

# Descriptives of tract states

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```
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_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	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	1468	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")
```

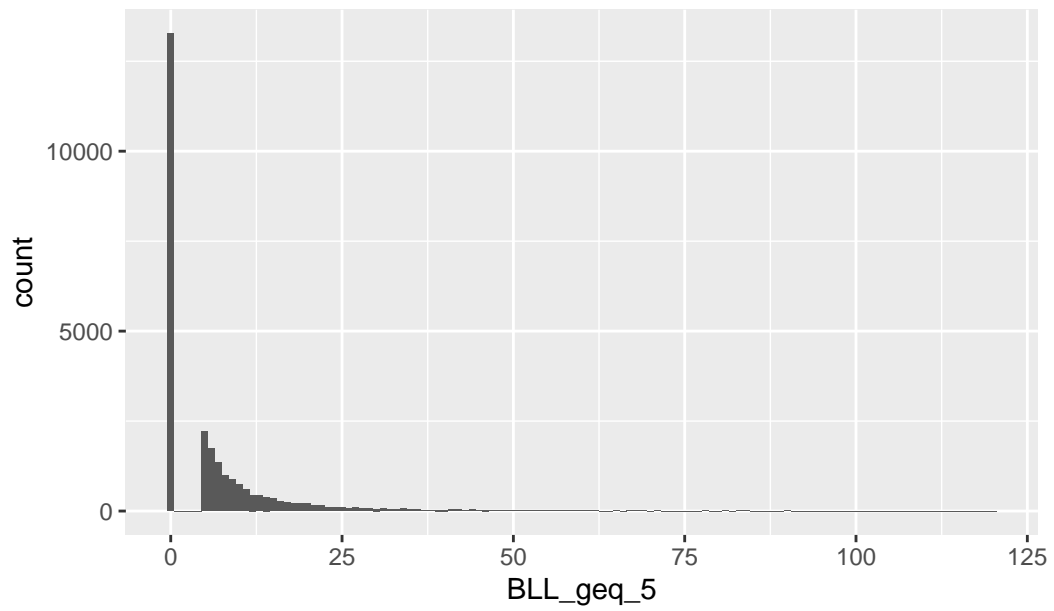
```
oh_summary[[2]]
```

	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]]
```

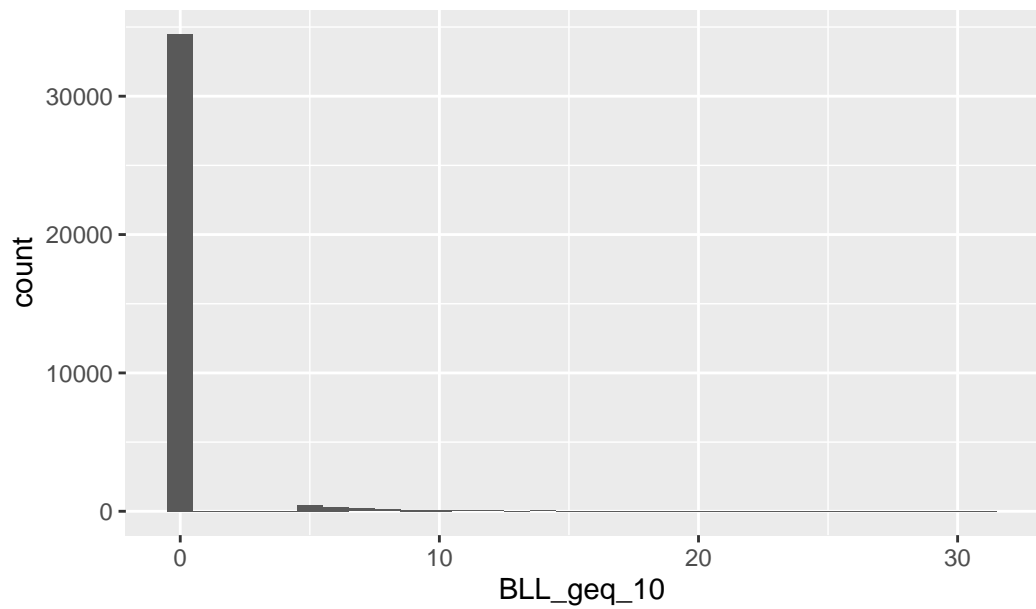
```
[[1]]
```

Distribution of non-censored BLL\_geq\_5 values

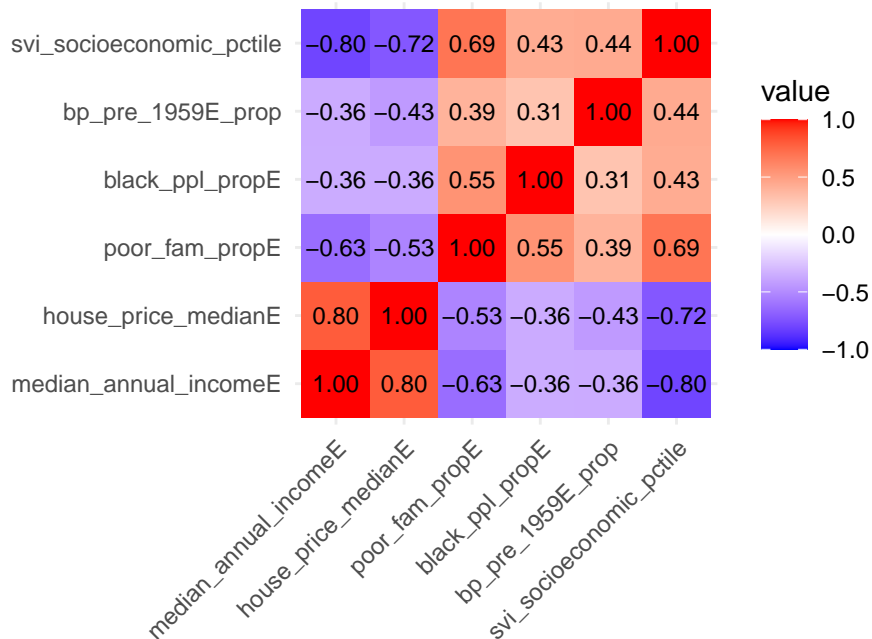


[[2]]

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](http://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](http://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 the model.

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 model.

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 the model.

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 the model.

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))
```

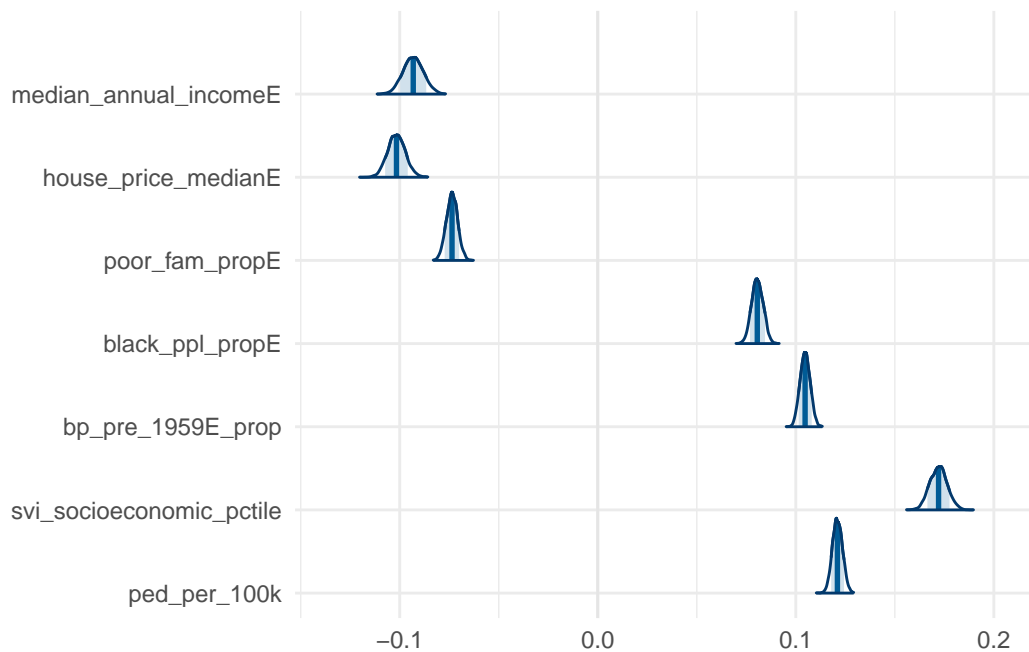
See <<https://tidyselect.r-lib.org/reference/faq-external-vector.html>>.

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 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.

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

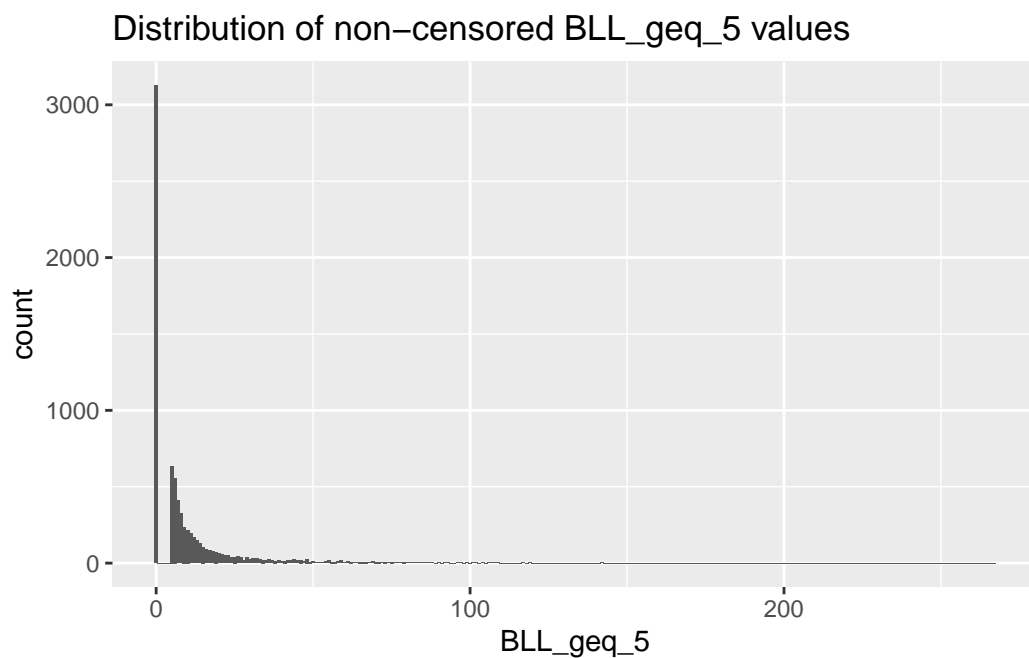
```
pa_summary[[2]]
```

	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

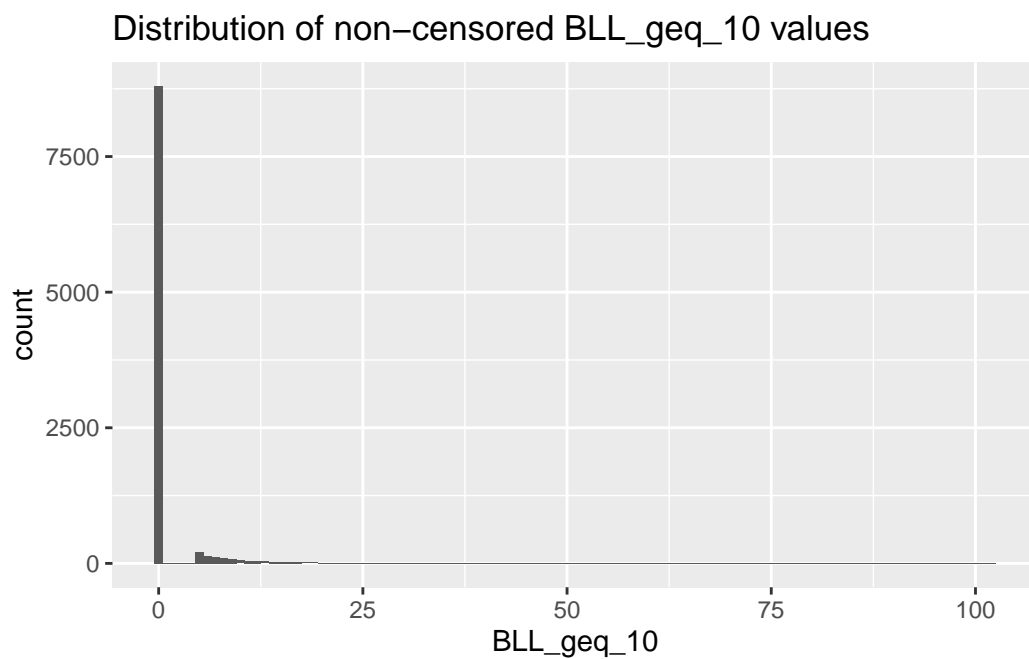
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
tested	254	0	20.6	30.5	5.0	9.0	451.0
year	11	0	2009.5	3.0	2005.0	2009.0	2015.0
tested_ell	1	0	5.0	0.0	5.0	5.0	5.0
ell_5	1	0	4.0	0.0	4.0	4.0	4.0
ell_10	1	0	4.0	0.0	4.0	4.0	4.0
median_annual_incomeE	2166	0	-0.1	1.0	-2.5	-0.2	6.6
house_price_medianE	1568	0	-0.1	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]]
```

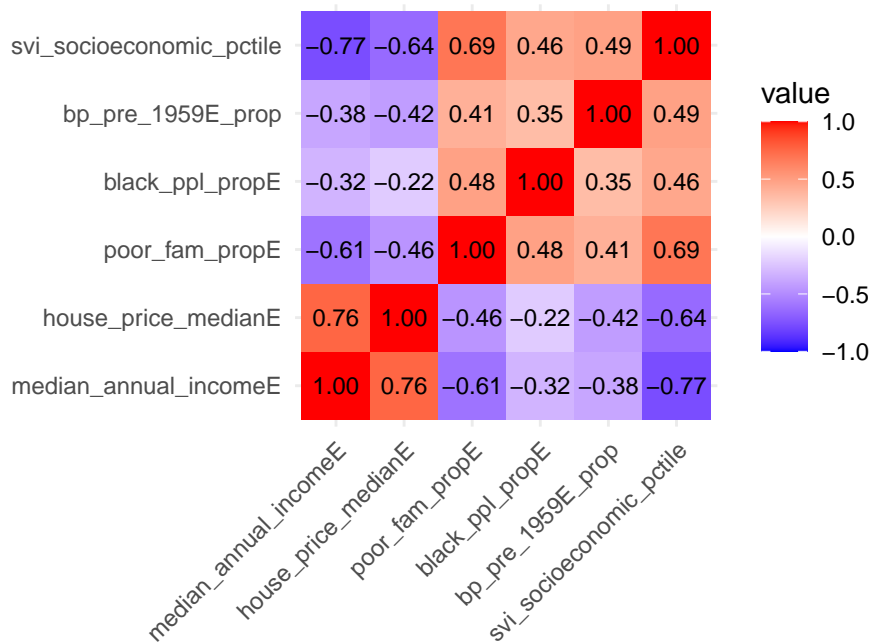
```
[[1]]
```



```
[[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:
```

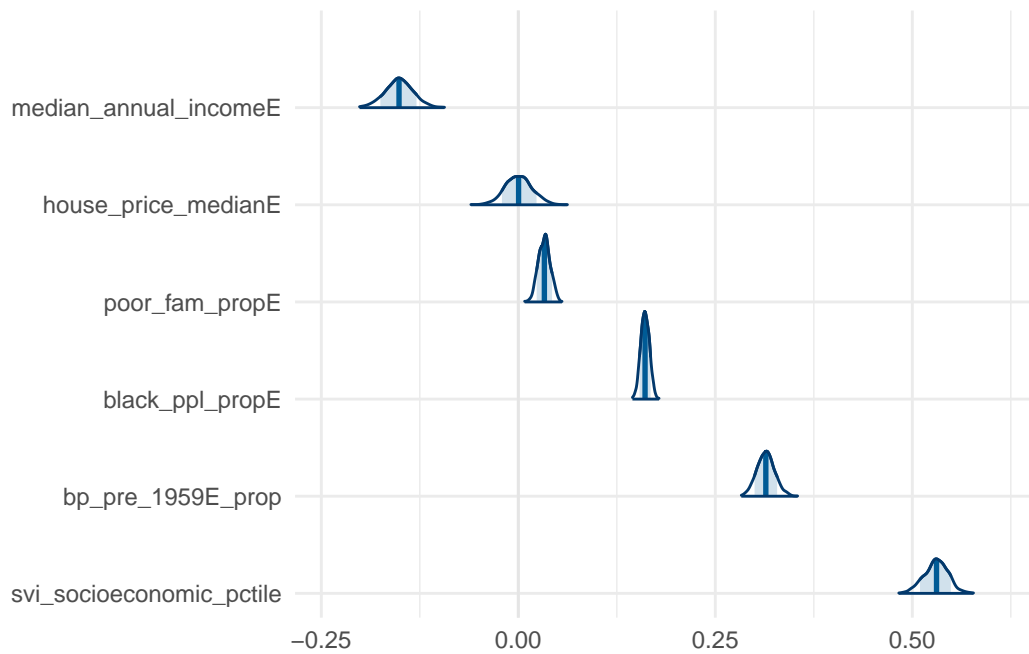
```
data %>% select(all_of(fit_features))
```

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.

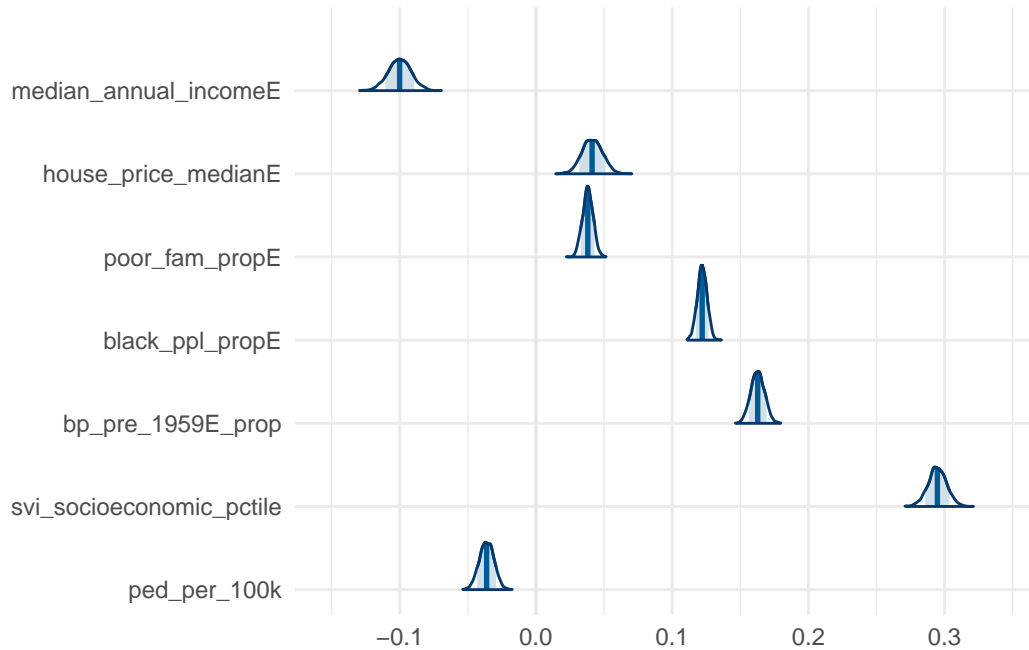
Chain 3 Initialization failed.

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")
```

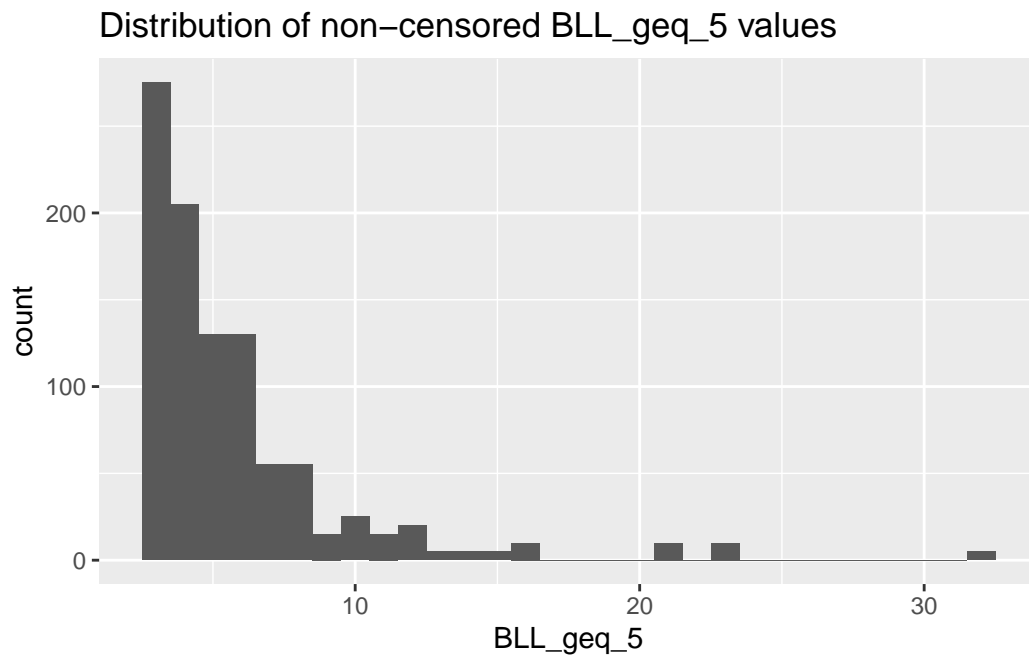
```
co_summary[[2]]
```

	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



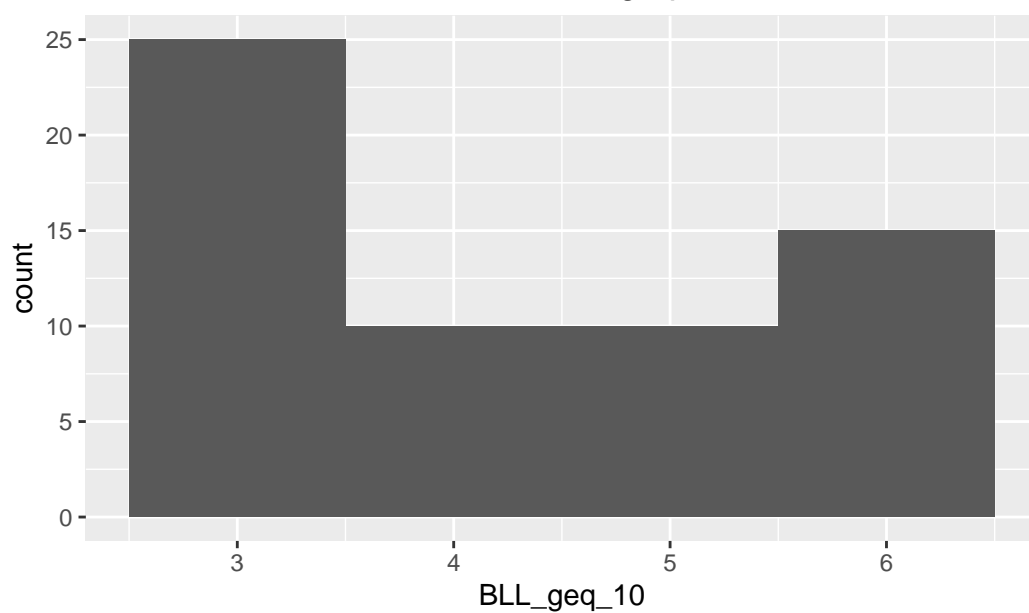
```
co_summary[[3]]
```

```
[[1]]
```

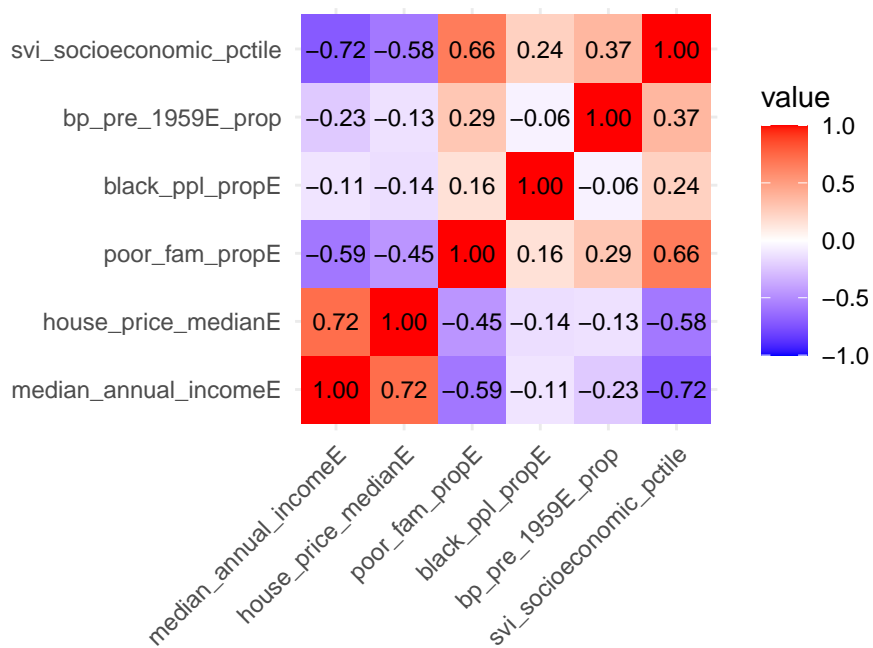


```
[[2]]
```

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.
```

```
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.
```

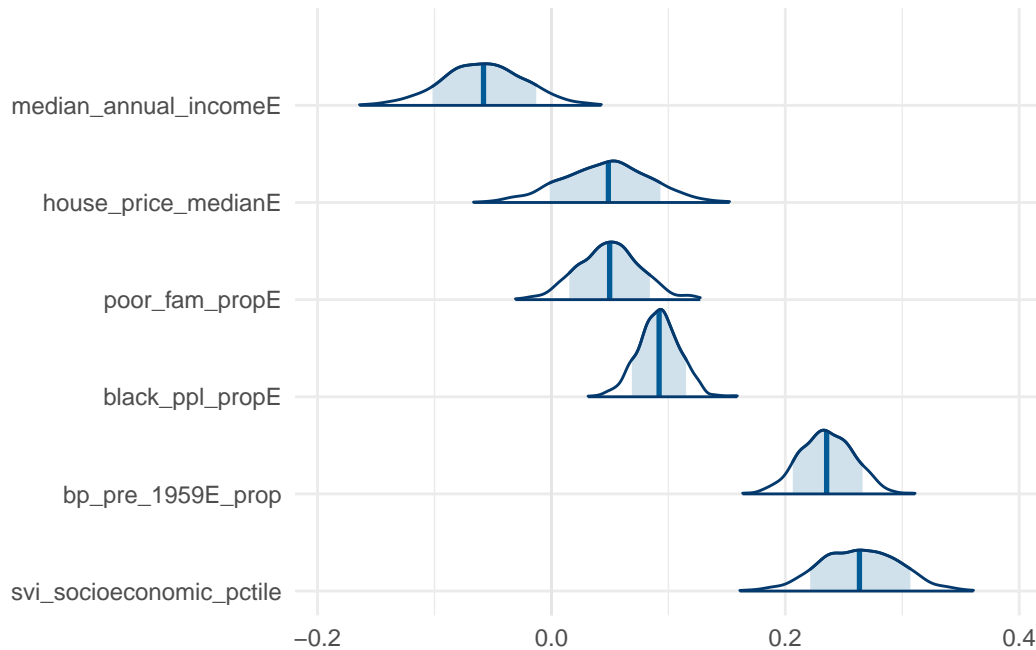
```
Chain 4 Initialization failed.
```

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

```
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

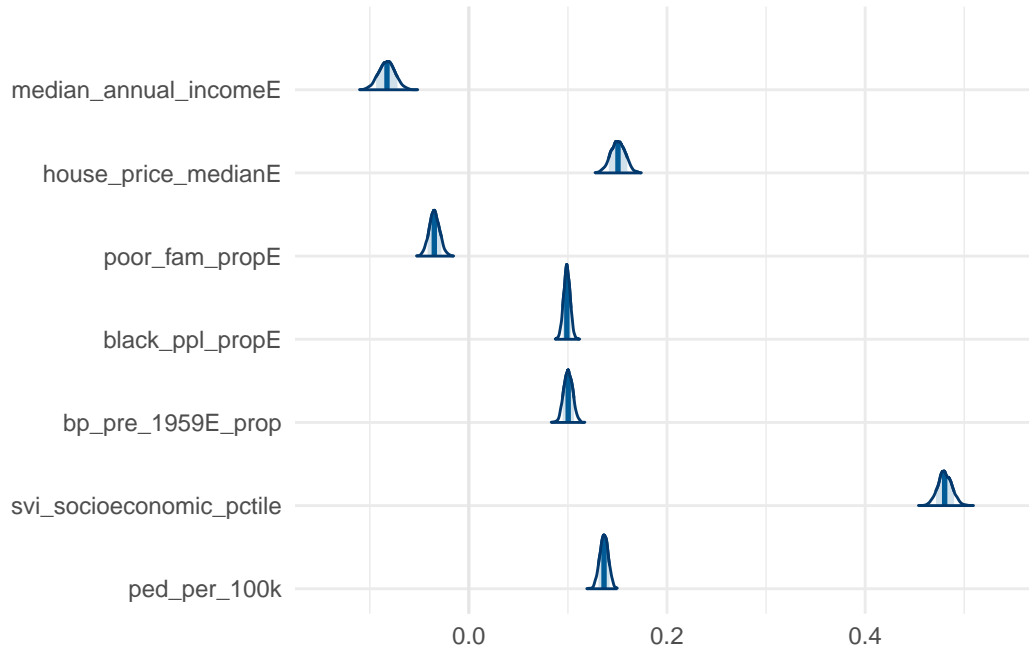
```
[1] "Additional features added: "
```

```
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.
```

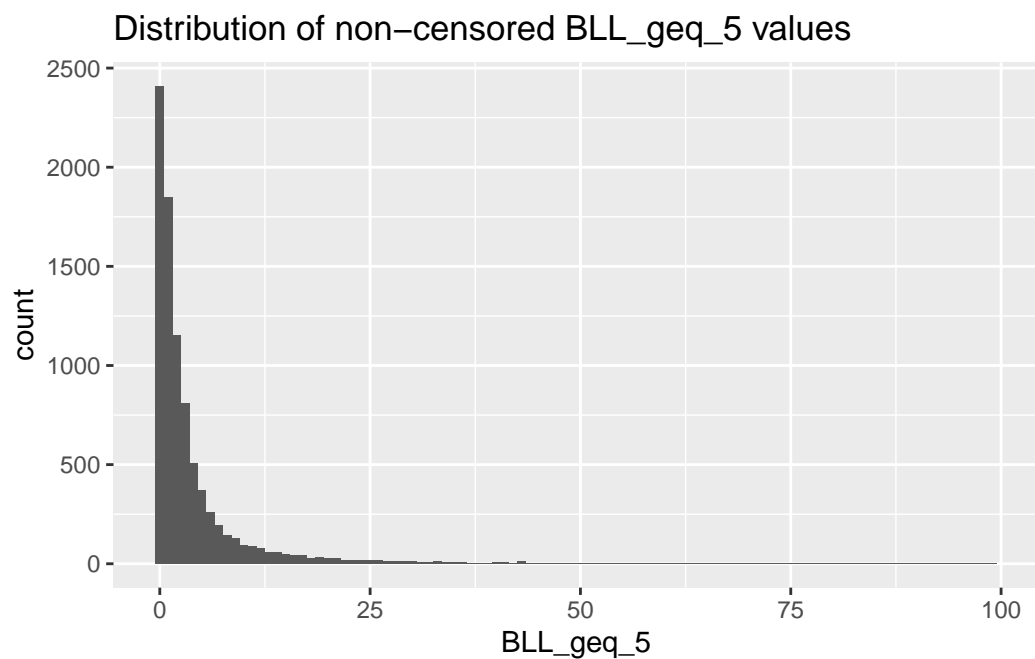
```
md_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

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

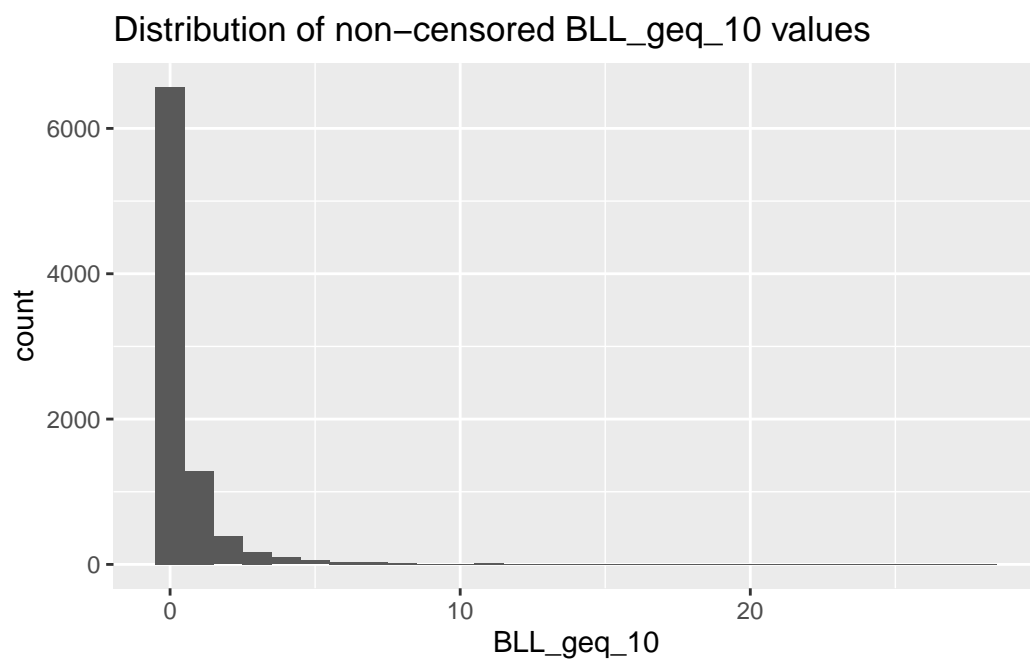
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
year	11	0	2010.0	3.2	2005.0	2010.0	2015.0
tested	282	0	75.4	47.5	1.0	66.0	448.0
BLL_geq_5	72	0	3.9	7.3	0.0	2.0	99.0
BLL_geq_10	25	0	0.5	1.6	0.0	0.0	28.0
tested_ell	1	0	1.0	0.0	1.0	1.0	1.0
ell_5	1	0	0.0	0.0	0.0	0.0	0.0
ell_10	1	0	0.0	0.0	0.0	0.0	0.0
median_annual_incomeE	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]]
```

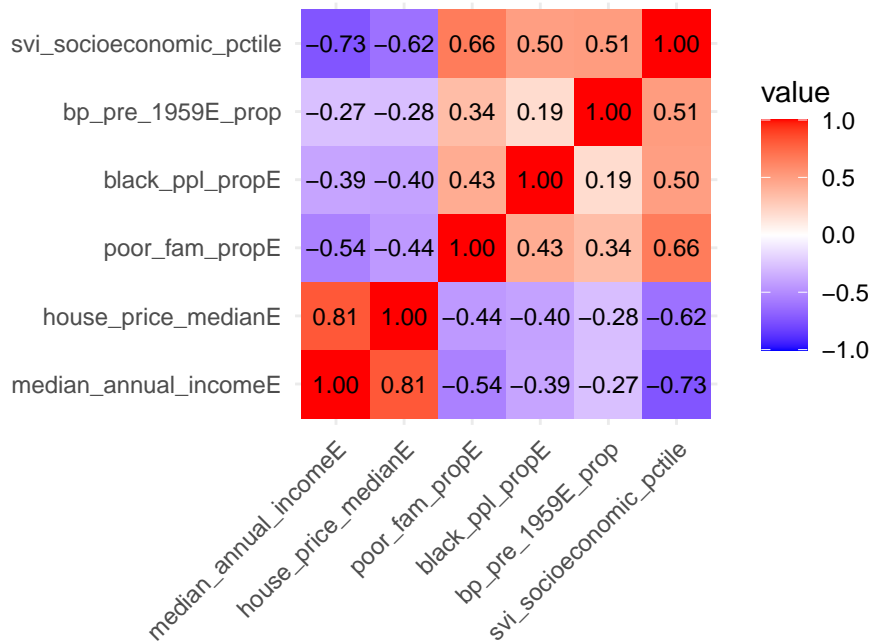


```
[[2]]
```



```
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: "
```

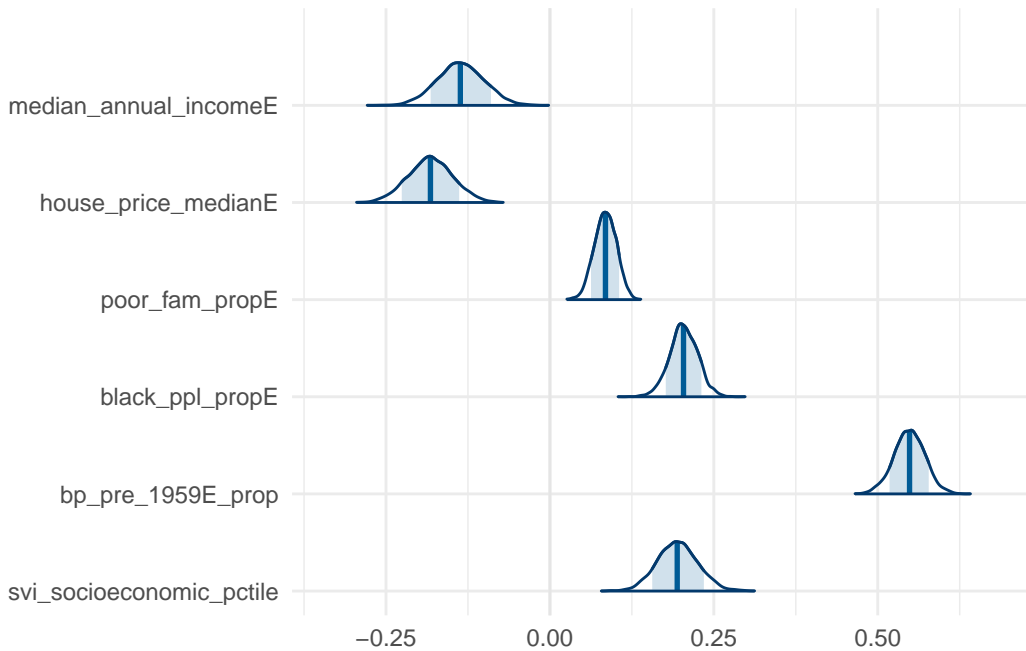
```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

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.
```

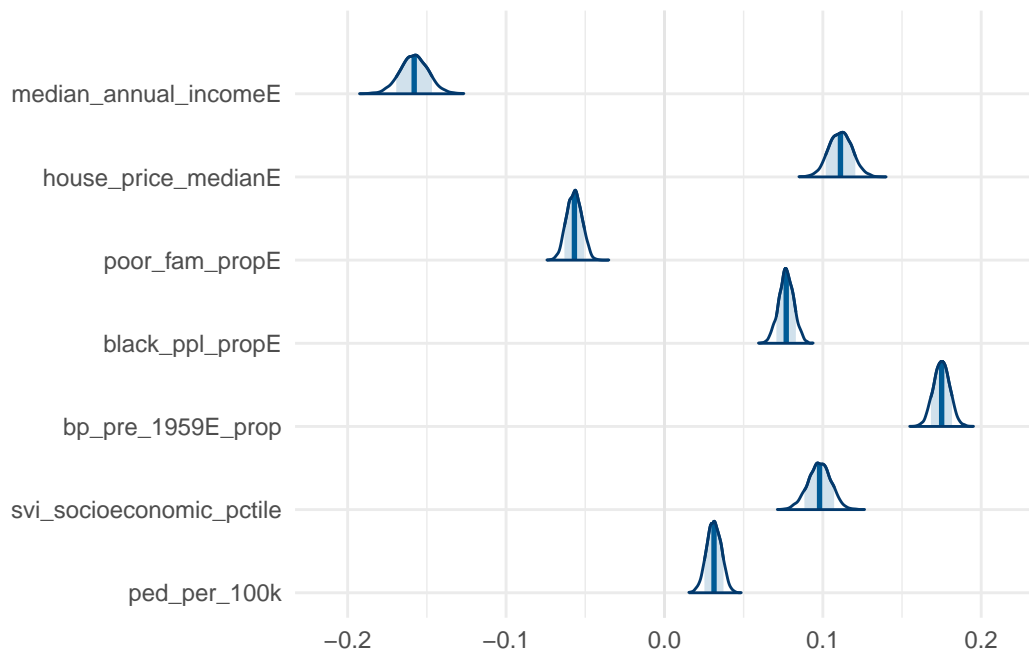
```
[1] "Additional features added: "
```

```
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.`

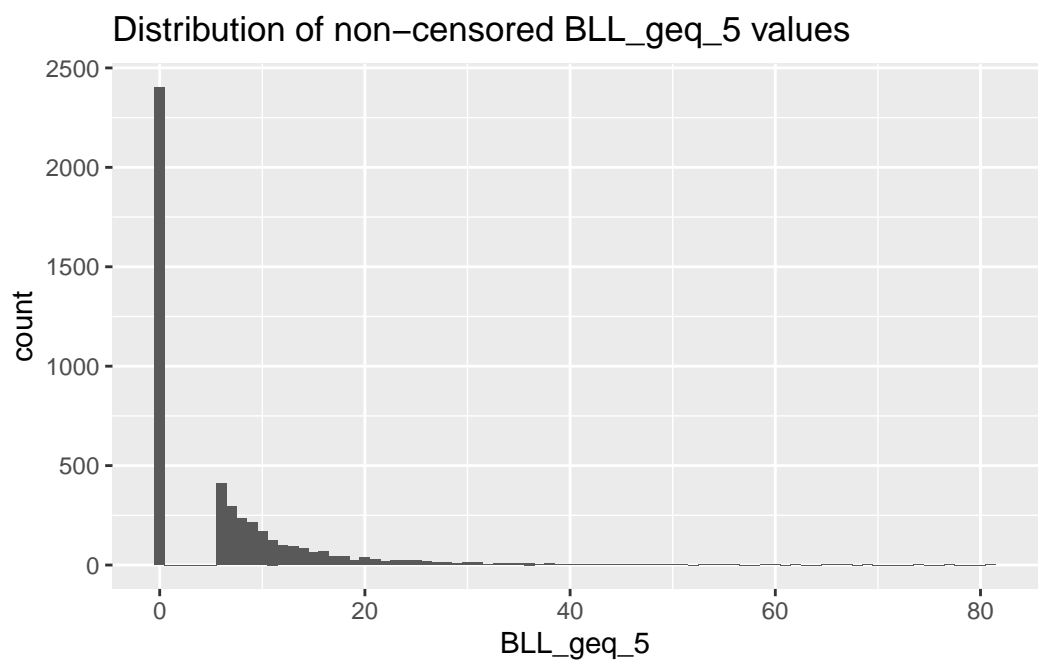
```
ma_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

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

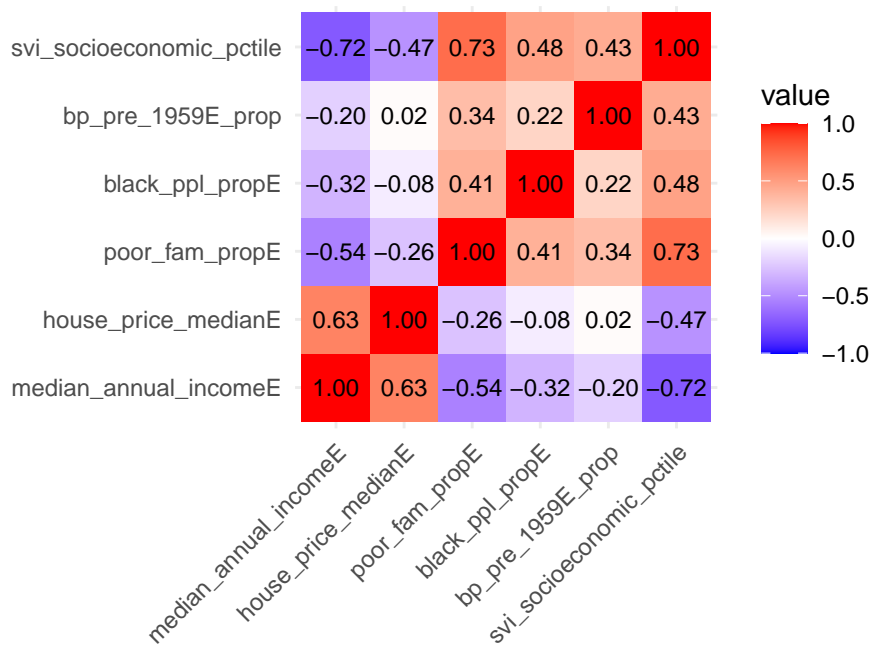
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
year	11	0	2010.1	3.2	2005.0	2010.0	2015.0
BLL_geq_5	62	0	5.5	5.9	0.0	5.0	81.0
tested	395	0	138.6	68.4	1.0	130.0	454.0
tested_ell	1	0	1.0	0.0	1.0	1.0	1.0
ell_5	1	0	4.0	0.0	4.0	4.0	4.0
median_annual_incomeE	1057	0	0.1	1.0	-2.3	-0.0	5.0
house_price_medianE	978	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 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.
```

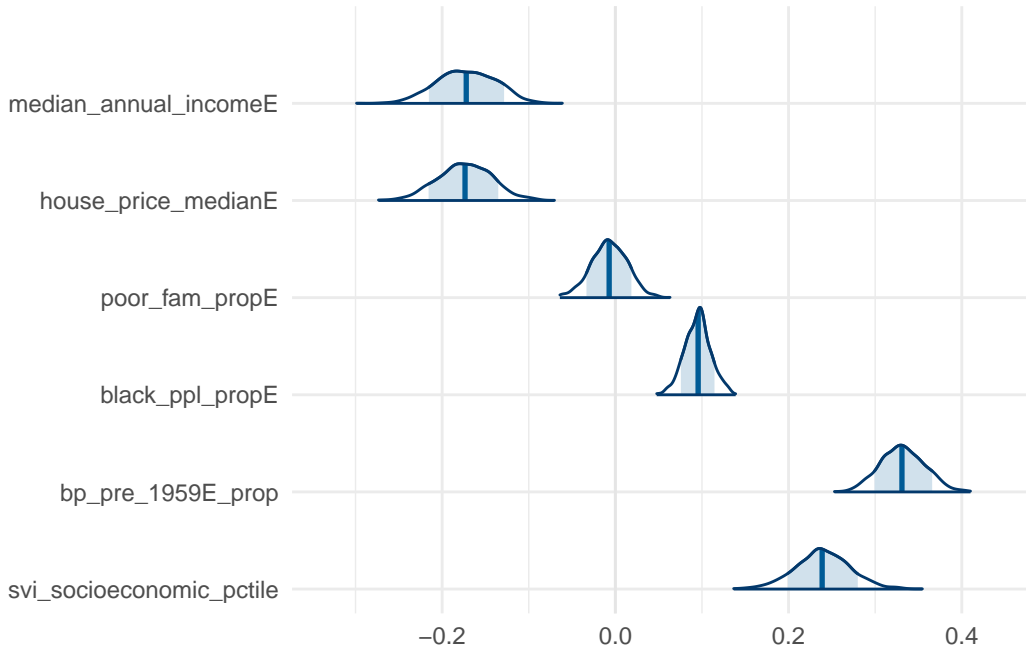
```
Chain 4 Initialization failed.
```

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

```
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

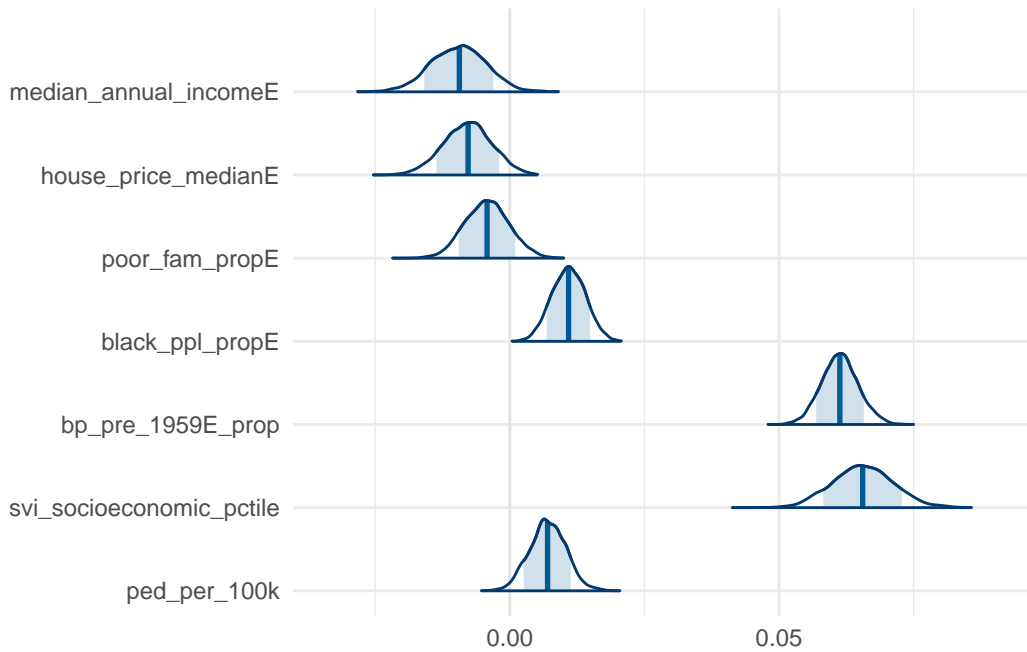
```
[1] "Additional features added: "
```

```
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")
```

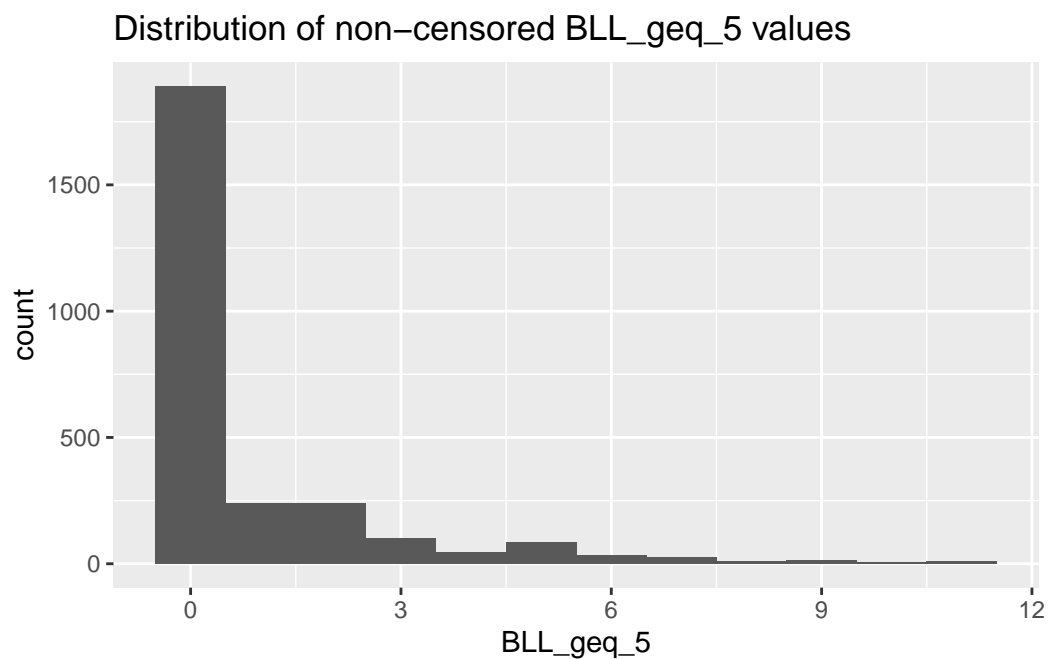
```
mn_summary[[2]]
```

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

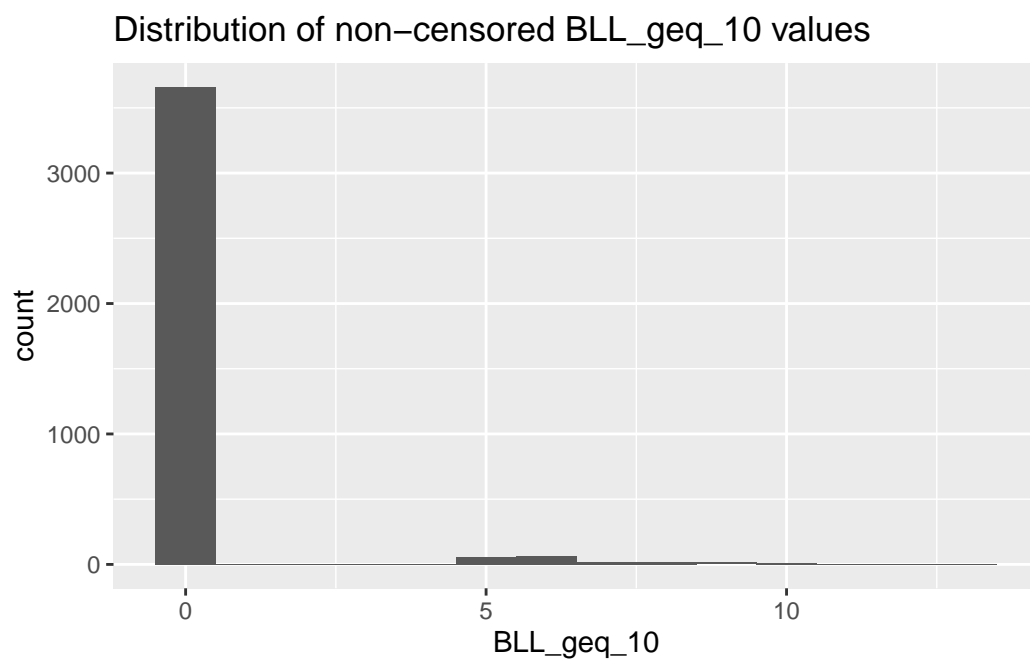
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
BLL_geq_10	9	0	1.7	2.5	0.0	0.0	13.0
start_year	1	0	2011.0	0.0	2011.0	2011.0	2011.0
end_year	1	0	2015.0	0.0	2015.0	2015.0	2015.0
BLL_geq_5	32	0	1.1	1.3	0.0	1.2	11.5
year	5	0	2013.0	1.4	2011.0	2013.0	2015.0
ell_5	1	0	0.2	0.0	0.2	0.2	0.2
ell_10	1	0	4.0	0.0	4.0	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]]
```

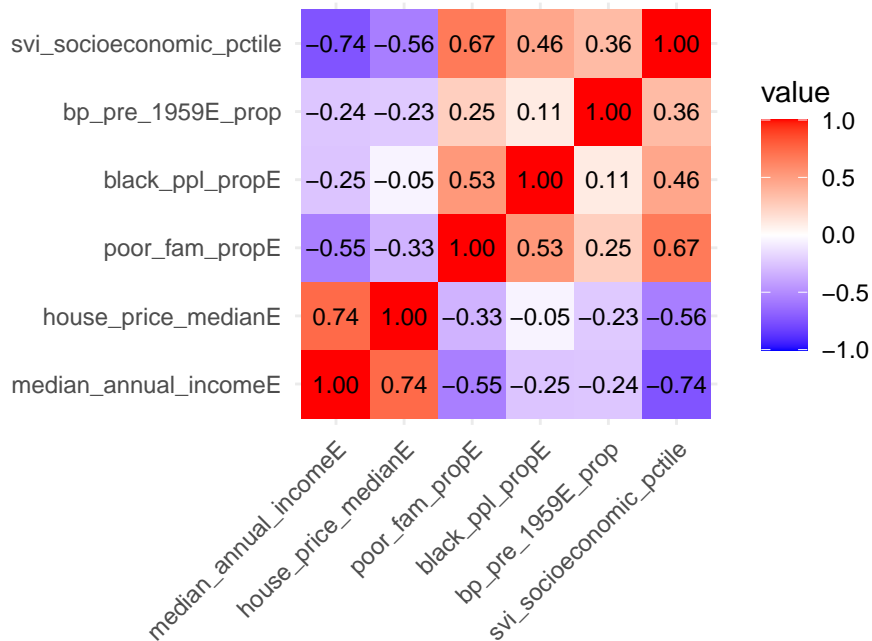
```
[[1]]
```



```
[[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]]
```

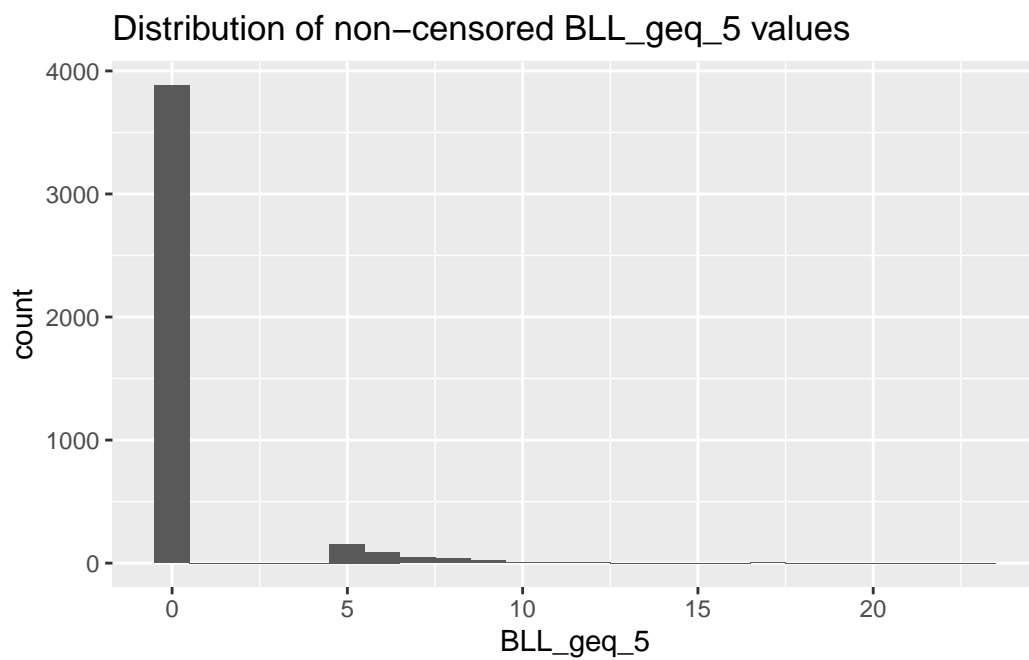
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
BLL_geq_5	13	0	3.1	2.5	0.0	5.0	23.0
BLL_geq_10	2	0	1.2	2.1	0.0	0.0	5.0



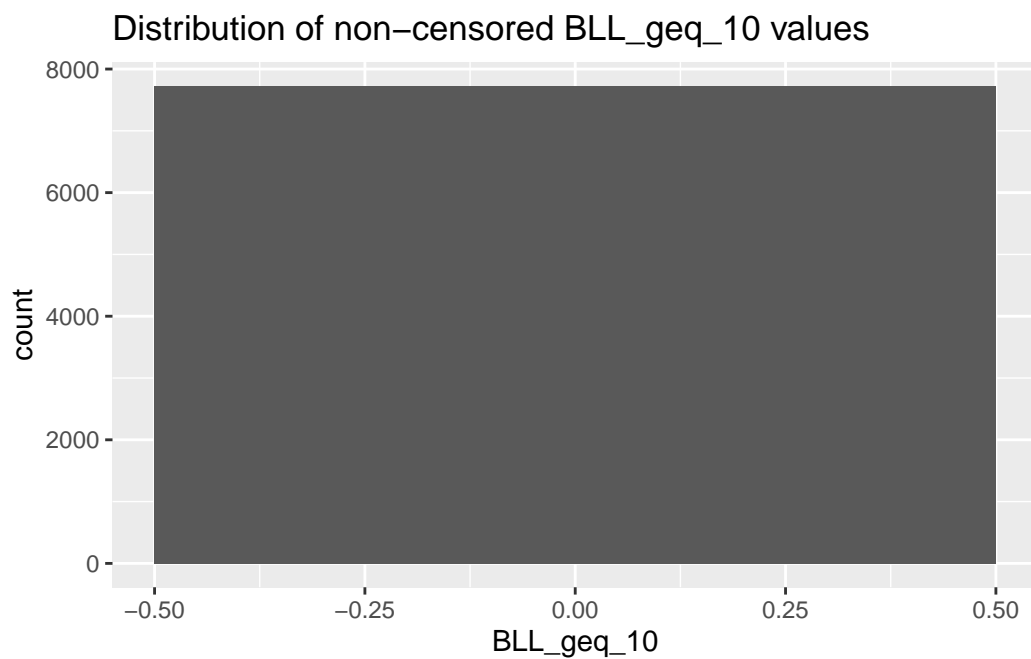
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
tested	167	0	39.1	30.9	5.0	33.0	248.0
year	11	0	2012.2	2.1	2005.0	2012.0	2015.0
tested_ell	1	0	5.0	0.0	5.0	5.0	5.0
ell_5	1	0	4.0	0.0	4.0	4.0	4.0
ell_10	1	0	4.0	0.0	4.0	4.0	4.0
median_annual_incomeE	903	0	-0.2	0.9	-2.3	-0.4	6.8
house_price_medianE	758	0	-0.2	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]]
```

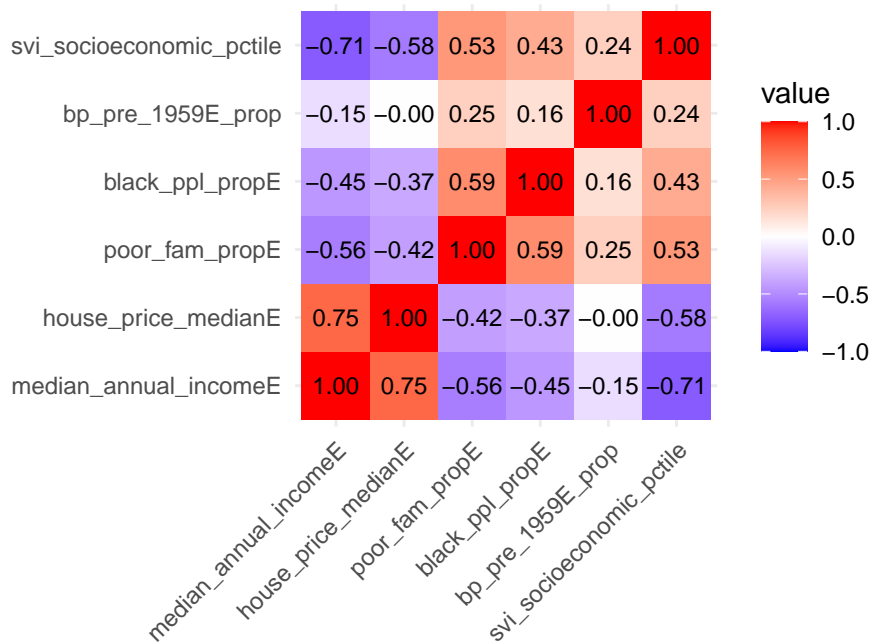
```
[[1]]
```



```
[[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.

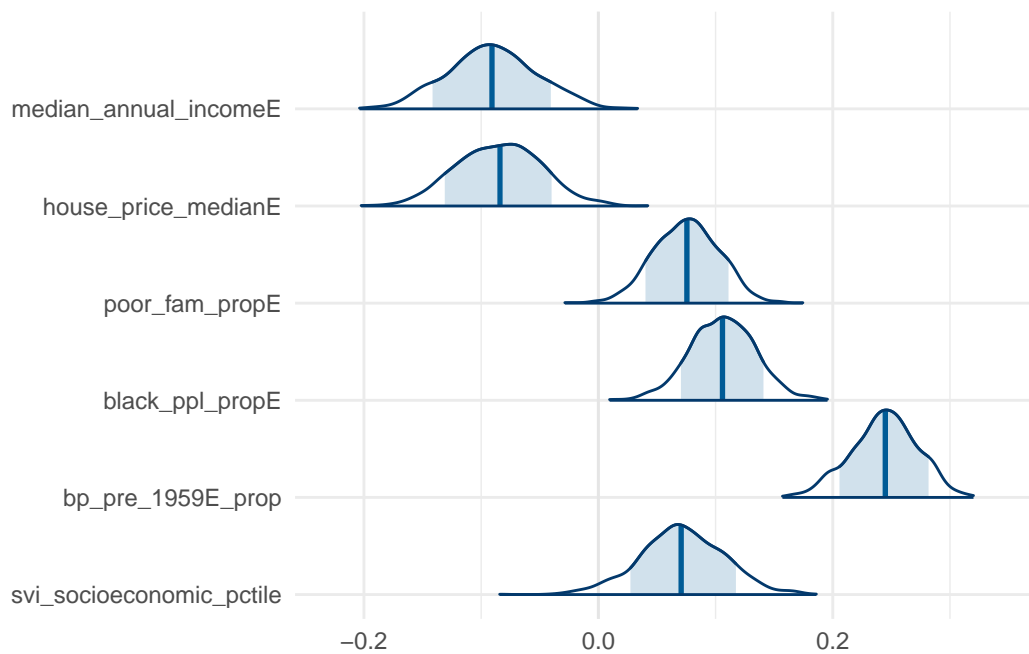
Chain 4 Initialization failed.

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_pctlE	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.

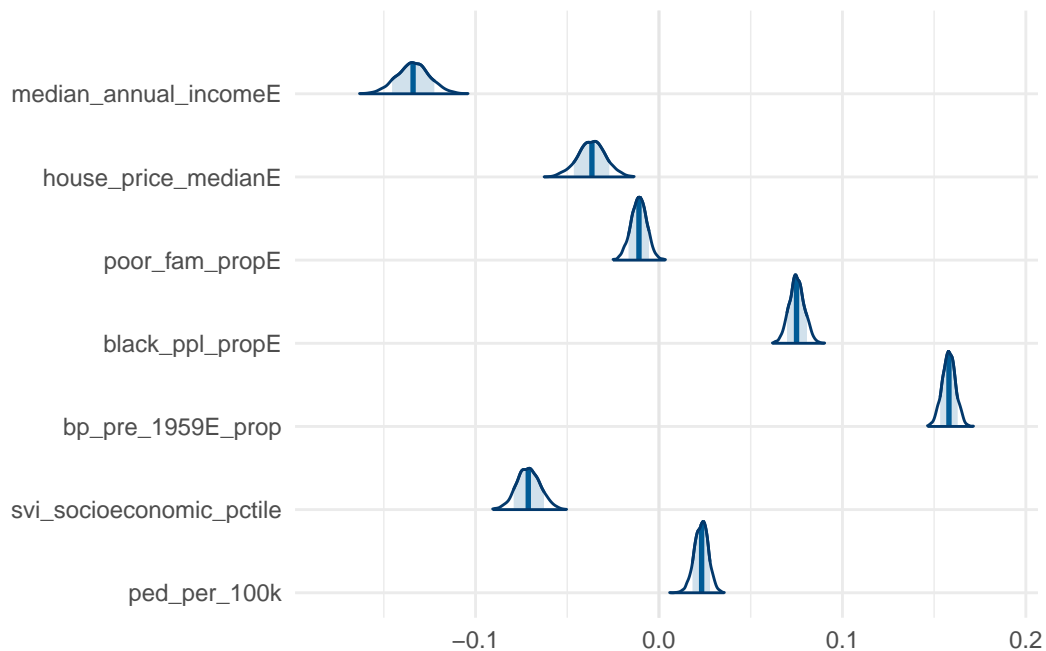
Chain 3 Try specifying initial values, reducing ranges of constrained values, or reparameterizing.

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.`

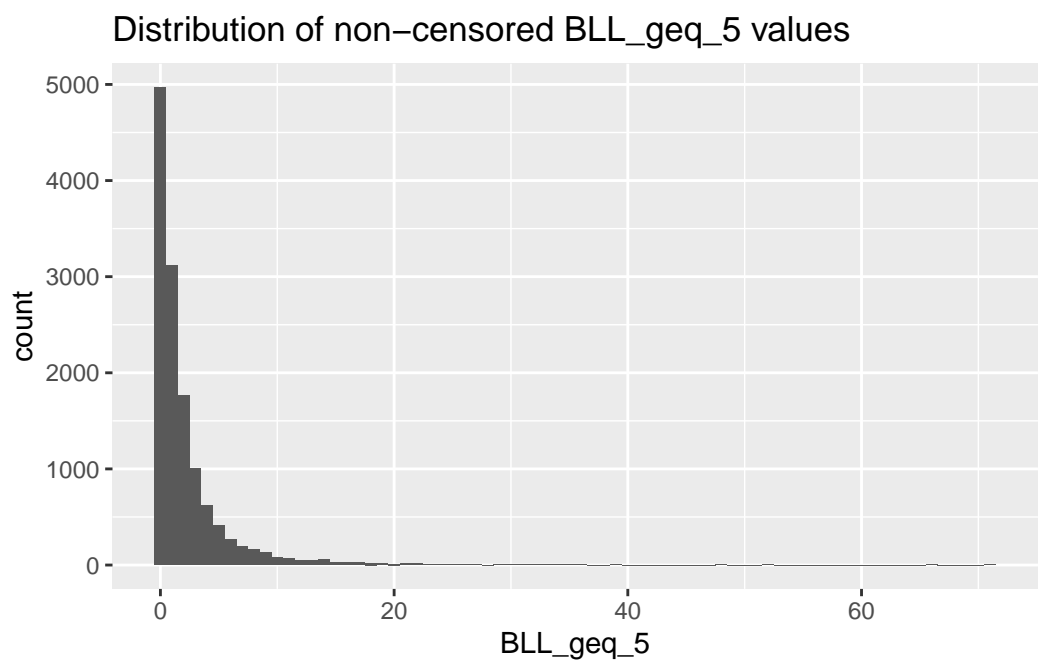
```
in_summary[[1]] |> knitr::kable() |> kable_styling(latex_options = "scale_down")
```

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

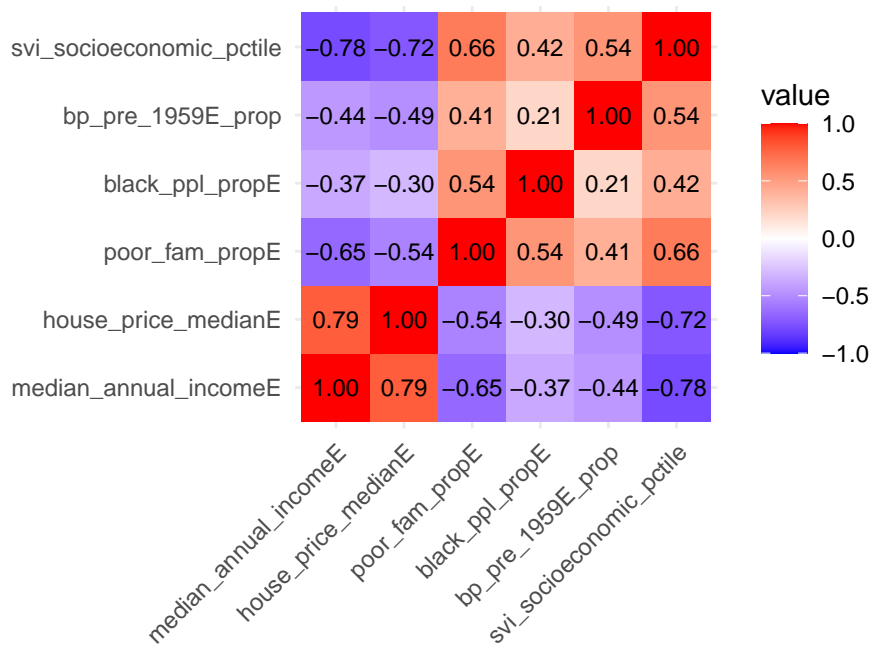
	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
year	11	0	2010.0	3.2	2005.0	2010.0	2015.0
tested	169	0	28.6	23.6	1.0	22.0	306.0
BLL_geq_5	41	0	2.1	3.7	0.0	1.0	71.0
tested_ell	1	0	1.0	0.0	1.0	1.0	1.0
ell_5	1	0	0.0	0.0	0.0	0.0	0.0
median_annual_incomeE	1177	0	0.0	1.0	-2.6	-0.0	4.9
house_price_medianE	898	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: "
```

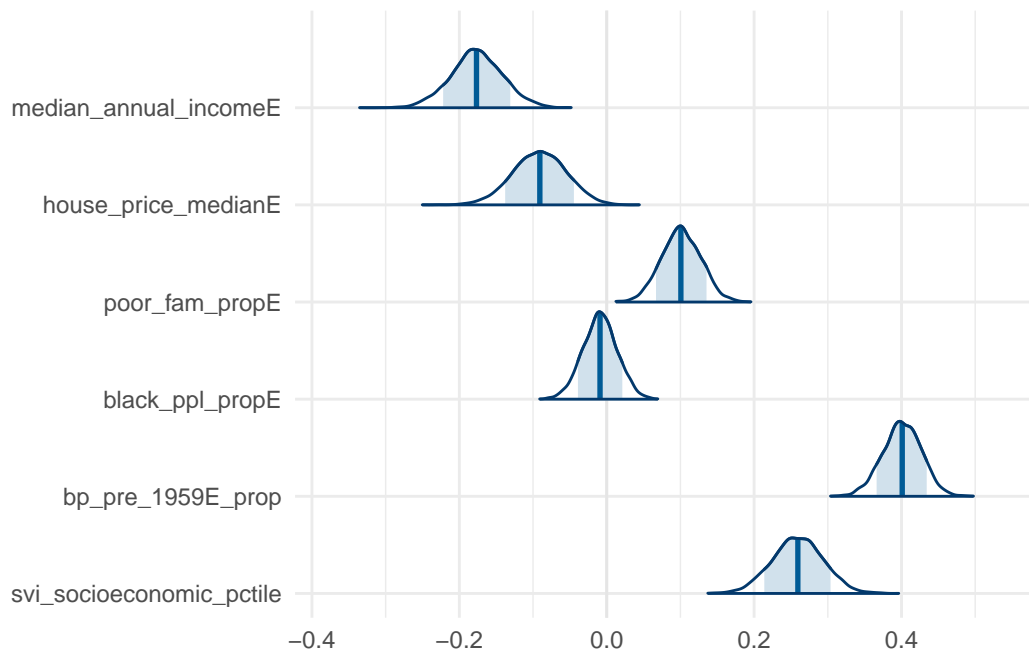
```
Warning in readLines(stan_file): incomplete final line found on
```

```
'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: "
```

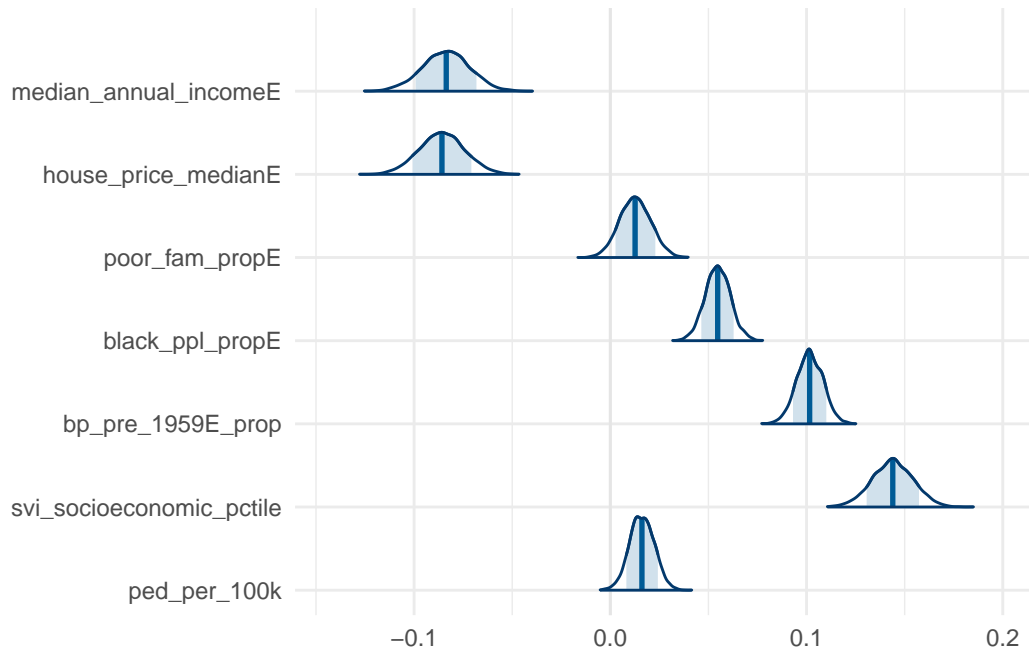
```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

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

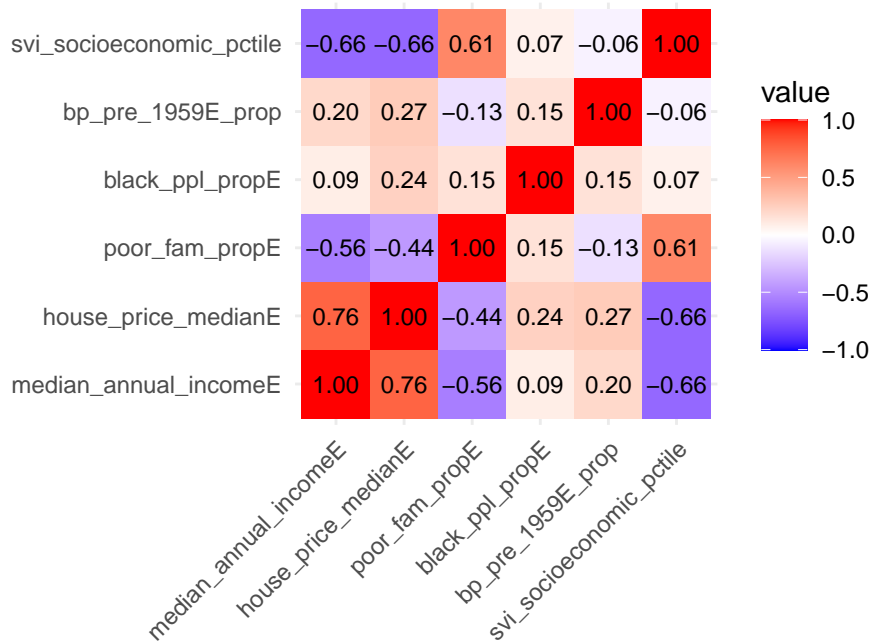
```
or_summary[[3]]
```

```
[[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'

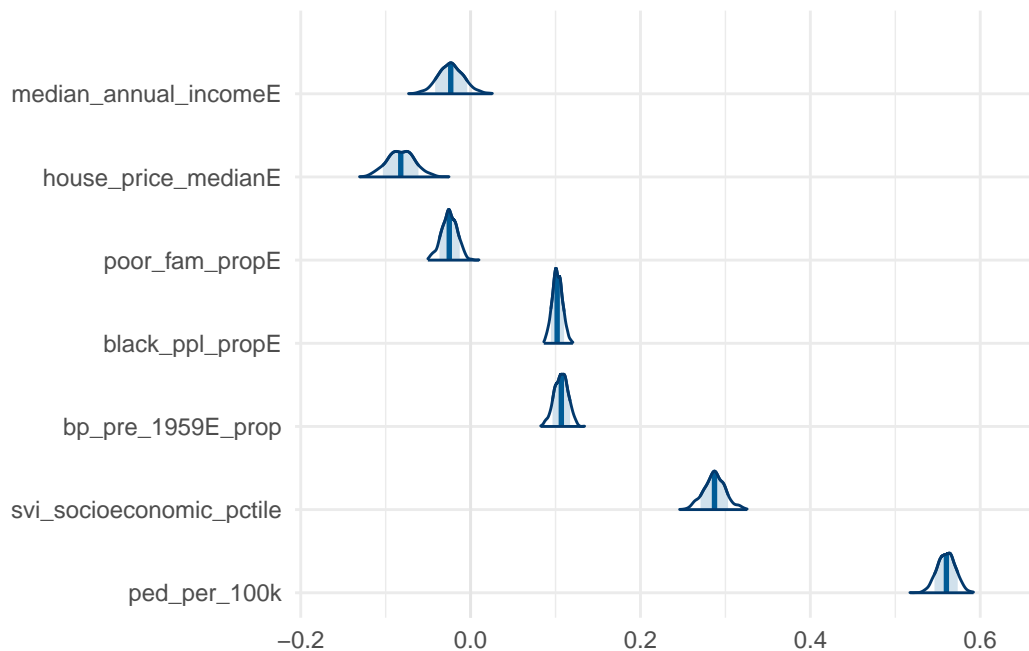
```
Chain 1 Initialization between (-2, 2) failed after 100 attempts.
Chain 1 Try specifying initial values, reducing ranges of constrained values, or reparameterize.
Chain 1 Initialization failed.
Chain 2 Initialization between (-2, 2) failed after 100 attempts.
Chain 2 Try specifying initial values,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

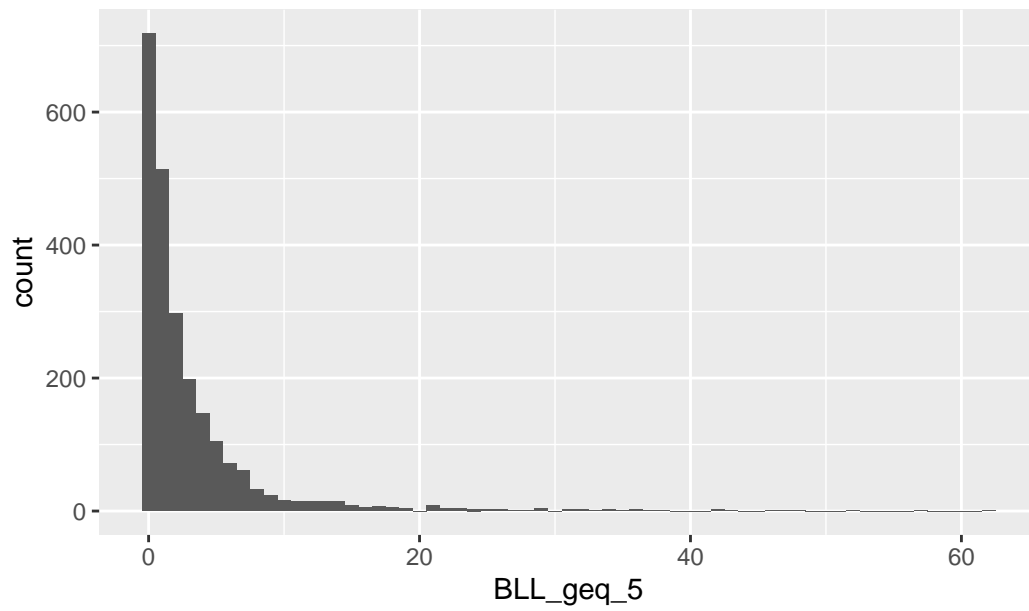
```
nh_summary[[2]]
```

	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]]
```

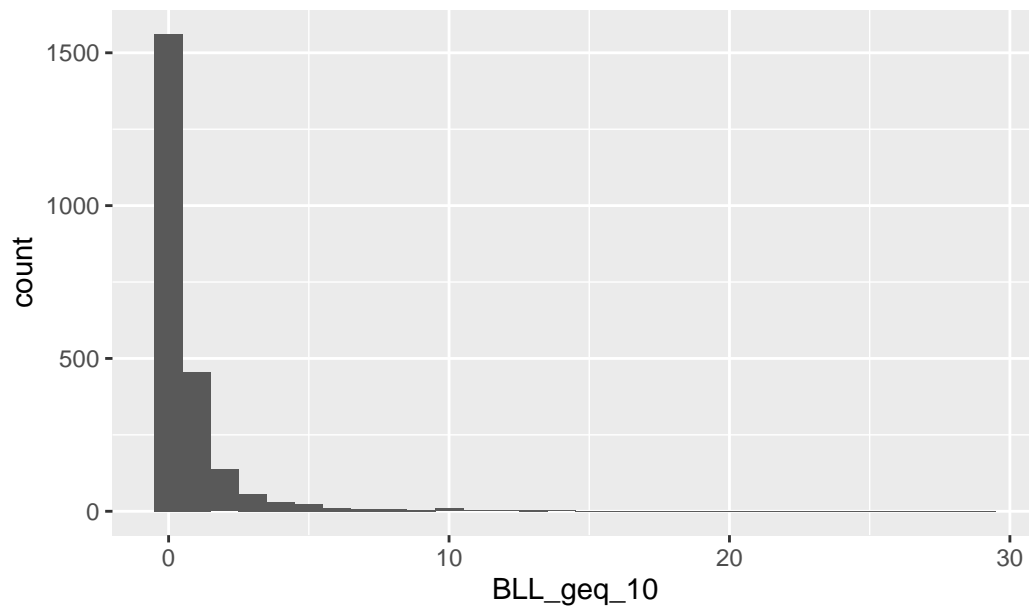
```
[[1]]
```

Distribution of non-censored BLL\_geq\_5 values

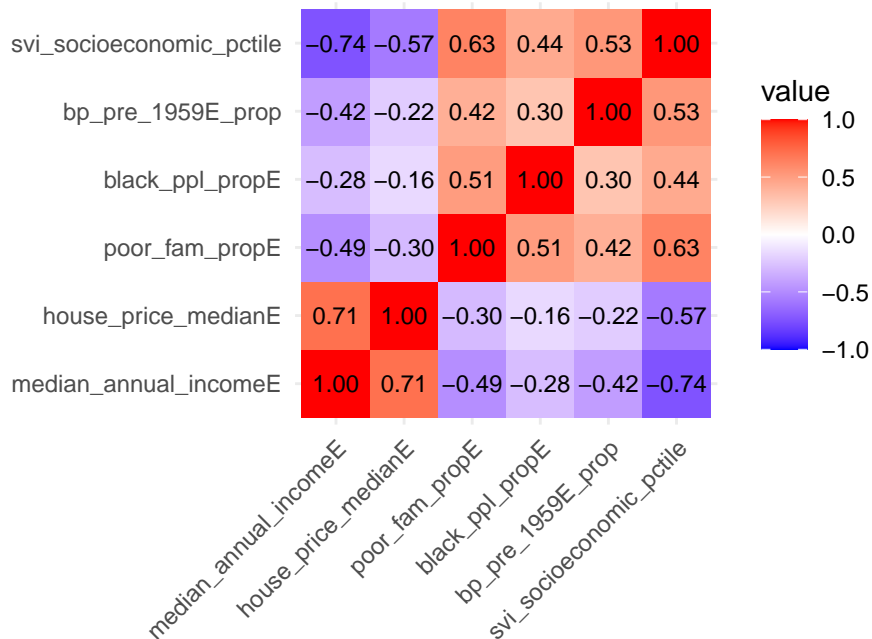


[[2]]

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: "
```

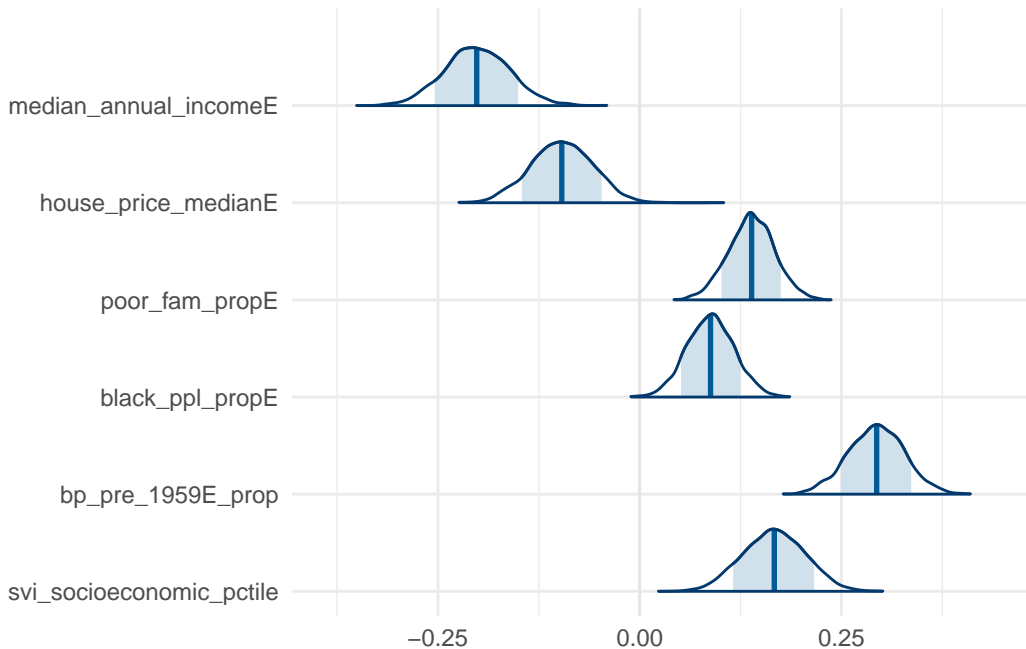
variable	mean	median	sd	mad	q5	q95	rhat	ess_bulk	ess_tail
lp	218.5018932	218.8065000	1.8730793	1.7220399	215.0256000	220.9040000	1.0021171	1648.670	2524.108
alpha	-4.6166046	-4.6155300	0.0515019	0.0512461	-4.7010275	-4.5325515	0.9997968	4735.507	2894.211
median_annual_incomeE	-0.2014504	-0.2019720	0.0407577	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")
```

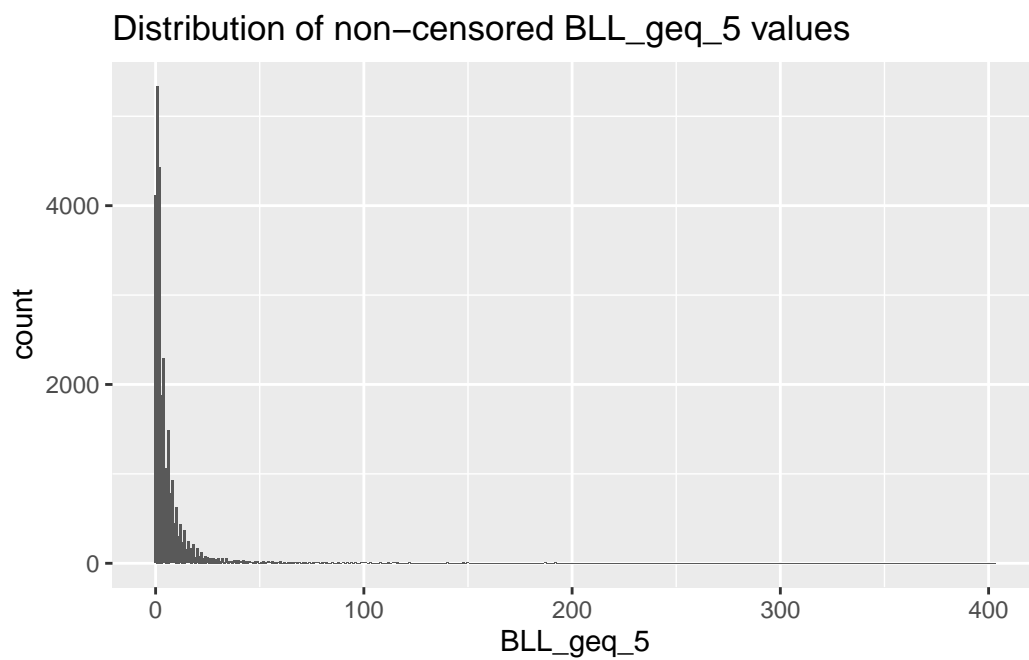
```
wi_summary[[2]]
```

	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]]
```

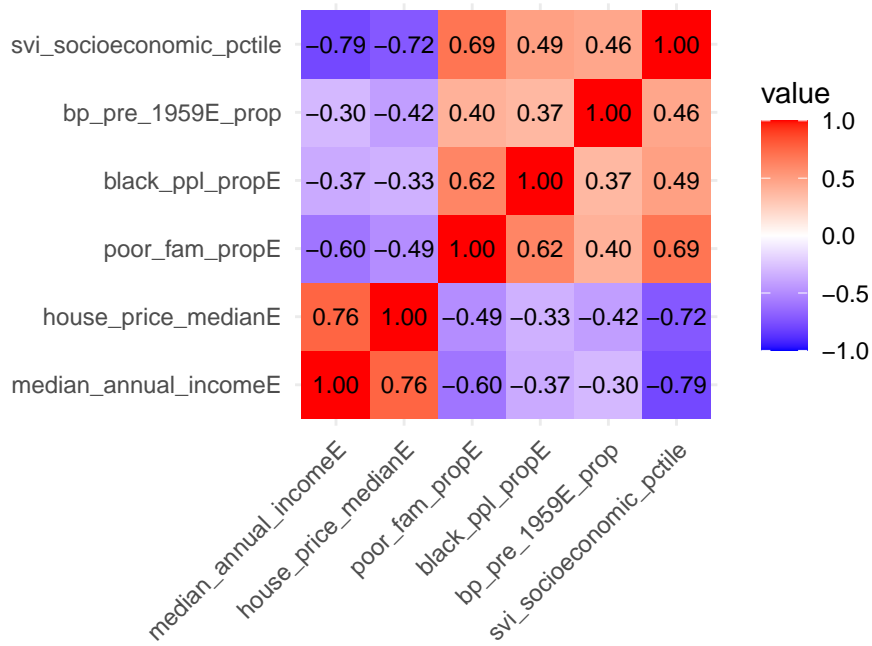
```
[[1]]
```



```
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.

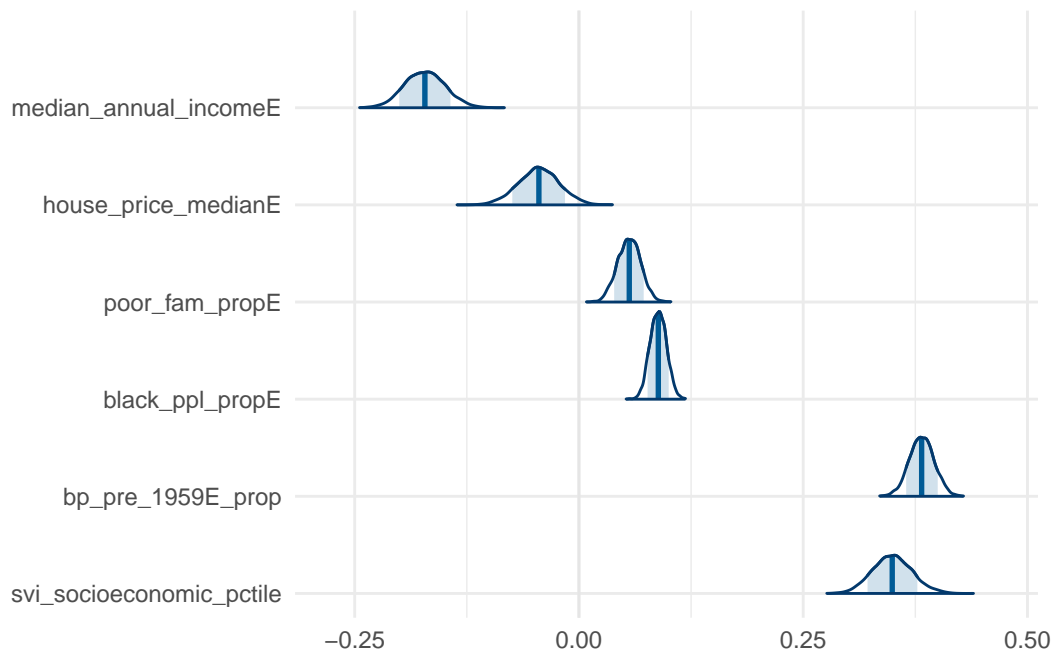
[1] "Additional features added: "

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: "
```

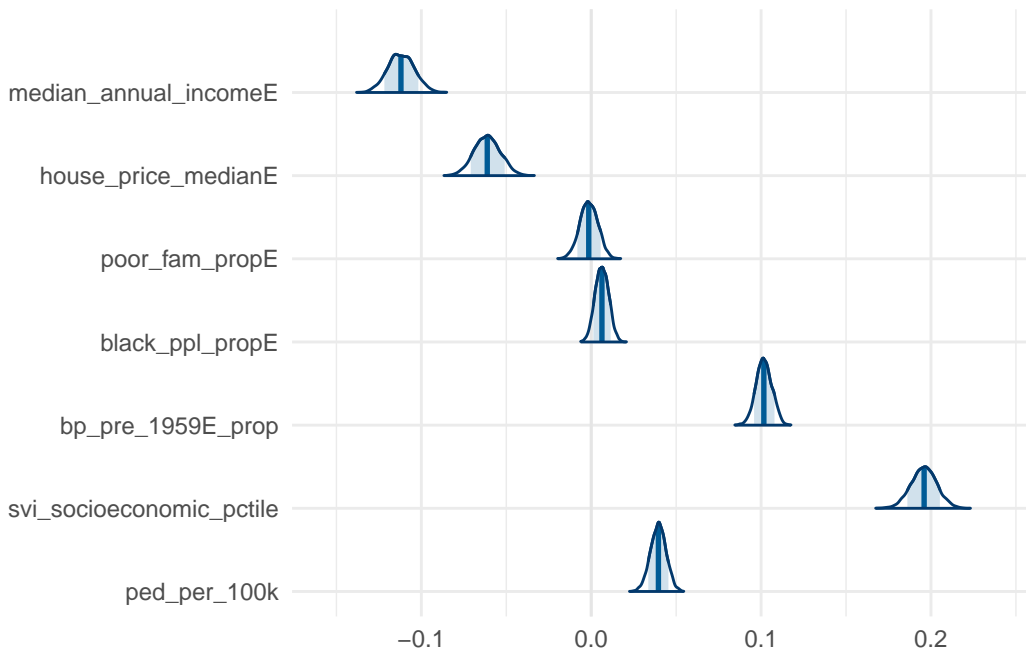
```
Warning in readLines(stan_file): incomplete final line found on
'poisson_many_X_suppression.stan'
```

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
```



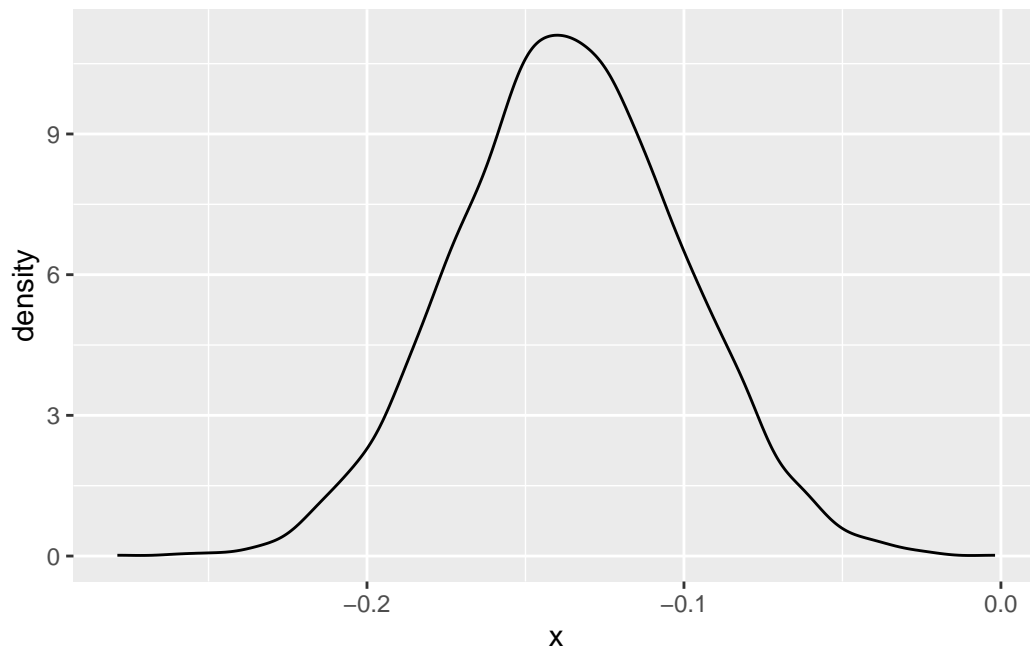
## Model summaries

### Lead counts

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

```
# example for a single state:
```

```
md_lead_model$plot |> pluck(1) |> filter(parameter == "median_annual_incomeE") |> ggplot(aes
```



```
# 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
})
}

```

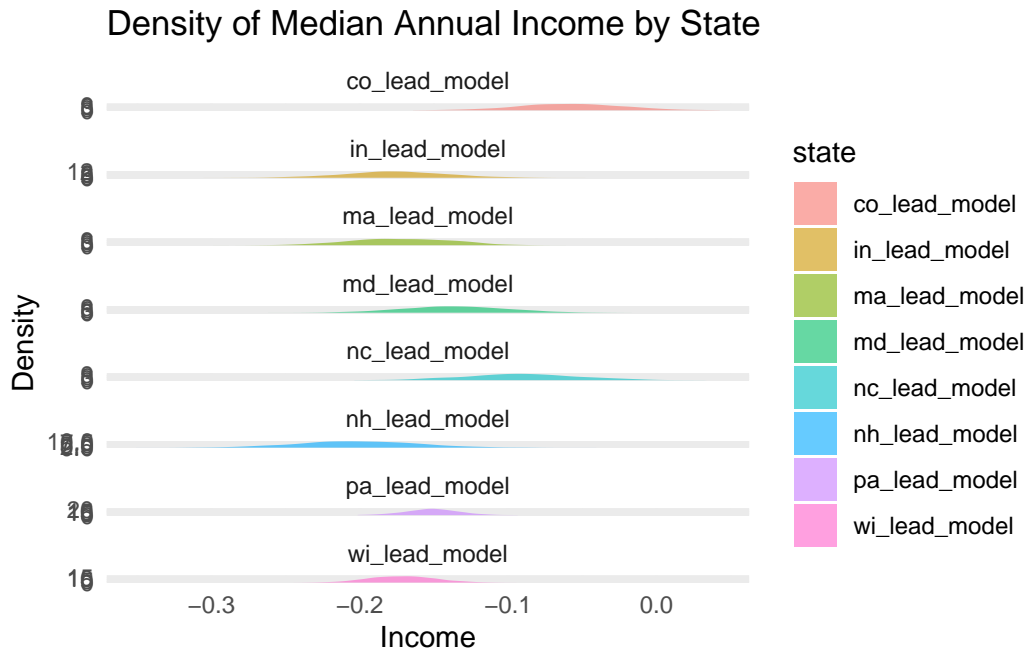
## Median annual income

```

# 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")

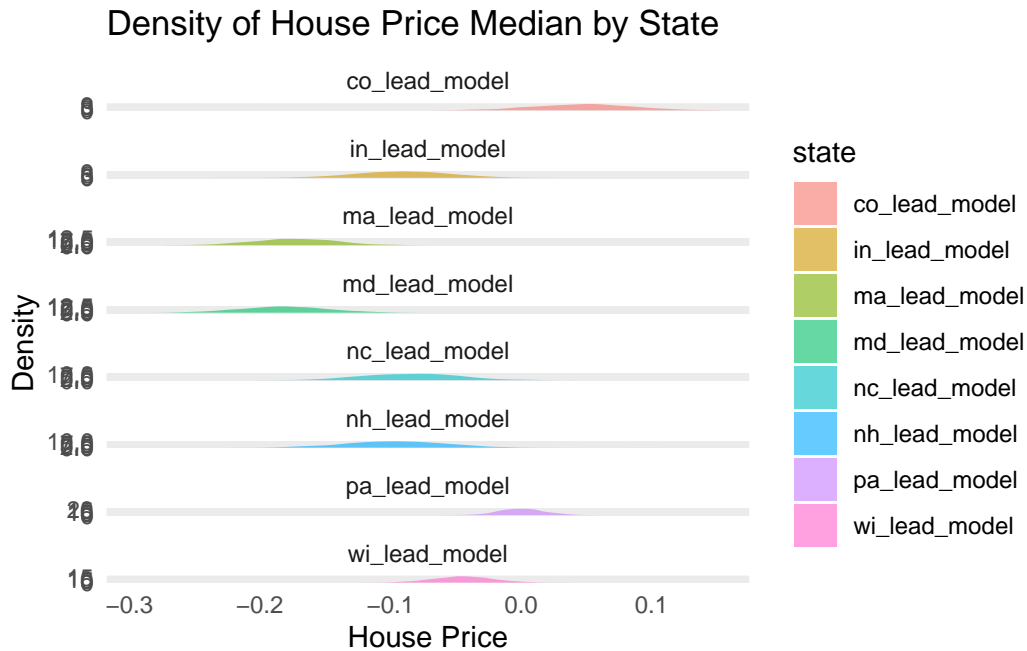
```



### 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")
```



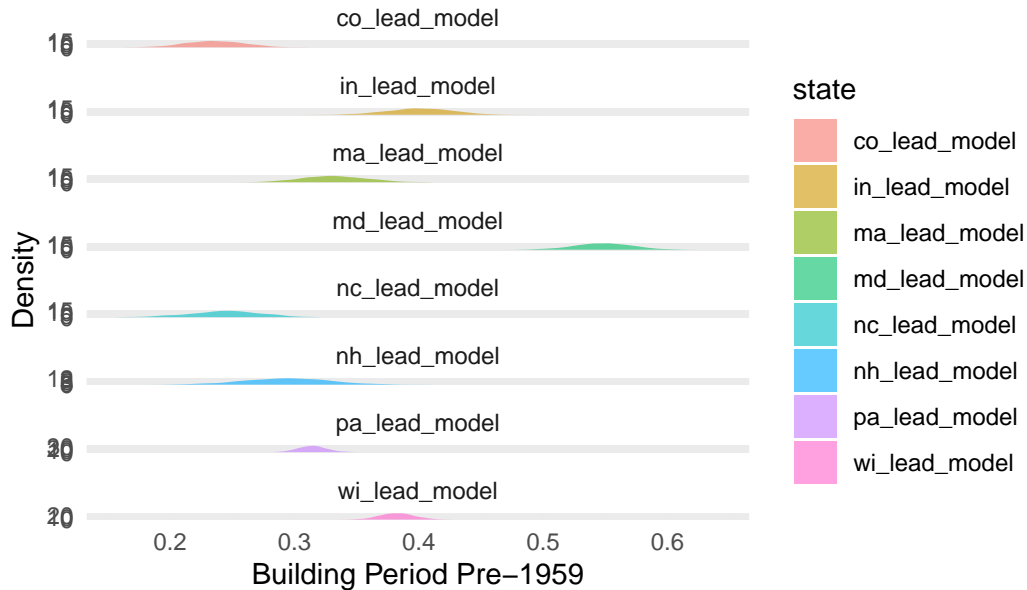
### Building period

```
# 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", "ma_test_model")

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")
```

