_incomeE	1057	0	0.1	1.0	-2.3	-0.0	5.0
house_price_medianE	978	0	0.0	1.0	-1.5	-0.2	6.6
poor_fam_propE	1062	0	-0.1	0.9	-0.9	-0.4	5.7
black_ppl_propE	1010	0	-0.0	1.0	-0.6	-0.4	5.8
bp_pre_1959E_prop	1069	0	-0.0	1.0	-2.3	-0.0	2.0
svi_socioeconomic_pctile	1005	0	-0.1	1.0	-1.3	-0.3	2.1
ped_per_100k	14	0	-0.0	1.0	-1.5	-0.4	2.5
under_yo5_pplE	436	0	262.5	133.8	14.0	241.0	1057.0

```
ma_summary[[3]]
```

```
[[1]]
```



```
ma_summary[[4]]
```



```
ma_lead_model <- lead_count_model_summary("MA", year = 2014)
```

```
[1] "Loading MA from processed_data"
```

```
Rows: 16192 Columns: 6
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (3): state, town, BLL_geq_5
```

```
dbl (3): year, tested, tract
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

```
Warning in readLines(stan_file): incomplete final line found on  
'poisson_many_X_suppression.stan'
```

```
Chain 1 Initialization between (-2, 2) failed after 100 attempts.
```

```
Chain 1 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
```

```
Chain 1 Initialization failed.
```

```
Chain 2 Initialization between (-2, 2) failed after 100 attempts.
```

```
Chain 2 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
```

```
Chain 2 Initialization failed.
```

```
Chain 4 Initialization between (-2, 2) failed after 100 attempts.
```

```
Chain 4 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
```

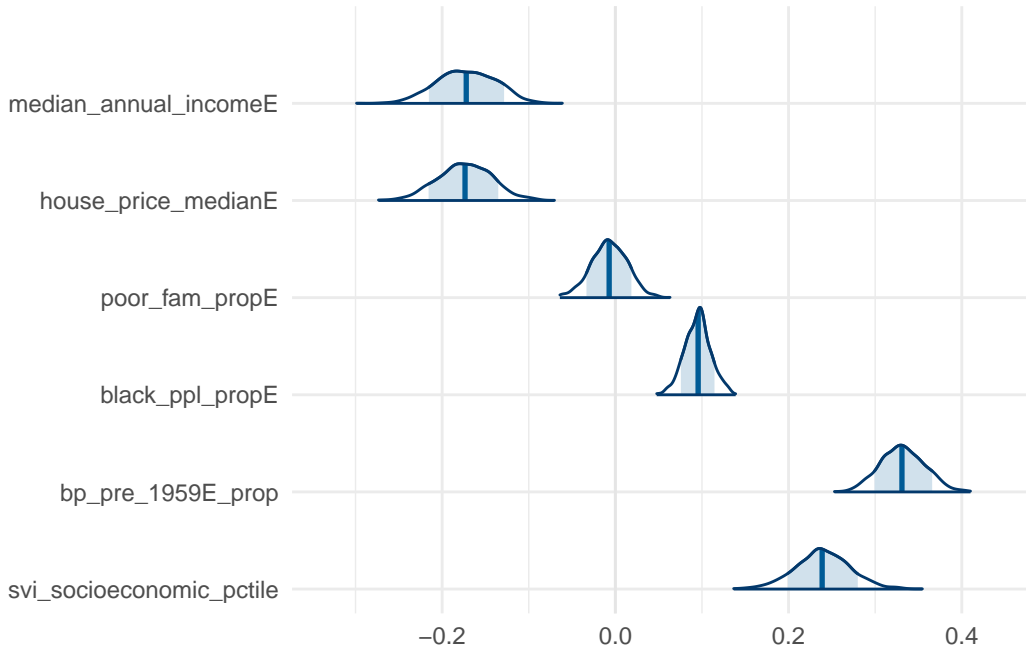
```
Chain 4 Initialization failed.
```

```
Warning: Dropping 'draws_df' class as required metadata was removed.
```

```
ma_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
ma_lead_model$plot
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp	692.5685180	692.8620000	1.7686317	1.6931292	689.1590000	694.9235500	0.9992707	483.0851	728.6396
alpha	-4.9360869	-4.9354050	0.0284862	0.0291924	-4.9815920	-4.8902455	0.9994375	1109.2350	743.4487
median_annual_incomeE	-0.1720881	-0.1721920	0.0337405	0.0360116	-0.2279329	-0.1196255	0.9999476	727.1812	506.3275
house_price_medianE	-0.1736767	-0.1735940	0.0314351	0.0318025	-0.2245106	-0.1247610	1.0000179	1023.0801	760.9912
poor_fam_propE	-0.0070729	-0.0071655	0.0207233	0.0206021	-0.0422340	0.0257498	0.9992670	874.4490	642.8424
black_ppl_propE	0.0950299	0.0955769	0.0151392	0.0146318	0.0701084	0.1212260	1.0010490	987.9177	603.8048
bp_pre_1959E_prop	0.3316254	0.3309110	0.0255900	0.0266001	0.2897277	0.3740966	1.0004720	957.3076	641.2952
svi_socioeconomic_pctile	0.2395163	0.2387470	0.0319592	0.0309826	0.1861374	0.2923843	0.9991668	855.9169	658.6775



```
ma_test_model <- test_count_model_summary("MA", year = 2014)
```

```
[1] "Loading MA from processed_data"
```

```
Rows: 16192 Columns: 6
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (3): state, town, BLL_geq_5
```

```
dbl (3): year, tested, tract
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```


variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp_	5.117398e+05	5.11740e+05	2.0113049	1.4826000	5.117360e+05	5.117420e+05	1.0013460	1895.950	2689.446
alpha	-7.068391e-01	-7.06884e-01	0.0028050	0.0028540	-7.114117e-01	-7.021459e-01	1.0026409	5325.953	2986.455
median_annual_incomeE	-9.498500e-03	-9.36250e-03	0.0051153	0.0051820	-1.788320e-02	-1.227000e-03	1.0029280	3181.060	2743.690
house_price_medianE	-7.843600e-03	-7.73820e-03	0.0045115	0.0044658	-1.541360e-02	-5.503000e-04	1.0007687	3431.346	3105.841
poor_fam_propE	-4.225600e-03	-4.21880e-03	0.0041024	0.0041276	-1.081530e-02	2.556500e-03	1.0004158	4002.813	3063.031
black_ppl_propE	1.092600e-02	1.09200e-02	0.0031090	0.0032186	5.807100e-03	1.606650e-02	1.0012676	3972.565	3087.379
bp_pre_1959E_prop	6.132130e-02	6.13022e-02	0.0034316	0.0033519	5.572460e-02	6.720290e-02	1.0005388	4650.108	3129.734
svi_socioeconomic_pctile	6.560030e-02	6.55356e-02	0.0056626	0.0056195	5.634200e-02	7.484940e-02	0.9999413	2950.772	2793.533
ped_per_100k	7.060600e-03	7.02060e-03	0.0033904	0.0033384	1.512500e-03	1.247290e-02	1.0018648	4140.735	3062.194

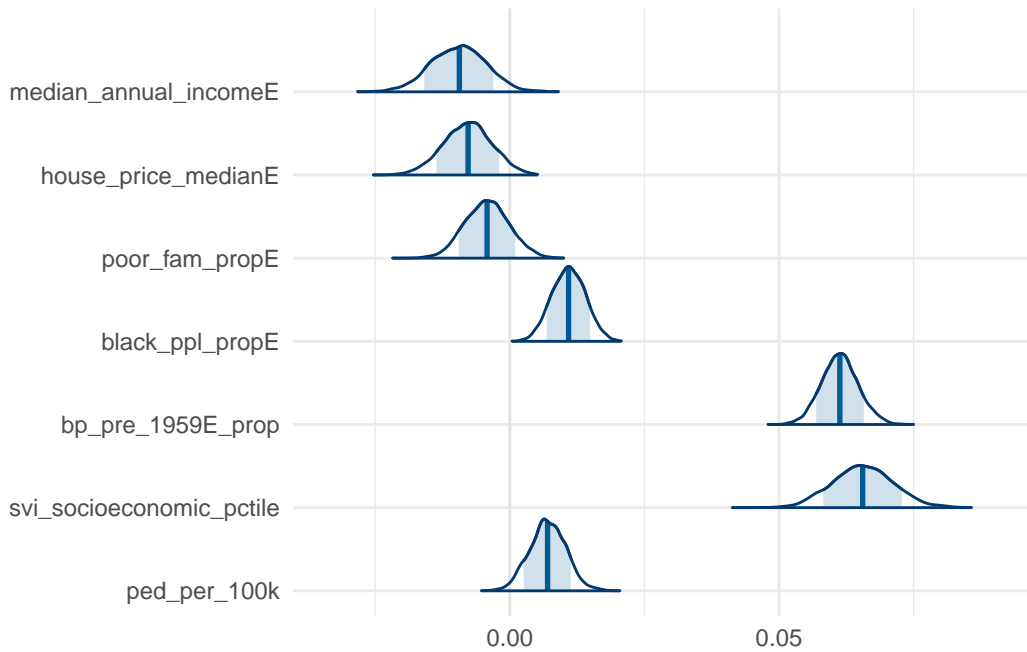
```
[1] "Additional features added: "
```

```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

```
Warning: Dropping 'draws_df' class as required metadata was removed.
```

```
ma_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
ma_test_model$plot
```



year	n_obs	lead_cens_5	lead_nocens_5	lead_censR_5	lead_cens_10	lead_nocens_10	lead_censR_10	test_cens	test_censR	sup_threshold_5	sup_threshold_10	median_lead_5	q75_lead_5	max_lead_5	median_lead_10	q75_lead_10	max_lead_10
2011	1088	548	540	0.5036765	316	772	0.2904412	0	0	0.25	4	1.25	1.25	11.5	0	5	13
2012	1088	548	540	0.5036765	316	772	0.2904412	0	0	0.25	4	1.25	1.25	11.5	0	5	13
2013	1088	548	540	0.5036765	316	772	0.2904412	0	0	0.25	4	1.25	1.25	11.5	0	5	13
2014	1088	548	540	0.5036765	316	772	0.2904412	0	0	0.25	4	1.25	1.25	11.5	0	5	13
2015	1088	548	540	0.5036765	316	772	0.2904412	0	0	0.25	4	1.25	1.25	11.5	0	5	13

Minnesota

```
mn_summary <- data_summary("MN", year = NULL)
```

```
[1] "Loading MN from processed_data"
```

```
Rows: 15620 Columns: 8
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (3): state, BLL_geq_10, BLL_geq_5
```

```
dbl (5): tract, tested, start_year, end_year, year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

```
Warning in datasummary_skim_numeric(data, output = output, fmt = fmt, histogram
= histogram, : The histogram argument is only supported for (a) output types
"default", "html", or "kableExtra"; (b) writing to file paths with extensions
".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to
PDF or HTML. Use `histogram=FALSE` to silence this warning.
```

```
mn_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

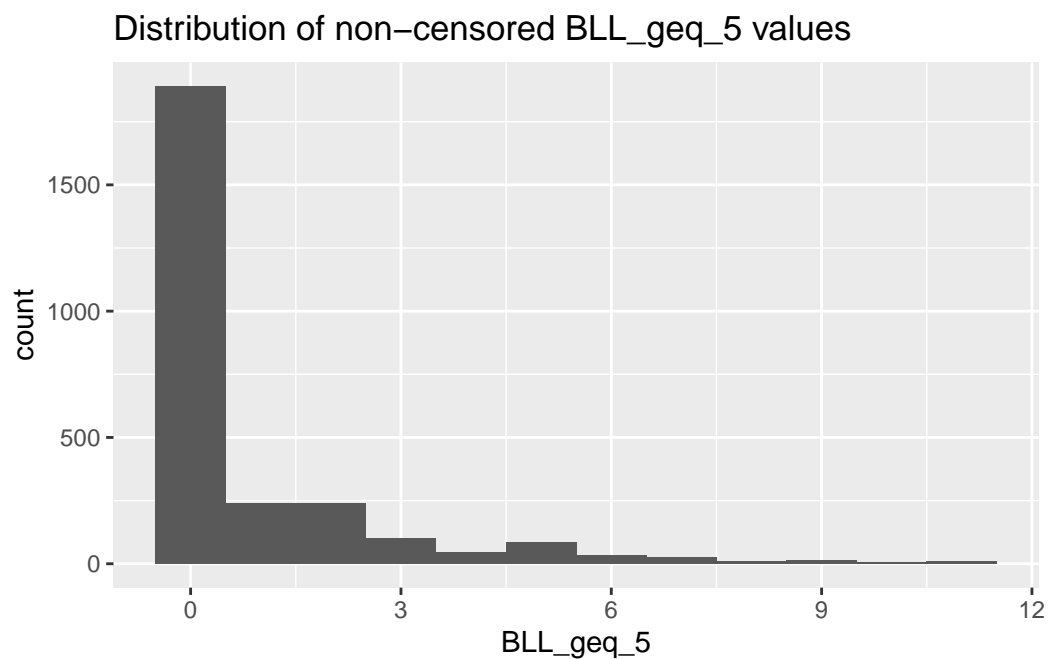
```
mn_summary[[2]]
```

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
tested	419	0	53.2	33.2	2.5	45.0	249.2

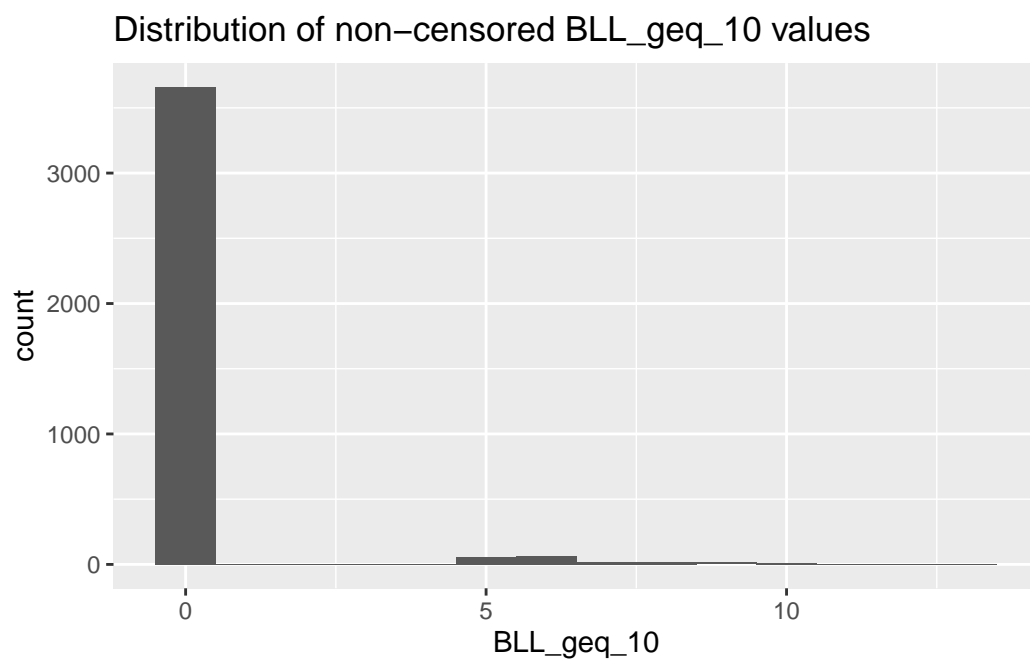
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
BLL_geq_10	9	0	1.7	2.5	0.0	0.0	13.0
start_year	1	0	2011.0	0.0	2011.0	2011.0	2011.0
end_year	1	0	2015.0	0.0	2015.0	2015.0	2015.0
BLL_geq_5	32	0	1.1	1.3	0.0	1.2	11.5
year	5	0	2013.0	1.4	2011.0	2013.0	2015.0
ell_5	1	0	0.2	0.0	0.2	0.2	0.2
ell_10	1	0	4.0	0.0	4.0	4.0	4.0
median_annual_incomeE	1066	0	0.0	1.0	-2.9	-0.1	4.7
house_price_medianE	906	0	-0.0	0.9	-1.6	-0.2	7.1
poor_fam_propE	1069	0	-0.0	1.0	-0.9	-0.3	7.5
black_ppl_propE	980	0	-0.0	1.0	-0.6	-0.5	6.8
bp_pre_1959E_prop	1078	0	0.0	1.0	-1.5	-0.1	2.4
svi_socioeconomic_pctile	1016	0	-0.0	1.0	-1.5	-0.1	2.5
ped_per_100k	45	0	-0.0	1.0	-1.3	0.0	1.9
under_yo5_pplE	424	0	235.8	134.1	5.0	206.0	865.0

```
mn_summary[[3]]
```

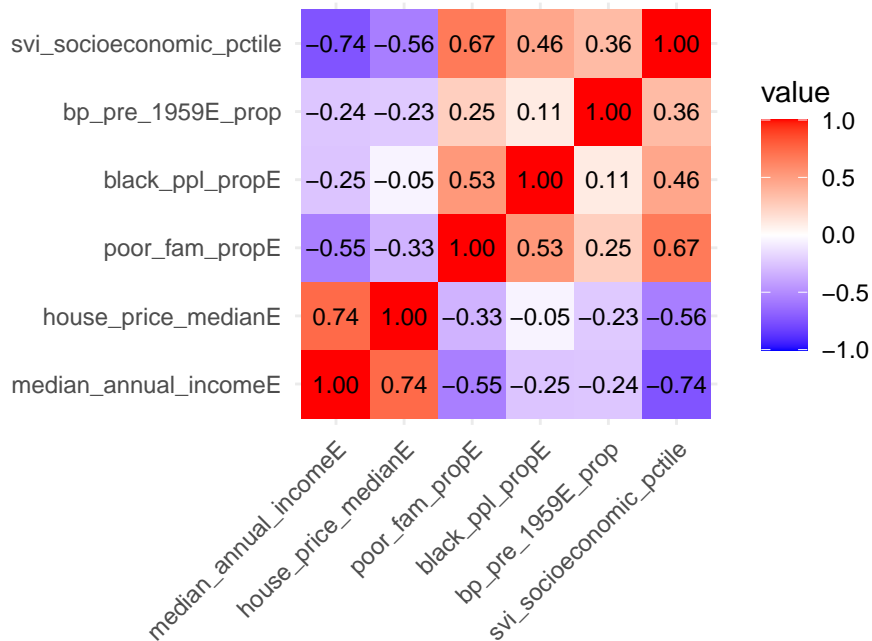
```
[[1]]
```



```
[[2]]
```



```
mn_summary[[4]]
```



```
mn_lead_model <- lead_count_model_summary("MN", year = 2014)
```

```
[1] "Loading MN from processed_data"
```

```
Rows: 15620 Columns: 8
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (3): state, BLL_geq_10, BLL_geq_5
```

```
dbl (5): tract, tested, start_year, end_year, year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

```
Chain 1 Initialization between (-2, 2) failed after 100 attempts.
Chain 1 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
Chain 1 Initialization failed.
Chain 2 Initialization between (-2, 2) failed after 100 attempts.
Chain 2 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
Chain 2 Initialization failed.
Chain 3 Initialization between (-2, 2) failed after 100 attempts.
Chain 3 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
Chain 3 Initialization failed.
Chain 4 Initialization between (-2, 2) failed after 100 attempts.
Chain 4 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
Chain 4 Initialization failed.
```

Warning: No chains finished successfully. Unable to retrieve the fit.

Error: No chains finished successfully. Unable to retrieve the draws.

```
mn_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

Error in knitr::kable(mn_lead_model\$table): object 'mn_lead_model' not found

```
mn_lead_model$plot
```

Error in eval(expr, envir, enclos): object 'mn_lead_model' not found

```
mn_test_model <- test_count_model_summary("MN", year = 2014)
```

```
[1] "Loading MN from processed_data"
```

```
Rows: 15620 Columns: 8
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (3): state, BLL_geq_10, BLL_geq_5
```

```
dbl (5): tract, tested, start_year, end_year, year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
i Please use `if_any()` or `if_all()` instead.

```
[1] "Additional features added: "
```

Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'

Warning: Unknown or uninitialised column: `tested_ell`.

Warning in max(state_data\$tested_ell, na.rm = TRUE): no non-missing arguments
to max; returning -Inf

Warning in test_count_model_summary("MN", year = 2014): NAs introduced by
coercion to integer range

Error: Variable 'ell' has NA values.

```
mn_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

Error in knitr::kable(mn_test_model\$table): object 'mn_test_model' not found

```
mn_test_model$plot
```

Error in eval(expr, envir, enclos): object 'mn_test_model' not found

NYC is not available.

North Carolina

```
nc_summary <- data_summary("NC", year = NULL)
```

```
[1] "Loading NC from processed_data"
```

year	n_obs	lead_cens_5	lead_nocens_5	lead_censR_5	lead_cens_10	lead_nocens_10	lead_censR_10	test_cens	test_censR	sup_threshold_5	sup_threshold_10	median_lead_5	q75_lead_5	max_lead_5	median_lead_10	q75_lead_10	max_lead_10
2005	14	14	0	1.0000000	14	0	1.0000000	14	1.0000000	4	4	5	5	5	5	5	5
2006	82	82	0	1.0000000	82	0	1.0000000	82	1.0000000	4	4	5	5	5	5	5	5
2007	106	106	0	1.0000000	106	0	1.0000000	106	1.0000000	4	4	5	5	5	5	5	5
2008	204	204	0	1.0000000	204	0	1.0000000	204	1.0000000	4	4	5	5	5	5	5	5
2009	500	500	8	0.9842520	500	8	0.9842520	500	0.9842520	4	4	5	5	5	5	5	5
2010	1480	942	538	0.6364865	229	1252	0.1540541	66	0.0445946	4	4	5	5	17	0	0	5
2011	1504	982	522	0.6529255	230	1268	0.1569149	88	0.0585106	4	4	5	5	17	0	0	5
2012	1506	848	658	0.5630810	206	1300	0.1367862	80	0.0531208	4	4	5	5	23	0	0	5
2013	1478	714	764	0.4830853	202	1276	0.1366712	68	0.0460081	4	4	0	5	9	0	0	5
2014	1540	688	852	0.4467532	214	1326	0.1338610	118	0.0766234	4	4	0	5	19	0	0	5
2015	1698	782	916	0.4605418	402	1296	0.2367491	274	0.1613663	4	4	0	5	12	0	0	5

Warning: One or more parsing issues, call `problems()` on your data frame for details, e.g.:

```
dat <- vroom(...)
problems(dat)
```

Rows: 64328 Columns: 6

-- Column specification -----

Delimiter: ","

chr (4): state, BLL_geq_5, BLL_geq_10, tested

dbl (2): tract, year

- i Use `spec()` to retrieve the full column specification for this data.
- i Specify the column types or set `show_col_types = FALSE` to quiet this message.

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.

- i Please use `if_any()` or `if_all()` instead.

[1] "Additional features added: "

Warning in datasummary_skim_numeric(data, output = output, fmt = fmt, histogram = histogram, : The histogram argument is only supported for (a) output types "default", "html", or "kableExtra"; (b) writing to file paths with extensions ".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to PDF or HTML. Use `histogram=FALSE` to silence this warning.

```
nc_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

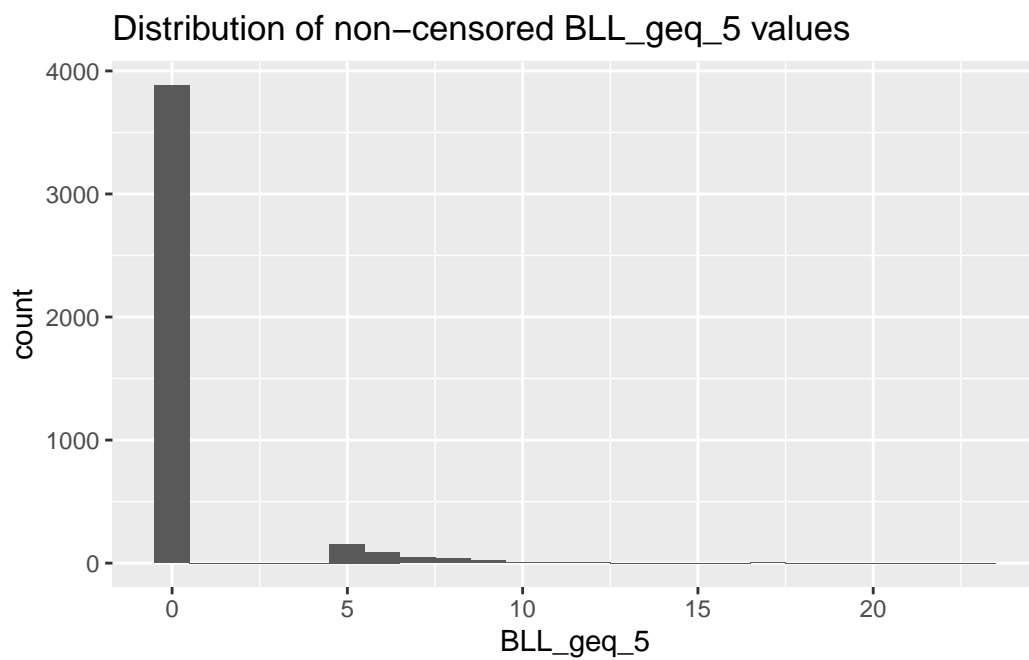
```
nc_summary[[2]]
```

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
BLL_geq_5	13	0	3.1	2.5	0.0	5.0	23.0
BLL_geq_10	2	0	1.2	2.1	0.0	0.0	5.0

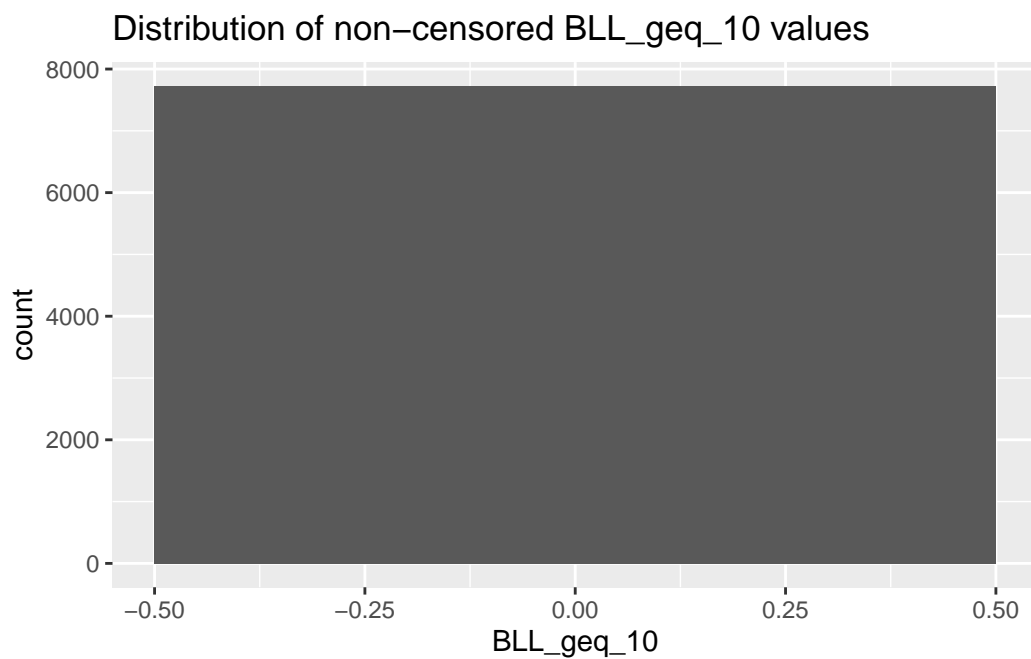
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
tested	167	0	39.1	30.9	5.0	33.0	248.0
year	11	0	2012.2	2.1	2005.0	2012.0	2015.0
tested_ell	1	0	5.0	0.0	5.0	5.0	5.0
ell_5	1	0	4.0	0.0	4.0	4.0	4.0
ell_10	1	0	4.0	0.0	4.0	4.0	4.0
median_annual_incomeE	903	0	-0.2	0.9	-2.3	-0.4	6.8
house_price_medianE	758	0	-0.2	1.0	-1.3	-0.4	7.2
poor_fam_propE	910	0	0.3	1.1	-1.2	0.0	5.8
black_ppl_propE	904	0	0.3	1.1	-1.0	0.0	3.4
bp_pre_1959E_prop	916	0	0.4	1.1	-1.1	0.2	3.8
svi_socioeconomic_pctile	880	0	0.3	0.9	-2.3	0.5	1.8
ped_per_100k	76	0	0.1	1.1	-1.1	-0.3	5.7
under_yo5_pplE	443	0	250.1	150.2	7.0	222.0	1552.0

```
nc_summary[[3]]
```

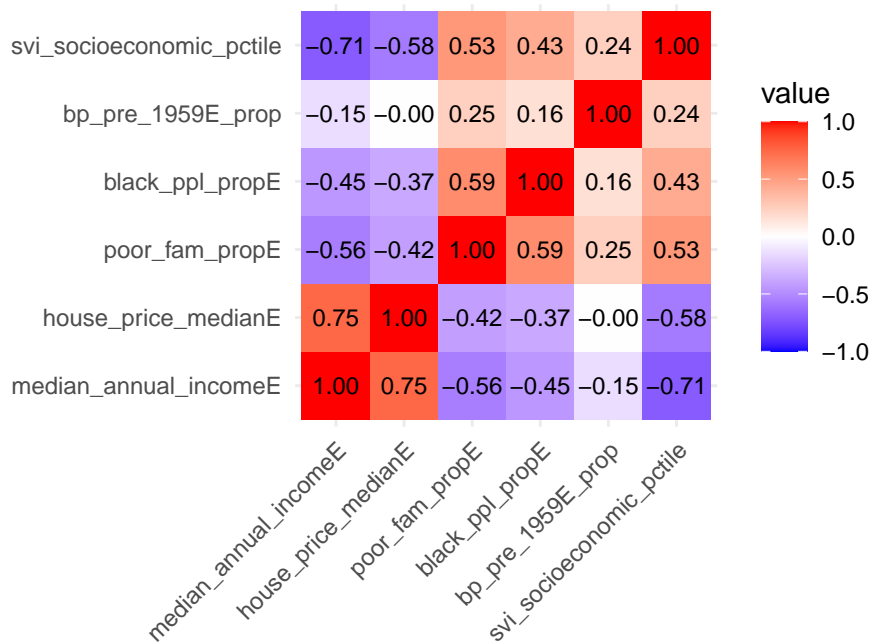
```
[[1]]
```



```
[[2]]
```



```
nc_summary[[4]]
```



```
nc_lead_model <- lead_count_model_summary("NC", year = 2014)
```

```
[1] "Loading NC from processed_data"
```

Warning: One or more parsing issues, call `problems()` on your data frame for details, e.g.:

```
dat <- vroom(...)
problems(dat)
```

Rows: 64328 Columns: 6

-- Column specification -----

Delimiter: ","

chr (4): state, BLL_geq_5, BLL_geq_10, tested

dbl (2): tract, year

i Use `spec()` to retrieve the full column specification for this data.

i Specify the column types or set `show_col_types = FALSE` to quiet this message.

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.

i Please use `if_any()` or `if_all()` instead.

```
[1] "Additional features added: "
```

Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'

Chain 1 Initialization between (-2, 2) failed after 100 attempts.

Chain 1 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 1 Initialization failed.

Chain 2 Initialization between (-2, 2) failed after 100 attempts.

Chain 2 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 2 Initialization failed.

Chain 4 Initialization between (-2, 2) failed after 100 attempts.

Chain 4 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

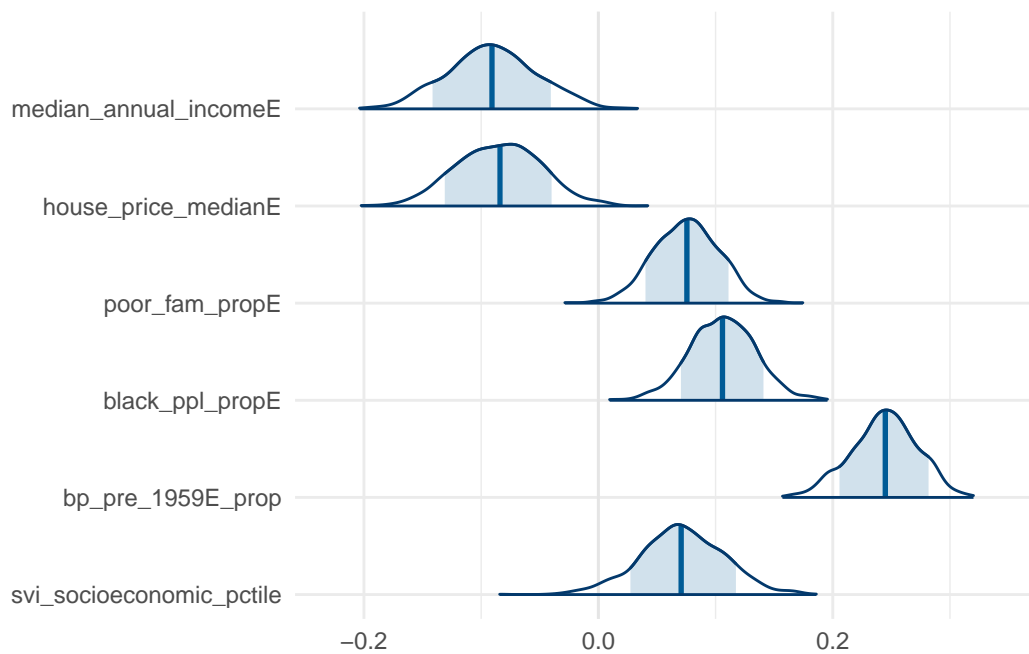
Chain 4 Initialization failed.

Warning: Dropping 'draws_df' class as required metadata was removed.

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp_	-1056.7309200	-1056.3850000	1.9630440	1.7568810	-1060.2720000	-1054.2800000	1.0016270	491.0098	655.6997
alpha	-6.0644260	-6.0632950	0.0442408	0.0442037	-6.1416855	-5.9901235	1.0065063	1188.4371	788.5790
median_annual_incomeE	-0.0907564	-0.0907990	0.0380035	0.0366051	-0.1525830	-0.0252841	0.9991500	1063.0890	706.1234
house_price_medianE	-0.0847363	-0.0838954	0.0360402	0.0374918	-0.1424488	-0.0267501	1.0037126	1037.4556	718.9306
poor_fam_propE	0.0752234	0.0754878	0.0278320	0.0289647	0.0305249	0.1184543	0.9995887	978.9511	838.4276
black_ppl_propE	0.1060598	0.1058715	0.0281016	0.0280469	0.0593578	0.1512295	1.0006804	995.0789	572.0184
bp_pre_1959E_prop	0.2440509	0.2447915	0.0282252	0.0276431	0.1952945	0.2874945	0.9993354	1344.6481	766.6262
svi_socioeconomic_pctile	0.0714624	0.0706108	0.0362371	0.0358390	0.0104916	0.1303889	1.0021107	984.3666	843.5914

```
nc_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
nc_lead_model$plot
```



```
nc_test_model <- test_count_model_summary("NC", year = 2014)
```

```
[1] "Loading NC from processed_data"
```

Warning: One or more parsing issues, call `problems()` on your data frame for details, e.g.:

```
dat <- vroom(...)
problems(dat)
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp_	1.944912e+05	1.944910e+05	2.0212518	1.4826000	1.944870e+05	1.944940e+05	1.000102	924.393	1143.135
alpha	-1.811134e+00	-1.811260e+00	0.0044555	0.0043885	-1.818300e+00	-1.803810e+00	1.000867	2184.134	1409.632
median_annual_incomeE	-1.339590e-01	-1.340580e-01	0.0089187	0.0086324	-1.487650e-01	-1.192378e-01	1.001620	1748.618	1312.076
house_price_medianE	-3.671420e-02	-3.656050e-02	0.0076159	0.0074434	-4.945330e-02	-2.423910e-02	1.002452	1736.163	1160.931
poor_fam_propE	-1.098530e-02	-1.091220e-02	0.0043425	0.0043281	-1.845360e-02	-4.066900e-03	1.000894	2066.806	1553.781
black_ppl_propE	7.514000e-02	7.498810e-02	0.0041865	0.0040078	6.835660e-02	8.214490e-02	1.000776	2043.977	1574.564
bp_pre_1959E_prop	1.580229e-01	1.580745e-01	0.0037046	0.0036057	1.518287e-01	1.642236e-01	1.000934	2130.541	1437.011
svi_socioeconomic_pctile	-7.113800e-02	-7.125960e-02	0.0064451	0.0064693	-8.145000e-02	-6.040980e-02	1.004721	1884.325	1358.356
ped_per_100k	2.307400e-02	2.325120e-02	0.0038263	0.0037842	1.666070e-02	2.922680e-02	1.000570	2450.888	1703.425

Rows: 64328 Columns: 6

-- Column specification -----

Delimiter: ",",

chr (4): state, BLL_geq_5, BLL_geq_10, tested

dbl (2): tract, year

i Use `spec()` to retrieve the full column specification for this data.

i Specify the column types or set `show_col_types = FALSE` to quiet this message.

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.

i Please use `if_any()` or `if_all()` instead.

[1] "Additional features added: "

Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'

Chain 2 Initialization between (-2, 2) failed after 100 attempts.

Chain 2 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 2 Initialization failed.

Chain 3 Initialization between (-2, 2) failed after 100 attempts.

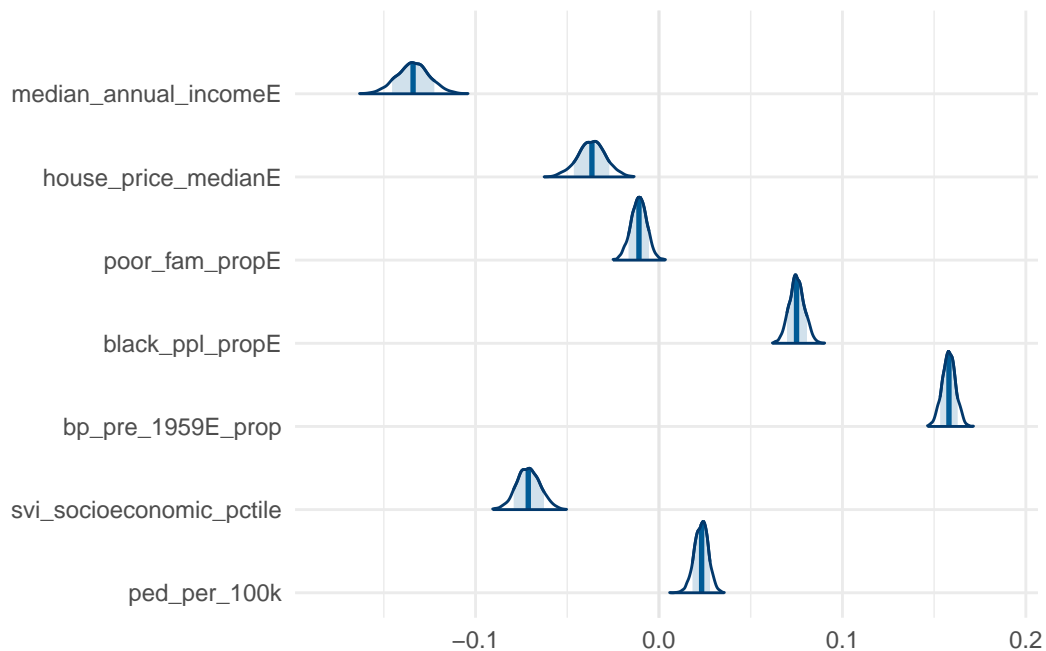
Chain 3 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

Chain 3 Initialization failed.

Warning: Dropping 'draws_df' class as required metadata was removed.

```
nc_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
nc_test_model$plot
```



Indiana

```
in_summary <- data_summary("IN", year = NULL)
```

```
[1] "Loading IN from processed_data"
```

```
Rows: 16577 Columns: 5
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (1): state
```

```
dbl (4): tract, year, tested, BLL_geq_5
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

year	n_obs	lead_cens_5	lead_nocens_5	lead_censR_5	test_cens	test_censR	sup_threshold_5	median_lead_5	q75_lead_5	max_lead_5
2005	1186	0	1186	0	0	0	0	1	3	30
2006	1194	0	1194	0	0	0	0	1	3	32
2007	1192	0	1192	0	0	0	0	2	4	39
2008	1196	0	1196	0	0	0	0	1	3	66
2009	1198	0	1198	0	0	0	0	1	3	71
2010	1196	0	1196	0	0	0	0	1	3	39
2011	1196	0	1196	0	0	0	0	1	2	52
2012	1201	0	1201	0	0	0	0	1	2	36
2013	1203	0	1203	0	0	0	0	1	2	22
2014	1173	0	1173	0	0	0	0	0	1	18
2015	1200	0	1200	0	0	0	0	0	1	18

Warning in `datasummary_skim_numeric(data, output = output, fmt = fmt, histogram = histogram, : The histogram argument is only supported for (a) output types "default", "html", or "kableExtra"; (b) writing to file paths with extensions ".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to PDF or HTML. Use `histogram=FALSE` to silence this warning.`

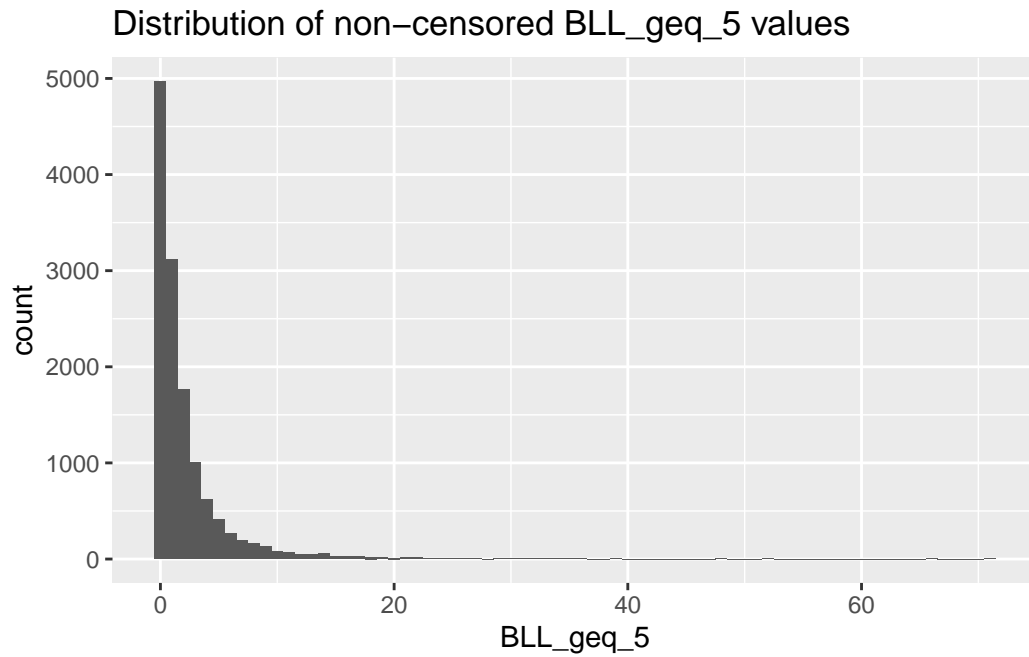
```
in_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
in_summary[[2]]
```

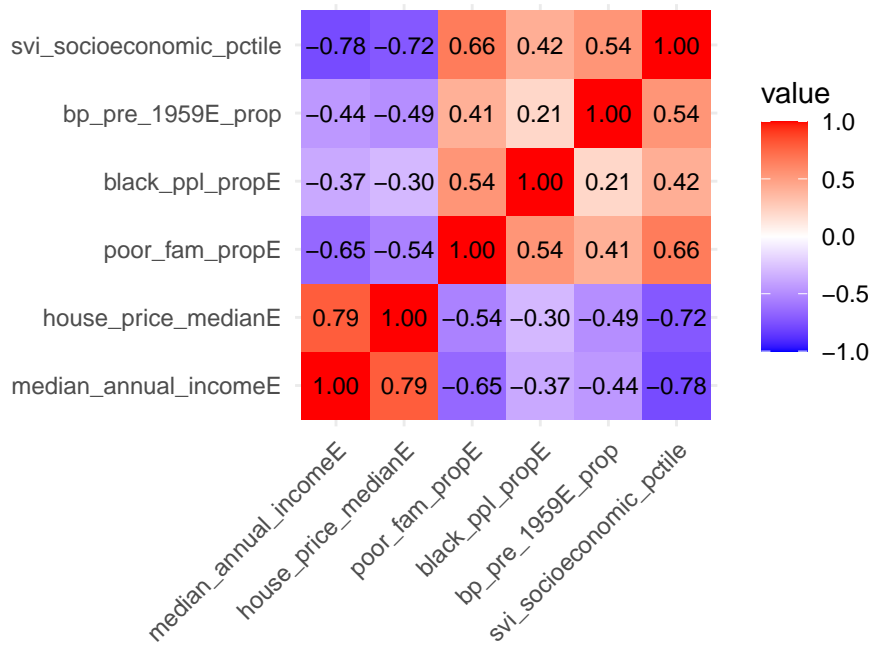
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
year	11	0	2010.0	3.2	2005.0	2010.0	2015.0
tested	169	0	28.6	23.6	1.0	22.0	306.0
BLL_geq_5	41	0	2.1	3.7	0.0	1.0	71.0
tested_ell	1	0	1.0	0.0	1.0	1.0	1.0
ell_5	1	0	0.0	0.0	0.0	0.0	0.0
median_annual_incomeE	1177	0	0.0	1.0	-2.6	-0.0	4.9
house_price_medianE	898	0	-0.0	1.0	-1.8	-0.2	6.9
poor_fam_propE	1185	0	0.0	1.0	-1.1	-0.3	5.6
black_ppl_propE	1040	0	0.0	1.0	-0.6	-0.5	4.3
bp_pre_1959E_prop	1208	0	0.0	1.0	-1.7	-0.1	2.1
svi_socioeconomic_pctile	1135	0	0.0	1.0	-2.2	0.1	1.6
ped_per_100k	60	0	0.0	1.0	-1.2	-0.2	4.3
under_yo5_pplE	456	0	249.0	141.9	7.0	216.0	981.0

```
in_summary[[3]]
```

```
[[1]]
```



```
in_summary[[4]]
```



variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp	-920.7486605	-920.4135000	1.8936512	1.7531745	-924.2862500	-918.3389500	1.0029736	1805.360	2782.742
alpha	-5.5756826	-5.5754600	0.0324851	0.0319649	-5.6296155	-5.5229095	1.0010439	4271.521	2919.398
median_annual_incomeE	-0.1762380	-0.1767025	0.0353082	0.0341925	-0.2359692	-0.1173766	1.0011085	3545.672	2639.398
house_price_medianE	-0.0911790	-0.0907848	0.0363116	0.0365729	-0.1512320	-0.0324058	0.9996919	3958.235	3230.498
poor_fam_propE	0.1009921	0.1006005	0.0267200	0.0268331	0.0566051	0.1442012	1.0016488	3771.867	2896.109
black_ppl_propE	-0.0090796	-0.0091134	0.0234120	0.0228170	-0.0476347	0.0299099	1.0008185	4071.678	2835.975
bp_pre_1959E_prop	0.4007293	0.4009285	0.0264286	0.0261597	0.3571037	0.4424780	1.0002236	3989.973	2876.769
svi_socioeconomic_pctile	0.2591629	0.2593435	0.0349023	0.0344705	0.2015098	0.3163060	1.0024315	4547.727	2786.491

```
in_lead_model <- lead_count_model_summary("IN", year = 2013)
```

```
[1] "Loading IN from processed_data"
```

```
Rows: 16577 Columns: 5
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (1): state
```

```
dbl (4): tract, year, tested, BLL_geq_5
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

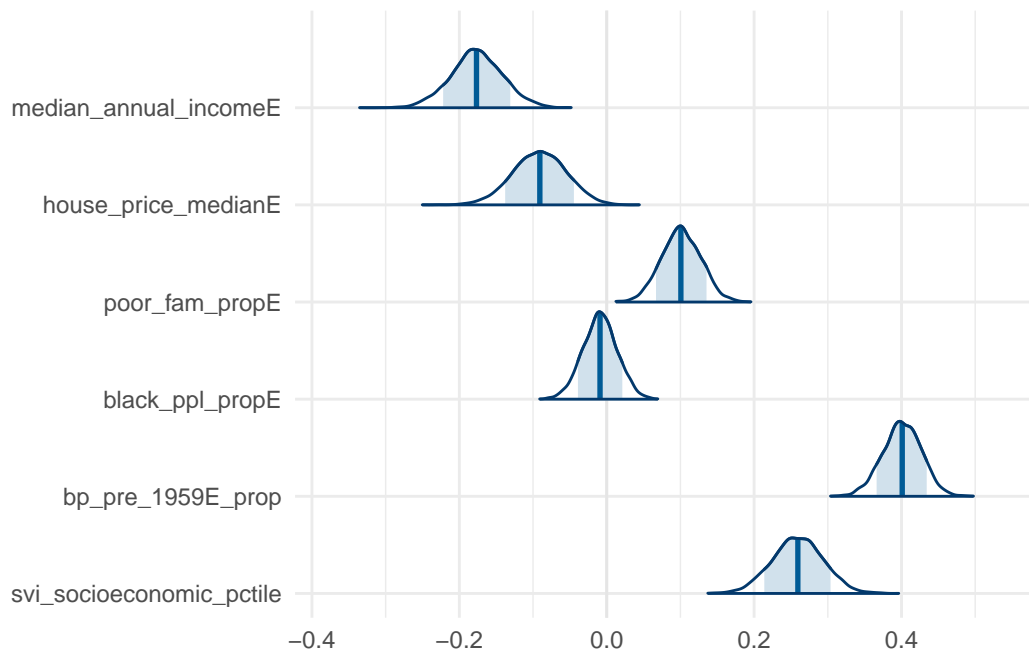
```
Warning in readLines(stan_file): incomplete final line found on
```

```
'poisson_many_X_suppression.stan'
```

```
Warning: Dropping 'draws_df' class as required metadata was removed.
```

```
in_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
in_lead_model$plot
```



```
in_test_model <- test_count_model_summary("IN", year = 2013)
```

```
[1] "Loading IN from processed_data"
```

```
Rows: 16577 Columns: 5
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (1): state
```

```
dbl (4): tract, year, tested, BLL_geq_5
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

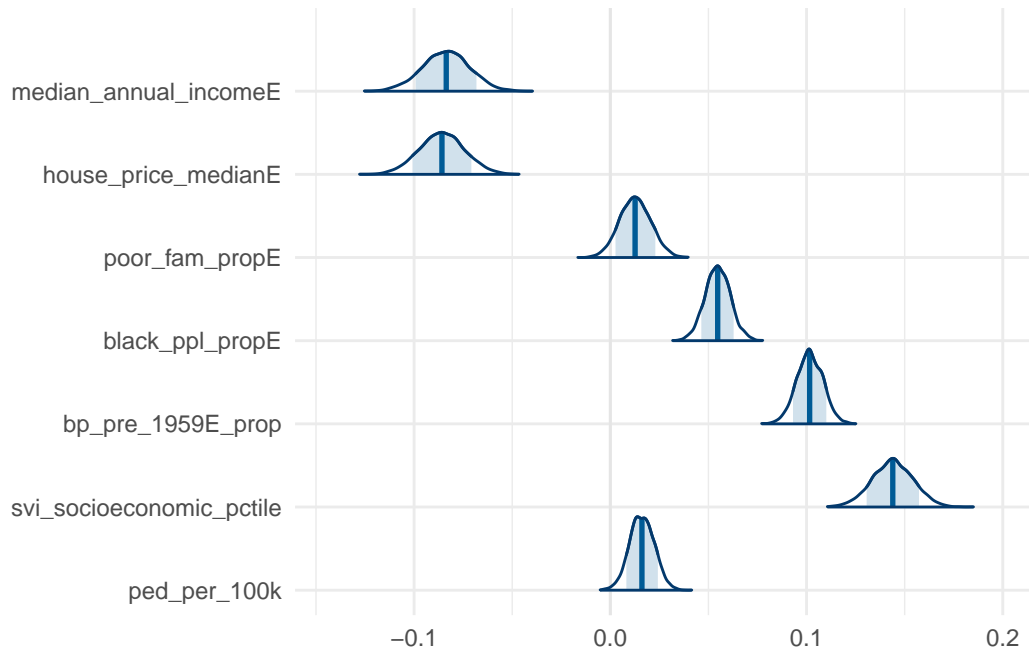
```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp_	71600.3249000	71600.7000000	2.0727455	1.9273800	71596.5000000	71603.0000000	1.0003999	1880.653	2563.986
alpha	-2.2924414	-2.2925400	0.0061220	0.0061824	-2.3025705	-2.2822300	1.0006993	4831.820	2710.544
median_annual_incomeE	-0.0837697	-0.0836208	0.0120955	0.0119256	-0.1041317	-0.0640492	1.0000315	3914.956	2903.623
house_price_medianE	-0.0857830	-0.0857992	0.0116183	0.0114301	-0.1050351	-0.0664280	1.0041064	4035.873	2787.037
poor_fam_propE	0.0127073	0.0126242	0.0079452	0.0080748	-0.0001449	0.0258661	1.0015719	4480.842	2828.628
black_ppl_propE	0.0547182	0.0547192	0.0064602	0.0063844	0.0441667	0.0651838	1.0002144	4358.929	2992.719
bp_pre_1959E_prop	0.1016334	0.1015750	0.0067327	0.0068733	0.0905095	0.1125030	1.0022227	4893.497	3140.593
svi_socioeconomic_pctile	0.1439099	0.1439505	0.0105146	0.0104686	0.1266668	0.1611786	0.9996043	4319.465	2707.007
ped_per_100k	0.0161390	0.0161065	0.0062863	0.0063397	0.0060474	0.0264075	1.0012627	4561.614	3158.552

Warning: Dropping 'draws_df' class as required metadata was removed.

```
in_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
in_test_model$plot
```



Oregon

```
or_summary <- data_summary("OR", year = NULL)
```

```
[1] "Loading OR from processed_data"
```

year	n_obs	lead_cens_5	lead_nocens_5	lead_censR_5	test_cens	test_censR	sup_threshold_5	median_lead_5	q75_lead_5	max_lead_5
2004	1000	1000	0	1	400	0.400	4	5	5	5
2005	1000	1000	0	1	372	0.372	4	5	5	5
2006	1000	1000	0	1	376	0.376	4	5	5	5
2007	1000	1000	0	1	364	0.364	4	5	5	5
2008	1000	1000	0	1	340	0.340	4	5	5	5
2009	1000	1000	0	1	292	0.292	4	5	5	5
2010	1000	1000	0	1	300	0.300	4	5	5	5
2011	1000	1000	0	1	324	0.324	4	5	5	5
2012	1000	1000	0	1	308	0.308	4	5	5	5
2013	1000	1000	0	1	356	0.356	4	5	5	5
2014	1000	1000	0	1	300	0.300	4	5	5	5
2015	1000	1000	0	1	300	0.300	4	5	5	5

Rows: 15504 Columns: 5

-- Column specification -----

Delimiter: ","

chr (3): tested, BLL_geq_5, state

dbl (2): tract, year

i Use `spec()` to retrieve the full column specification for this data.

i Specify the column types or set `show_col_types = FALSE` to quiet this message.

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.

i Please use `if_any()` or `if_all()` instead.

[1] "Additional features added: "

Warning in datasummary_skim_numeric(data, output = output, fmt = fmt, histogram = histogram, : The histogram argument is only supported for (a) output types "default", "html", or "kableExtra"; (b) writing to file paths with extensions ".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to PDF or HTML. Use `histogram=FALSE` to silence this warning.

```
or_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
or_summary[[2]]
```

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
year	12	0	2009.5	3.5	2004.0	2009.5	2015.0
tested	85	0	14.3	14.2	5.0	8.0	112.0
BLL_geq_5	1	0	5.0	0.0	5.0	5.0	5.0
tested_ell	1	0	5.0	0.0	5.0	5.0	5.0

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
ell_5	1	0	4.0	0.0	4.0	4.0	4.0
median_annual_incomeE	250	0	0.0	1.1	-2.6	-0.1	6.7
house_price_medianE	245	0	0.1	1.1	-2.2	0.0	4.2
poor_fam_propE	248	0	0.1	1.1	-1.3	-0.2	4.0
black_ppl_propE	216	0	0.3	1.3	-0.6	-0.2	6.2
bp_pre_1959E_prop	250	0	0.3	1.2	-1.3	0.1	3.2
svi_socioeconomic_pctile	247	0	0.1	1.0	-2.0	0.3	2.1
ped_per_100k	23	0	0.3	1.1	-1.7	0.1	1.6
under_yo5_pplE	206	0	262.7	153.0	24.0	226.0	905.0

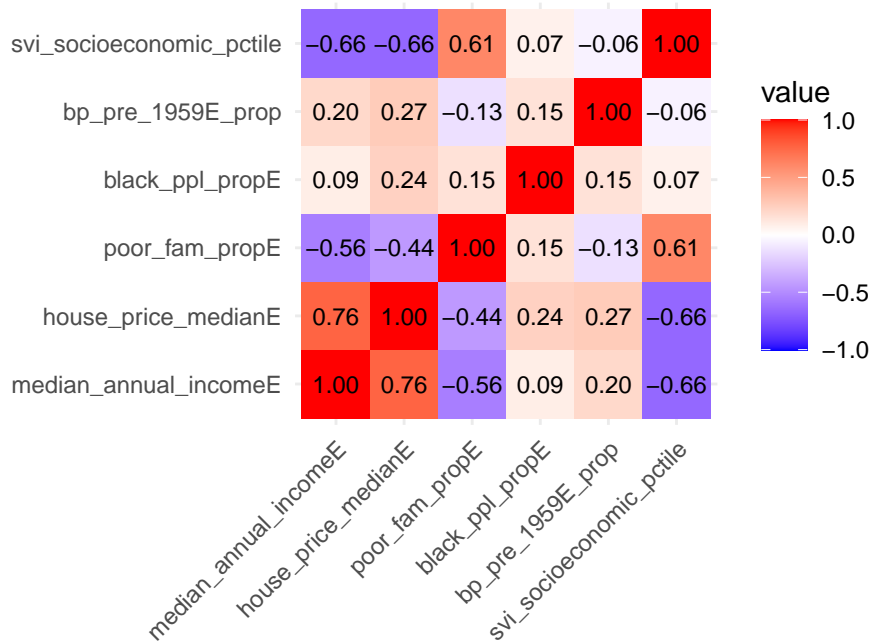
```
or_summary[[3]]
```

```
[[1]]
```

Distribution of non-censored BLL_geq_5 values



```
or_summary[[4]]
```



```
or_lead_model <- lead_count_model_summary("OR", year = 2010)
```

```
[1] "Loading OR from processed_data"
```

```
Rows: 15504 Columns: 5
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (3): tested, BLL_geq_5, state
```

```
dbl (2): tract, year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

```
Chain 1 Initialization between (-2, 2) failed after 100 attempts.
Chain 1 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
Chain 1 Initialization failed.
Chain 2 Initialization between (-2, 2) failed after 100 attempts.
Chain 2 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
Chain 2 Initialization failed.
Chain 3 Initialization between (-2, 2) failed after 100 attempts.
Chain 3 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
Chain 3 Initialization failed.
Chain 4 Initialization between (-2, 2) failed after 100 attempts.
Chain 4 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.
Chain 4 Initialization failed.
```

Warning: No chains finished successfully. Unable to retrieve the fit.

Error: No chains finished successfully. Unable to retrieve the draws.

```
or_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

Error in knitr::kable(or_lead_model\$table): object 'or_lead_model' not found

```
or_lead_model$plot
```

Error in eval(expr, envir, enclos): object 'or_lead_model' not found

```
or_test_model <- test_count_model_summary("OR", year = 2010)
```

```
[1] "Loading OR from processed_data"
```

```
Rows: 15504 Columns: 5
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (3): tested, BLL_geq_5, state
```

```
dbl (2): tract, year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp_	30465.2028000	30465.6000000	2.0897175	1.9273800	30461.2950000	30467.8000000	1.0027368	403.9006	616.3667
alpha	-3.3393781	-3.3392250	0.0125193	0.0126614	-3.3600165	-3.3193655	1.0004370	943.5327	715.3383
median_annual_incomeE	-0.0233252	-0.0233865	0.0150203	0.0146508	-0.0476055	0.0011297	1.0068613	963.3913	456.7414
house_price_medianE	-0.0821250	-0.0822433	0.0162582	0.0162639	-0.1092162	-0.0557831	1.0035774	1047.9248	740.4003
poor_fam_propE	-0.0249968	-0.0251484	0.0091944	0.0093893	-0.0410427	-0.0100097	1.0014927	1050.9800	698.0188
black_ppl_propE	0.1021723	0.1018835	0.0059864	0.0059052	0.0921109	0.1121287	1.0001469	1119.6577	739.5350
bp_pre_1959E_prop	0.1065658	0.1068070	0.0080410	0.0084649	0.0931719	0.1195146	1.0031029	1415.2228	787.0916
svi_socioeconomic_pctile	0.2872320	0.2871625	0.0127991	0.0125613	0.2650421	0.3079807	0.9991577	1071.6175	823.1442
ped_per_100k	0.5600694	0.5601700	0.0107250	0.0107511	0.5423964	0.5775851	0.9995981	917.0106	591.5921

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
i Please use `if_any()` or `if_all()` instead.

```
[1] "Additional features added: "
```

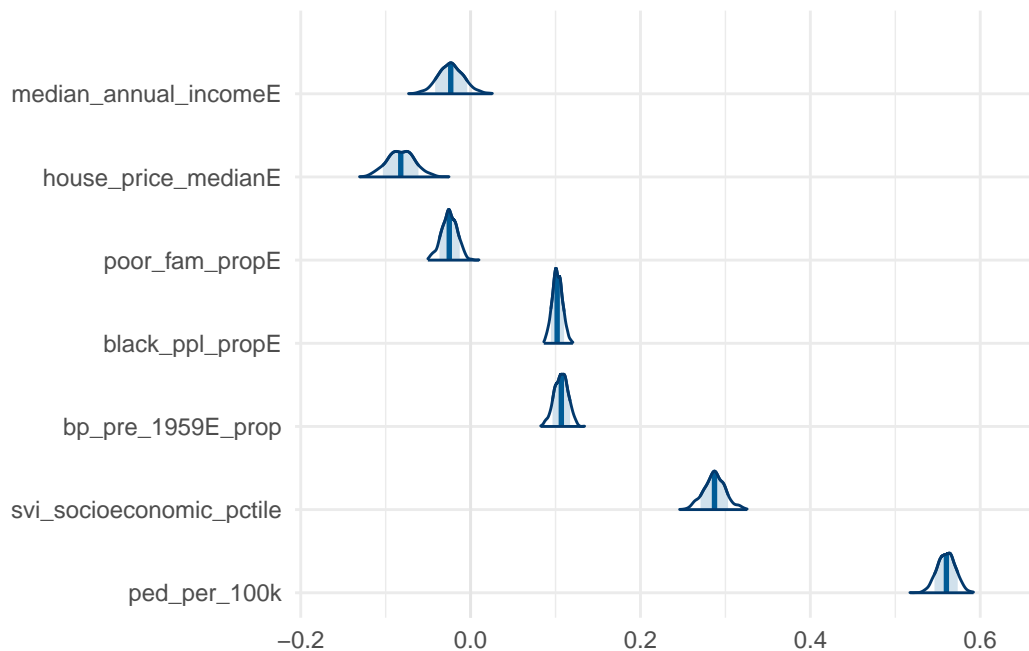
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'

```
Chain 1 Initialization between (-2, 2) failed after 100 attempts.
Chain 1 Try specifying initial values, reducing ranges of constrained values, or reparameterize.
Chain 1 Initialization failed.
Chain 2 Initialization between (-2, 2) failed after 100 attempts.
Chain 2 Try specifying initial values, reducing ranges of constrained values, or reparameterize.
Chain 2 Initialization failed.
Chain 4 Initialization between (-2, 2) failed after 100 attempts.
Chain 4 Try specifying initial values, reducing ranges of constrained values, or reparameterize.
Chain 4 Initialization failed.
```

Warning: Dropping 'draws_df' class as required metadata was removed.

```
or_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
or_test_model$plot
```

New Hampshire

```
nh_summary <- data_summary("NH", year = NULL)
```

```
[1] "Loading NH from processed_data"
```

```
Rows: 3223 Columns: 6
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (2): state, tract
```

```
dbl (4): year, tested, BLL_geq_5, BLL_geq_10
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

year	n_obs	lead_cens_5	lead_nocens_5	lead_censR_5	lead_cens_10	lead_nocens_10	lead_censR_10	test_cens	test_censR	sup_threshold_5	sup_threshold_10	median_lead_5	q75_lead_5	max_lead_5	median_lead_10	q75_lead_10	max_lead_10
2005	212	0	212	0	0	212	0	0	0	0	0	4	7	48	1	1	13
2006	212	0	212	0	0	212	0	0	0	0	0	3	5	62	0	1	29
2007	211	0	211	0	0	211	0	0	0	0	0	2	5	57	0	1	18
2008	211	0	211	0	0	211	0	0	0	0	0	2	4	47	0	1	14
2009	210	0	210	0	0	210	0	0	0	0	0	1	3	42	0	1	15
2010	210	0	210	0	0	210	0	0	0	0	0	1	3	46	0	1	13
2011	211	0	211	0	0	211	0	0	0	0	0	1	3	38	0	0	14
2012	211	0	211	0	0	211	0	0	0	0	0	1	2	34	0	0	11
2013	210	0	210	0	0	210	0	0	0	0	0	1	2	24	0	1	8
2014	210	0	210	0	0	210	0	0	0	0	0	1	2	15	0	1	6
2015	211	0	211	0	0	211	0	0	0	0	0	1	2	10	0	0	4

Warning in `datasummary_skim_numeric(data, output = output, fmt = fmt, histogram = histogram, : The histogram argument is only supported for (a) output types "default", "html", or "kableExtra"; (b) writing to file paths with extensions ".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to PDF or HTML. Use `histogram=FALSE` to silence this warning.`

```
nh_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

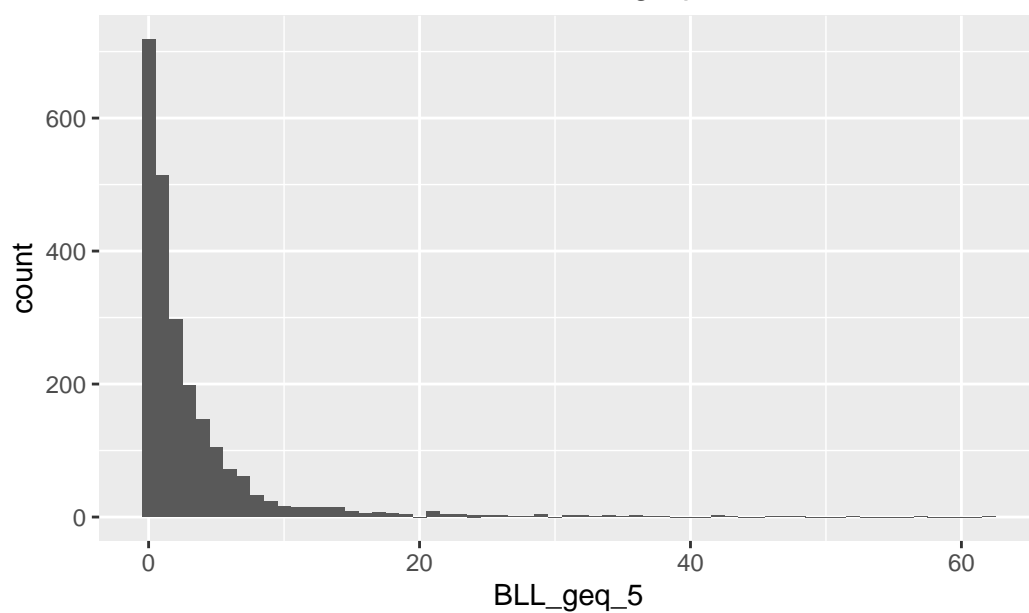
```
nh_summary[[2]]
```

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
year	11	0	2010.0	3.2	2005.0	2010.0	2015.0
tested	151	0	42.8	27.5	1.0	39.0	190.0
BLL_geq_5	45	0	3.0	5.4	0.0	1.0	62.0
BLL_geq_10	19	0	0.7	1.8	0.0	0.0	29.0
ell_5	1	0	0.0	0.0	0.0	0.0	0.0
ell_10	1	0	0.0	0.0	0.0	0.0	0.0
median_annual_incomeE	212	0	0.0	1.0	-3.5	-0.1	3.4
house_price_medianE	204	0	0.0	1.0	-2.0	-0.0	5.1
poor_fam_propE	214	0	-0.0	1.0	-1.0	-0.3	5.7
black_ppl_propE	165	0	-0.0	1.0	-0.6	-0.4	4.7
bp_pre_1959E_prop	214	0	-0.0	1.0	-1.6	-0.2	2.5
svi_socioeconomic_pctile	211	0	-0.0	1.0	-1.3	-0.3	3.0
ped_per_100k	10	0	0.0	1.0	-1.4	0.0	3.8
under_yo5_pplE	170	0	210.0	119.9	9.0	197.0	579.0

```
nh_summary[[3]]
```

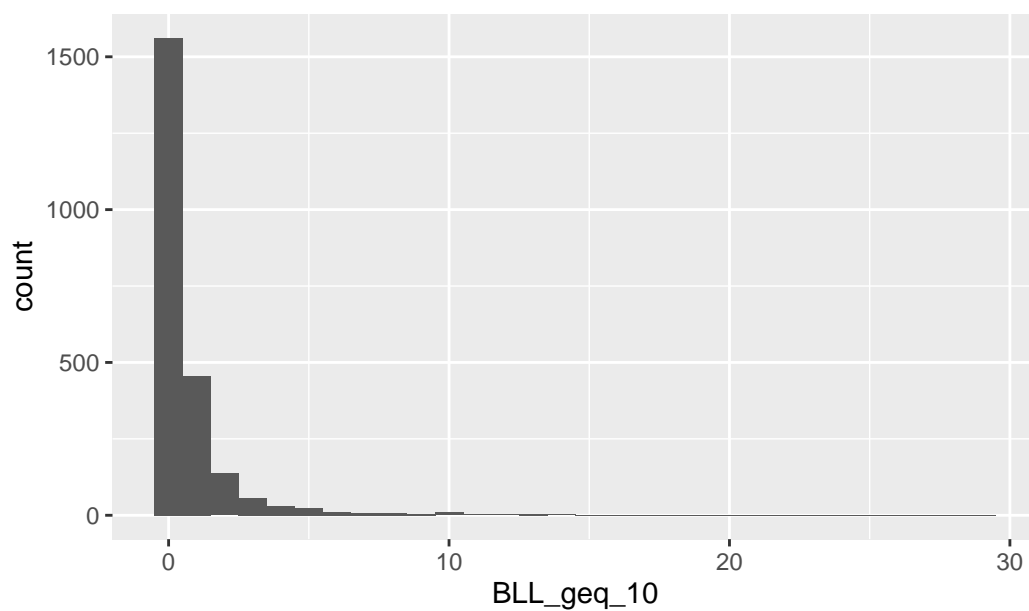
```
[[1]]
```

Distribution of non-censored BLL_geq_5 values

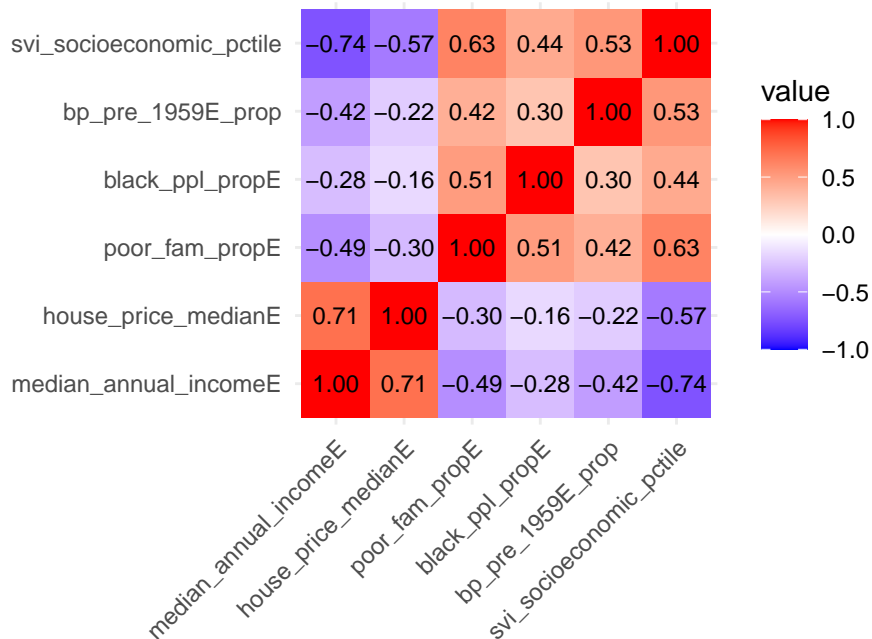


[[2]]

Distribution of non-censored BLL_geq_10 values



```
nh_summary[[4]]
```



```
nh_lead_model <- lead_count_model_summary("NH", year = 2010)
```

```
[1] "Loading NH from processed_data"
```

```
Rows: 3223 Columns: 6
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (2): state, tract
```

```
dbl (4): year, tested, BLL_geq_5, BLL_geq_10
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

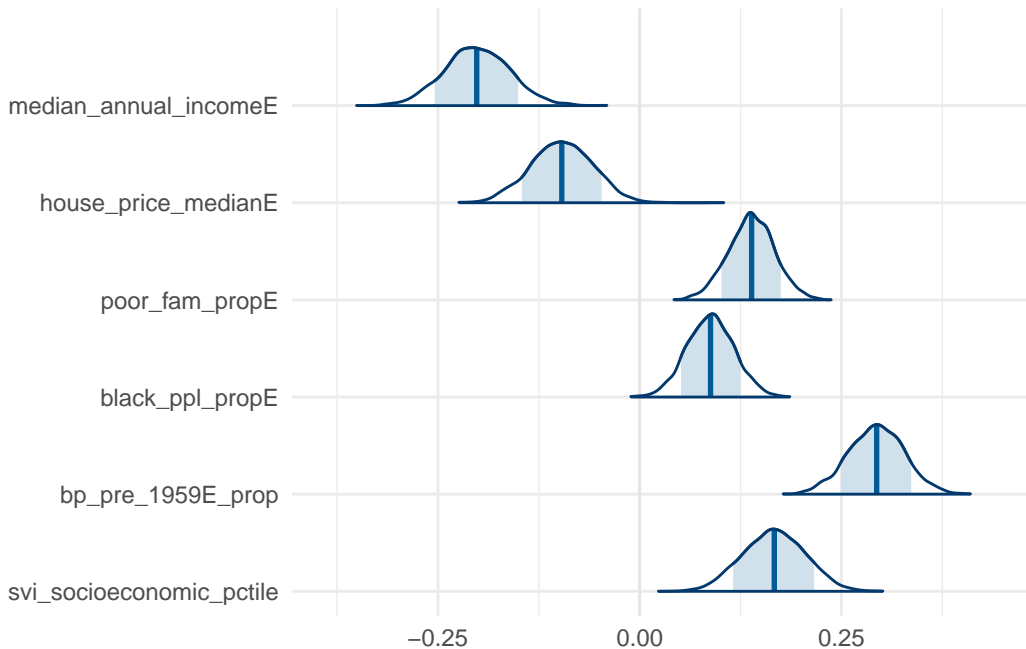
variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp	218.5018932	218.8065000	1.8730793	1.7220399	215.0256000	220.9040000	1.0021171	1648.670	2524.108
alpha	-4.6166046	-4.6155300	0.0515019	0.0512461	-4.7010275	-4.5325515	0.9997968	4735.507	2894.211
median_annual_incomeE	-0.2014504	-0.2019720	0.0407577	0.0404513	-0.2683996	-0.1342259	1.0001260	3967.133	2900.566
house_price_medianE	-0.0965624	-0.0965307	0.0385531	0.0388868	-0.1610957	-0.0349091	1.0008220	4438.003	3263.105
poor_fam_propE	0.1384546	0.1386645	0.0286642	0.0283369	0.0904604	0.1857238	1.0014104	3534.359	2768.275
black_ppl_propE	0.0877564	0.0877447	0.0293006	0.0294747	0.0394138	0.1370309	1.0012221	3576.502	2913.742
bp_pre_1959E_prop	0.2932938	0.2936720	0.0345469	0.0350865	0.2348116	0.3493947	1.0001110	4583.130	2713.455
svi_socioeconomic_pctile	0.1665177	0.1668050	0.0386598	0.0393667	0.1029606	0.2294757	1.0024284	3710.609	2647.995

```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

```
Warning: Dropping 'draws_df' class as required metadata was removed.
```

```
nh_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
nh_lead_model$plot
```



```
nh_test_model <- test_count_model_summary("NH", year = 2010)
```

```
[1] "Loading NH from processed_data"
```

```

Rows: 3223 Columns: 6
-- Column specification -----
Delimiter: ","
chr (2): state, tract
dbl (4): year, tested, BLL_geq_5, BLL_geq_10

i Use `spec()` to retrieve the full column specification for this data.
i Specify the column types or set `show_col_types = FALSE` to quiet this message.

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
i Please use `if_any()` or `if_all()` instead.

[1] "Additional features added: "

Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'

Warning: Unknown or uninitialised column: `tested_ell`.

Warning in max(state_data$tested_ell, na.rm = TRUE): no non-missing arguments
to max; returning -Inf

Warning in test_count_model_summary("NH", year = 2010): NAs introduced by
coercion to integer range

Warning: Unknown or uninitialised column: `zero_sup_tested`.

Error: Variable 'ell' has NA values.

nh_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")

Error in knitr::kable(nh_test_model$table): object 'nh_test_model' not found

nh_test_model$plot

Error in eval(expr, envir, enclos): object 'nh_test_model' not found

```

Wisconsin

```
wi_summary <- data_summary("WI", year = NULL)
```

```
[1] "Loading WI from processed_data"
```

```
Rows: 36564 Columns: 8
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (2): state, county
```

```
dbl (6): tract, start_year, end_year, tested, BLL_geq_5, year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

```
Warning in datasummary_skim_numeric(data, output = output, fmt = fmt, histogram
= histogram, : The histogram argument is only supported for (a) output types
"default", "html", or "kableExtra"; (b) writing to file paths with extensions
".html", ".jpg", or ".png"; and (c) Rmarkdown or knitr documents compiled to
PDF or HTML. Use `histogram=FALSE` to silence this warning.
```

```
wi_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

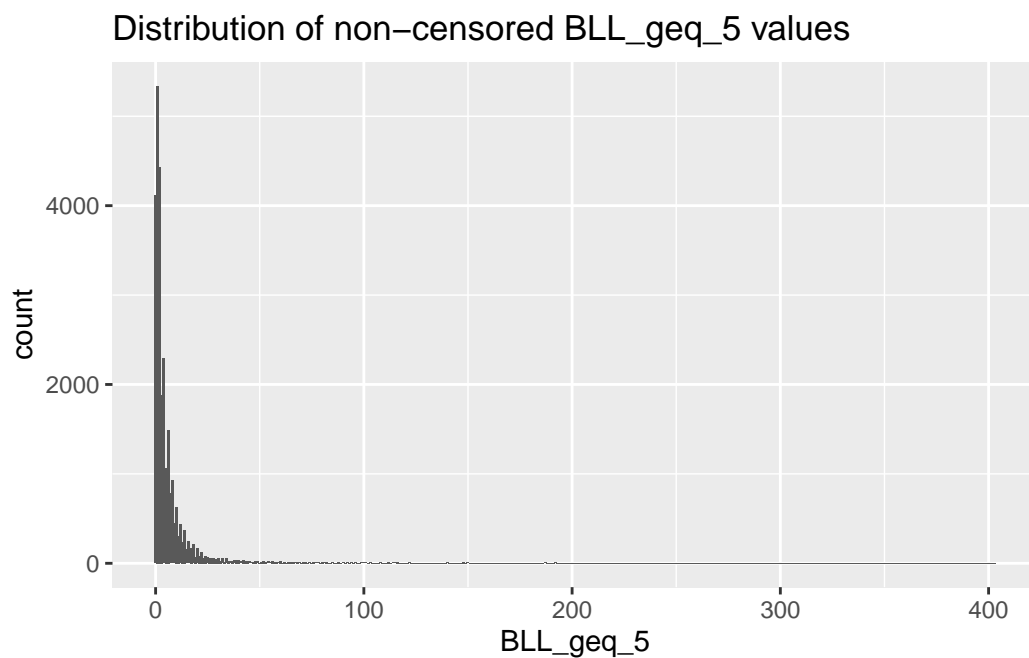
```
wi_summary[[2]]
```

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
start_year	6	0	2008.0	6.9	1998.0	2006.0	2018.0
end_year	6	0	2011.0	6.9	2001.0	2009.0	2021.0
tested	287	0	60.0	49.1	1.0	47.0	576.0
BLL_geq_5	137	0	7.5	17.9	0.0	2.0	403.0
year	24	0	2009.5	7.0	1998.0	2009.0	2021.0
tested_ell	1	0	1.0	0.0	1.0	1.0	1.0
ell_5	1	0	0.0	0.0	0.0	0.0	0.0

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
median_annual_incomeE	1157	0	0.1	1.0	-3.1	-0.0	4.8
house_price_medianE	936	0	0.0	1.0	-1.8	-0.2	6.5
poor_fam_propE	1182	0	-0.1	0.9	-0.9	-0.4	5.1
black_ppl_propE	1043	0	-0.1	0.9	-0.4	-0.4	4.5
bp_pre_1959E_prop	1191	0	-0.0	1.0	-1.7	-0.2	2.3
svi_socioeconomic_pctile	1123	0	-0.1	1.0	-1.6	-0.2	2.2
ped_per_100k	47	0	-0.0	1.0	-1.4	-0.4	2.4
under_yo5_pplE	432	0	232.3	127.3	10.0	213.0	944.0

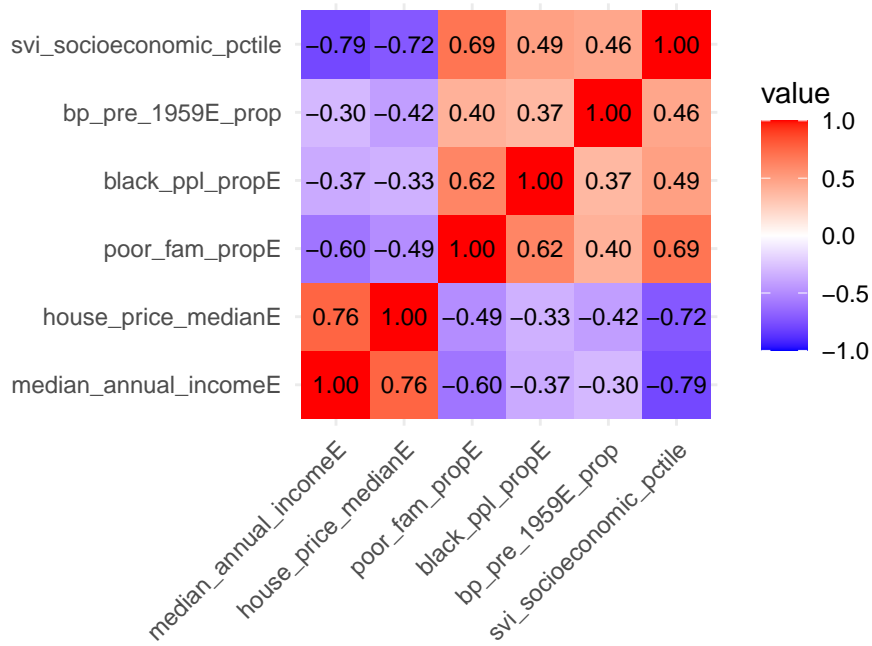
```
wi_summary[[3]]
```

```
[[1]]
```



```
wi_summary[[4]]
```


year	n_obs	lead_cens_5	lead_nocens_5	lead_censR_5	test_cens	test_censR	sup_threshold_5	median_lead_5	q75_lead_5	max_lead_5
1998	1166	0	1166	0	0	0	0	8	15	403
1999	1166	0	1166	0	0	0	0	8	15	403
2000	1166	0	1166	0	0	0	0	8	15	403
2001	1166	0	1166	0	0	0	0	8	15	403
2002	1152	0	1152	0	0	0	0	6	11	253
2003	1152	0	1152	0	0	0	0	6	11	253
2004	1152	0	1152	0	0	0	0	6	11	253
2005	1152	0	1152	0	0	0	0	6	11	253
2006	1145	0	1145	0	0	0	0	3	7	112
2007	1145	0	1145	0	0	0	0	3	7	112
2008	1145	0	1145	0	0	0	0	3	7	112
2009	1145	0	1145	0	0	0	0	3	7	112
2010	1121	0	1121	0	0	0	0	2	4	67
2011	1121	0	1121	0	0	0	0	2	4	67
2012	1121	0	1121	0	0	0	0	2	4	67
2013	1121	0	1121	0	0	0	0	2	4	67
2014	1153	0	1153	0	0	0	0	1	2	56
2015	1153	0	1153	0	0	0	0	1	2	56
2016	1153	0	1153	0	0	0	0	1	2	56
2017	1153	0	1153	0	0	0	0	1	2	56
2018	1184	0	1184	0	0	0	0	1	2	40
2019	1184	0	1184	0	0	0	0	1	2	40
2020	1184	0	1184	0	0	0	0	1	2	40
2021	1184	0	1184	0	0	0	0	1	2	40



```
wi_lead_model <- lead_count_model_summary("WI", year = 2007)
```

```
[1] "Loading WI from processed_data"
```

```
Rows: 36564 Columns: 8
```

```
-- Column specification -----
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp_	10596.4919000	10596.8000000	1.8476019	1.7791200	10593.1000000	10598.9000000	1.000647	1809.147	2660.126
alpha	-3.9273395	-3.9274100	0.0154785	0.0155451	-3.9532100	-3.9026240	1.000417	4497.687	2967.195
median_annual_incomeE	-0.1716864	-0.1717365	0.0223478	0.0228187	-0.2073936	-0.1342624	1.000332	3576.447	2800.173
house_price_medianE	-0.0447430	-0.0446631	0.0229277	0.0227691	-0.0829975	-0.0063676	1.001971	3971.652	2686.891
poor_fam_propE	0.0559037	0.0560879	0.0128362	0.0131066	0.0343999	0.0765845	1.000434	4023.494	2821.676
black_ppl_propE	0.0884210	0.0884630	0.0091743	0.0093310	0.0738000	0.1034534	1.001905	4616.706	2077.768
bp_pre_1959E_prop	0.3821958	0.3820255	0.0138159	0.0137963	0.3597890	0.4049664	1.000297	4365.982	3128.252
svi_socioeconomic_pctile	0.3494664	0.3492265	0.0218980	0.0217853	0.3140651	0.3860613	1.000647	3510.030	2850.289

Delimiter: ","

chr (2): state, county

dbl (6): tract, start_year, end_year, tested, BLL_geq_5, year

i Use `spec()` to retrieve the full column specification for this data.

i Specify the column types or set `show_col_types = FALSE` to quiet this message.

Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.

i Please use `if_any()` or `if_all()` instead.

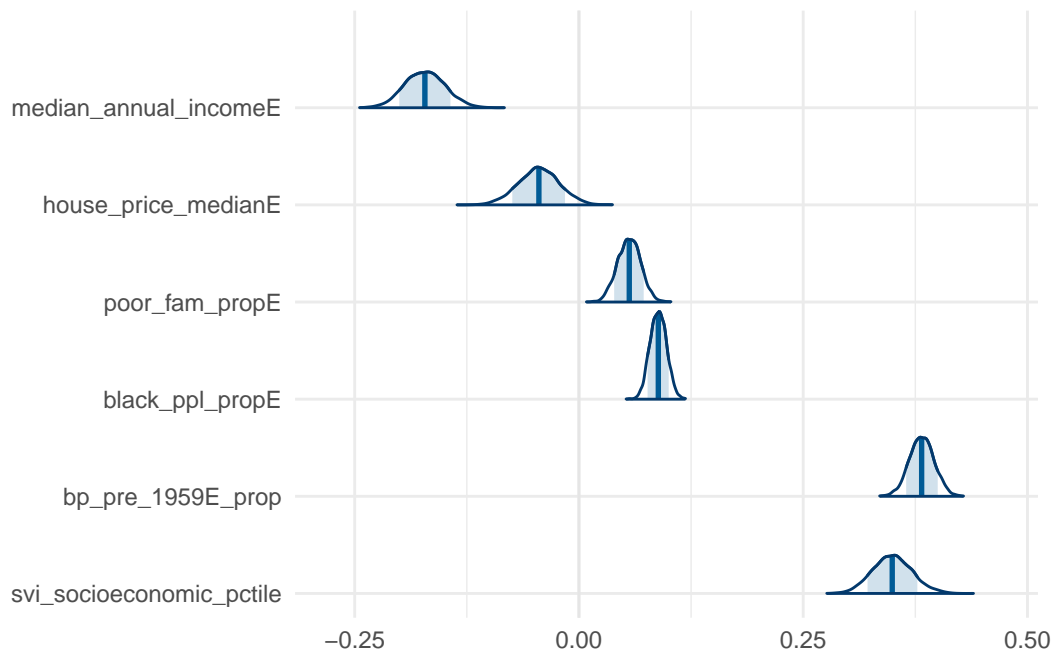
[1] "Additional features added: "

Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'

Warning: Dropping 'draws_df' class as required metadata was removed.

```
wi_lead_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
wi_lead_model$plot
```



```
wi_test_model <- test_count_model_summary("WI", year = 2007)
```

```
[1] "Loading WI from processed_data"
```

```
Rows: 36564 Columns: 8
```

```
-- Column specification -----
```

```
Delimiter: ","
```

```
chr (2): state, county
```

```
dbl (6): tract, start_year, end_year, tested, BLL_geq_5, year
```

```
i Use `spec()` to retrieve the full column specification for this data.
```

```
i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
Warning: Using `across()` in `filter()` was deprecated in dplyr 1.0.8.
```

```
i Please use `if_any()` or `if_all()` instead.
```

```
[1] "Additional features added: "
```

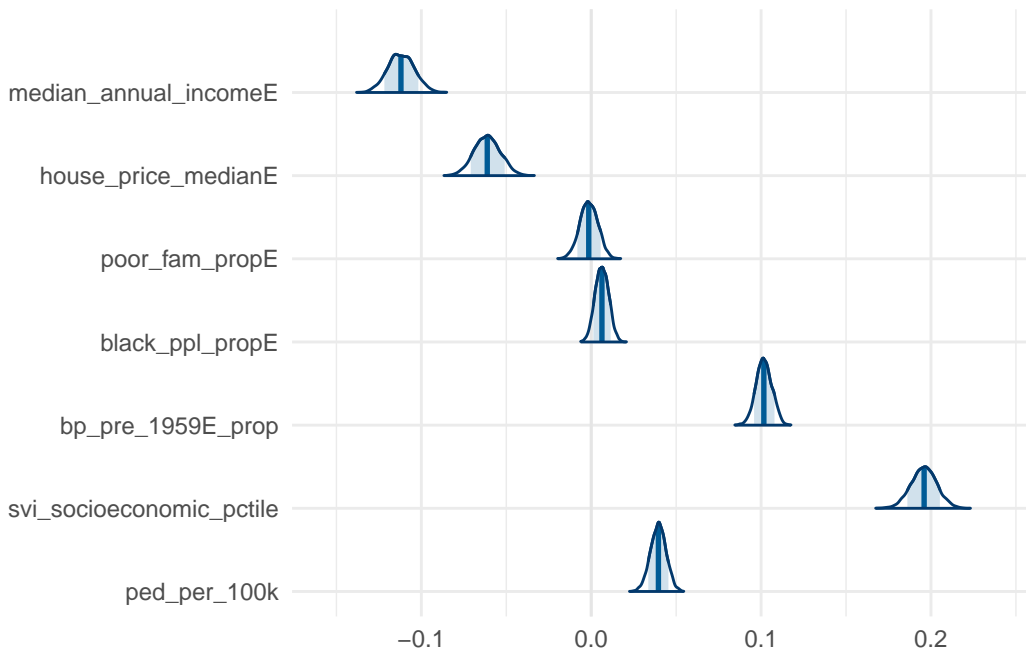
```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp_	2.451461e+05	2.451460e+05	2.0098407	1.4826000	2.451420e+05	2.451490e+05	1.0010927	1675.431	2246.639
alpha	-1.320603e+00	-1.320675e+00	0.0039710	0.0039215	-1.327011e+00	-1.314029e+00	0.9998100	6505.011	2542.111
median_annual_incomeE	-1.119097e-01	-1.120075e-01	0.0077914	0.0079289	-1.246797e-01	-9.884340e-02	1.0000986	3489.303	3052.674
house_price_medianE	-6.120730e-02	-6.120930e-02	0.0077088	0.0077681	-7.373890e-02	-4.840910e-02	1.0003784	4000.144	2965.829
poor_fam_propE	-1.374700e-03	-1.458900e-03	0.0053352	0.0053792	-1.024680e-02	7.259200e-03	1.0003736	4083.395	2891.529
black_ppl_propE	6.307900e-03	6.308200e-03	0.0039526	0.0040847	-1.661000e-04	1.270030e-02	0.9996925	5586.489	3362.110
bp_pre_1959E_prop	1.017051e-01	1.016205e-01	0.0046858	0.0046697	9.408260e-02	1.094860e-01	1.0004050	4770.972	2928.982
svi_socioeconomic_pctile	1.958405e-01	1.959745e-01	0.0075778	0.0074604	1.831468e-01	2.083942e-01	1.0012484	3595.978	2794.773
ped_per_100k	3.947790e-02	3.955000e-02	0.0046279	0.0046014	3.173590e-02	4.713630e-02	1.0016773	4672.248	2768.336

Warning: Dropping 'draws_df' class as required metadata was removed.

```
wi_test_model$table |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

```
wi_test_model$plot
```



Model summaries

Lead counts

For all (available) tract states, we plot the coefficients of the lead count model.

```

# List of lead model names
lead_model_names <- c("oh_lead_model", "pa_lead_model", "co_lead_model", "md_lead_model", "ma_lead_model")

# Safely retrieve the fitted lead models
lead_models <- mget(lead_model_names, envir = .GlobalEnv, ifnotfound = list(NULL))

# Filter out any NULL values in models and their names
lead_model_names <- lead_model_names[!sapply(lead_models, is.null)]
lead_models <- lead_models[!sapply(lead_models, is.null)]

# Function to safely extract and filter data
safe_extract <- possibly(function(model, variable) {
  model$plot |>
    pluck(1) |>
    filter(parameter == variable)
}, otherwise = data.frame())

# Extract and combine the density data
get_variable_densities <- function(variable){
  map2_dfr(lead_models, lead_model_names, ~ {
    data <- safe_extract(.x, variable)
    if (nrow(data) > 0) {
      data$state <- .y
    }
    data
  })
}

```

Median annual income

```

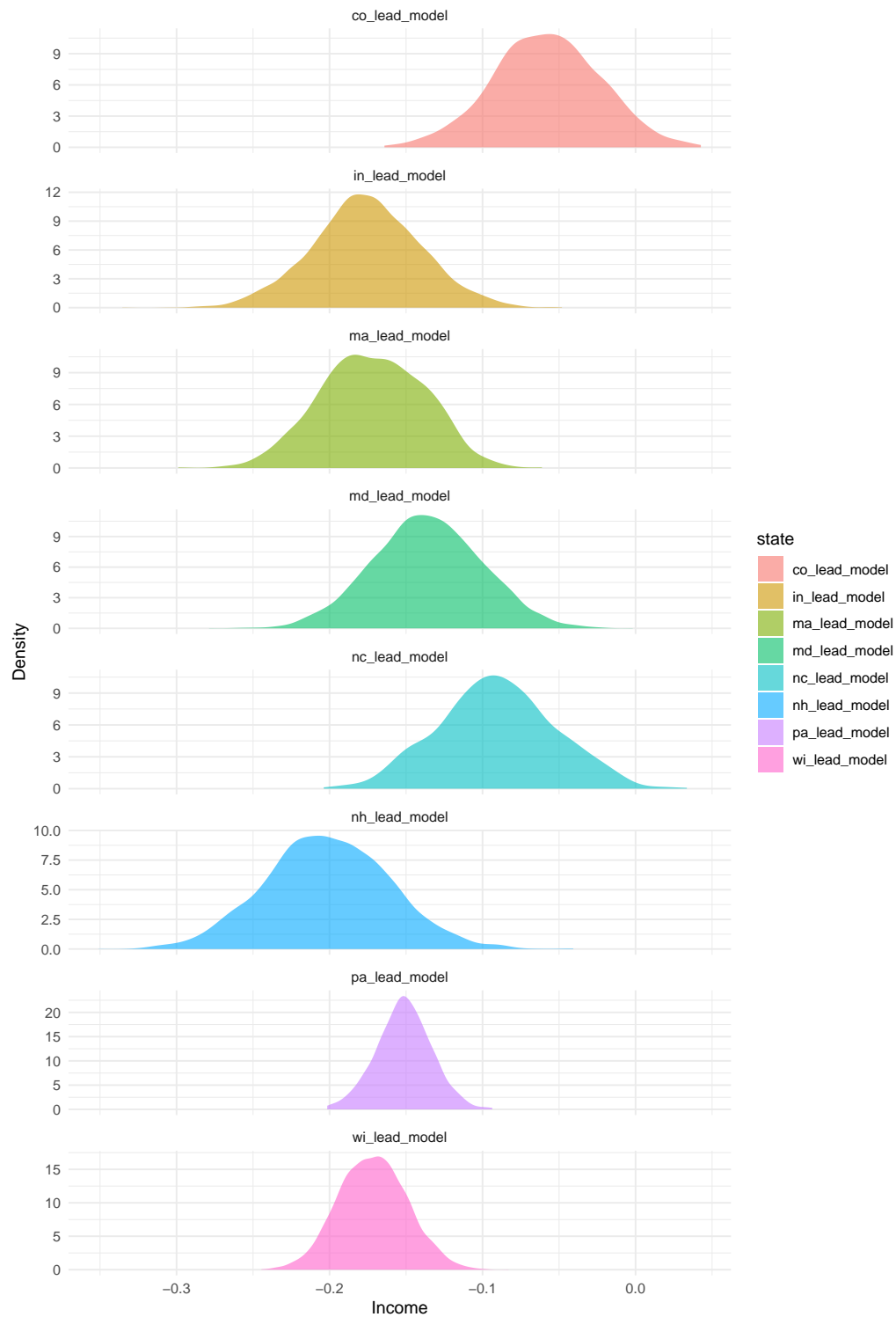
# Get the density data for median annual income
density_data_income <- get_variable_densities("median_annual_incomeE")

# Create the plot
ggplot(density_data_income, aes(x = x, y = density, fill = state)) +
  geom_area(alpha = 0.6, position = "identity") +
  facet_wrap(~ state, scales = "free_y", ncol = 1) +
  theme_minimal() +
  labs(title = "Density of Median Annual Income by State",

```

```
x = "Income",  
y = "Density")
```

Density of Median Annual Income by State

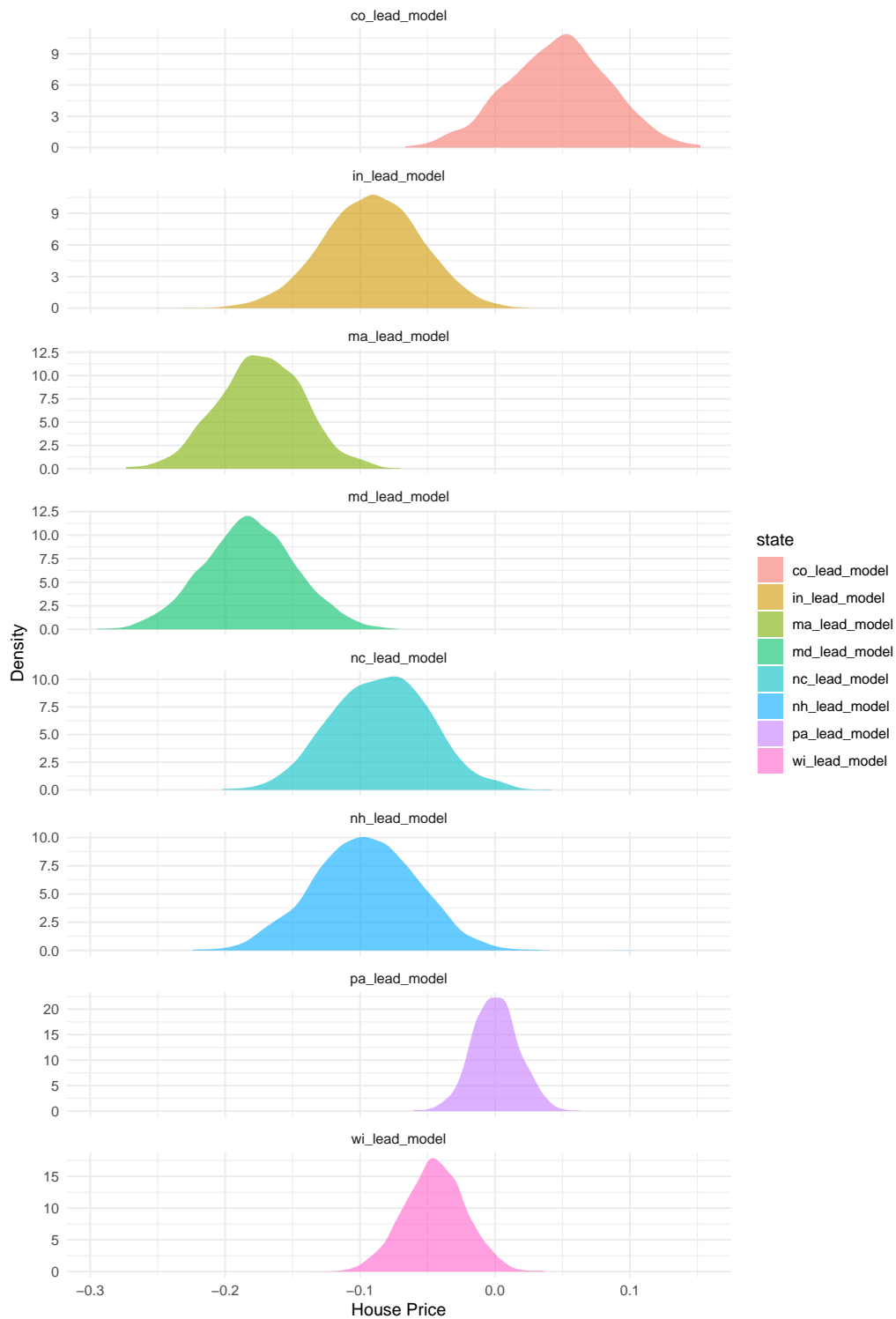


House price median

```
# Get the density data for house price median
density_data_house_price <- get_variable_densities("house_price_medianE")

# Create the plot
ggplot(density_data_house_price, aes(x = x, y = density, fill = state)) +
  geom_area(alpha = 0.6, position = "identity") +
  facet_wrap(~ state, scales = "free_y", ncol = 1) +
  theme_minimal() +
  labs(title = "Density of House Price Median by State",
       x = "House Price",
       y = "Density")
```


Density of House Price Median by State

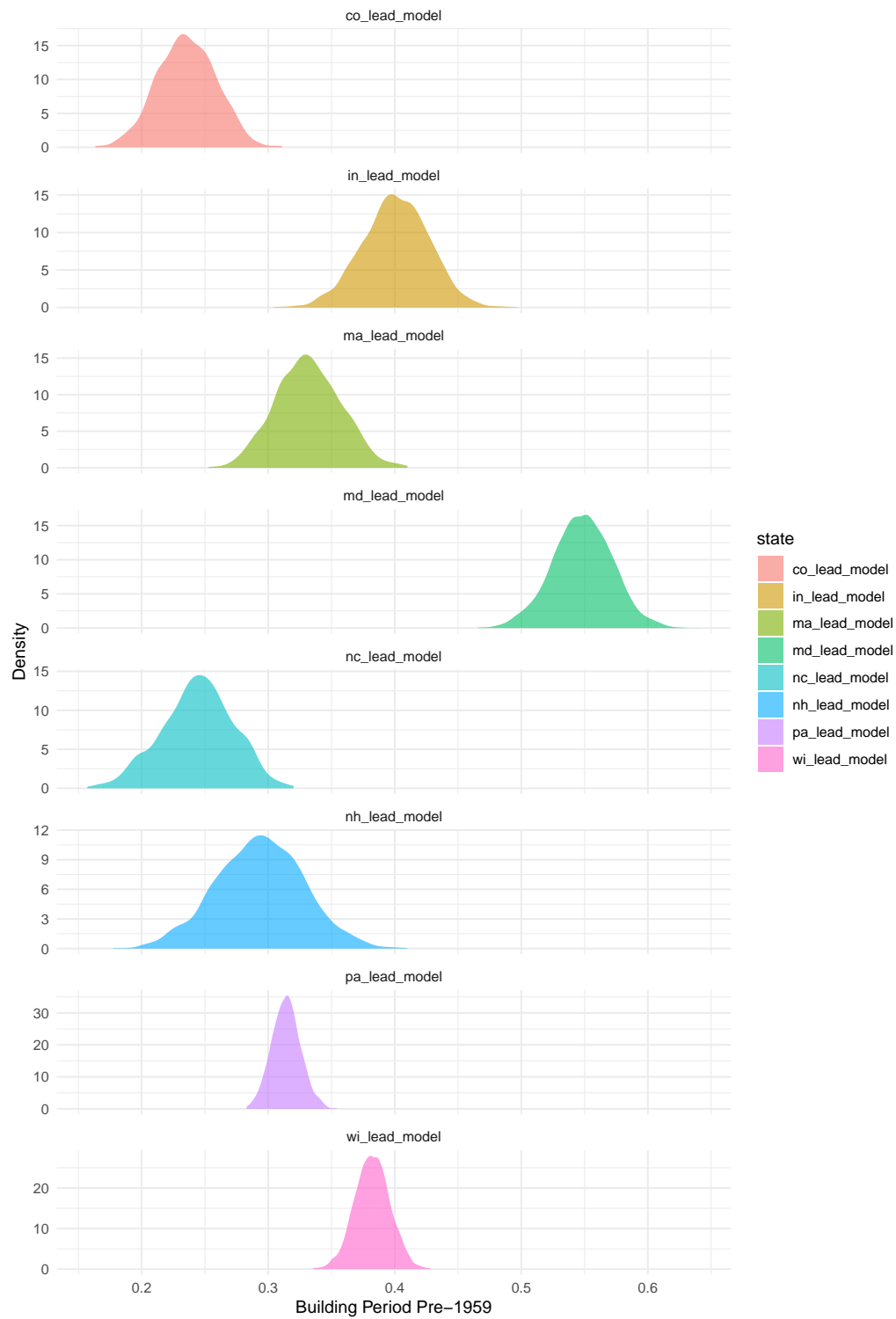


Building period

```
# Get the density data for building period
density_data_building_period <- get_variable_densities("bp_pre_1959E_prop")

# Create the plot
ggplot(density_data_building_period, aes(x = x, y = density, fill = state)) +
  geom_area(alpha = 0.6, position = "identity") +
  facet_wrap(~ state, scales = "free_y", ncol = 1) +
  theme_minimal() +
  labs(title = "Density of Building Period Pre-1959 by State",
       x = "Building Period Pre-1959",
       y = "Density")
```

Density of Building Period Pre-1959 by State



Test counts

For all (available) tract states, we plot the coefficients of the test count model.

```
test_model_names <- c("oh_test_model", "pa_test_model", "co_test_model", "md_test_model", "m

test_models <- mget(test_model_names, envir = .GlobalEnv, ifnotfound = list(NULL))

test_model_names <- test_model_names[!sapply(test_models, is.null)]
test_models <- test_models[!sapply(test_models, is.null)]

get_variable_densities_test <- function(variable){
  map2_dfr(test_models, test_model_names, ~ {
    data <- safe_extract(.x, variable) # can use same extraction function
    if (nrow(data) > 0) {
      data$state <- .y
    }
    data
  })
}
```

Pediatricians

```
density_data_pediatricians_test <- get_variable_densities_test("ped_per_100k")

ggplot(density_data_pediatricians_test, aes(x = x, y = density, fill = state)) +
  geom_area(alpha = 0.6, position = "identity") +
  facet_wrap(~ state, scales = "free_y", ncol = 1) +
  theme_minimal() +
  labs(title = "Density of Pediatricians per 100k by State",
       x = "Pediatricians per 100k",
       y = "Density")
```

Density of Pediatricians per 100k by State

