A Reproducible Paper*

Using `pixi` and `quarto` and codespaces to handle environments and execution

Elijah Knaap Another Person

2024-12-03

This project shows how to generate a reproducible environment and execute an entire analysis (including building the paper) via github codespaces.

Introduction

Literature Review

Methods

Two classic models in spatial analysis are the *Spatial Lag Model*, defined as

$$y = \rho W y + \beta X + \epsilon$$

and the *Spatial Error Model* defined as

$$\begin{aligned} y &= \beta X + u \\ u &= \lambda W u + \epsilon \end{aligned}$$

*This project is supported by the National Science Foundation Grant #2345820: An Open Source Ecosystem for Spatial Data Science.

Results

This section uses `quarto`'s conditional formatting to swap out the correct table depending out output. The problem here is `pandas` can write nice latex tables, but those don't convert to html. Instead you can just write both formats out to file and select the correct one on-demand.

Table 1: Blockgroups in San Diego

	n-total-pop	median-household-income
0	1577.000000	150688.000000
1	1673.000000	127292.000000
2	1915.000000	90673.000000
3	1271.000000	65219.000000
4	695.000000	NaN
5	2617.000000	81250.000000
6	500.000000	64631.000000
7	808.000000	64787.000000
8	1682.000000	59010.000000
9	1151.000000	79725.000000

You can also do the same thing with figures, e.g. to swap in an interactive map in the html output and use a static map in the pdf.

Everyone from the `R` world will recognize this figure as coming from `ggplot`. It shows up either way. But the blockgroups in San Diego show up differently depending on the output.

> **Note**
>
> This is kinda hacky because it relies on an iFrame that requires the embedded map to be available the relative URL set above (you cant download this html file and expect it to work). The `embed-resources` option in quarto wont work for an iframe either.

Discussion

Conclusion

References

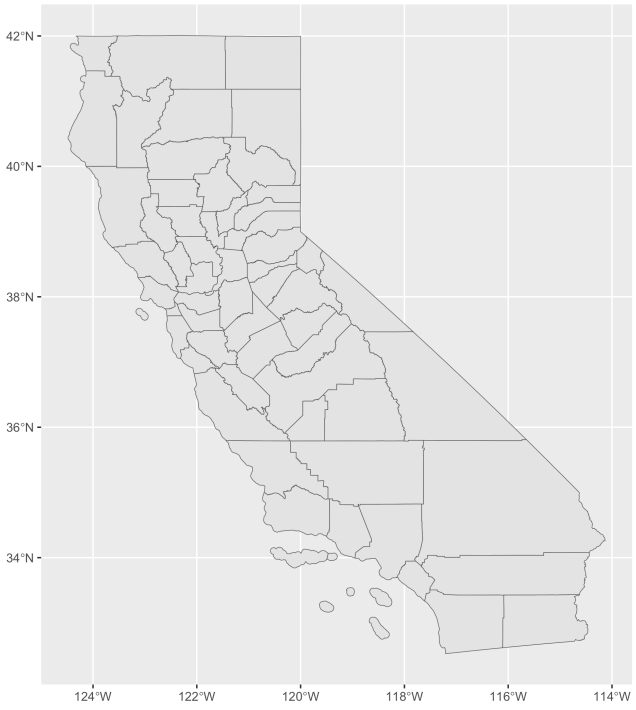

Figure 1: California Counties

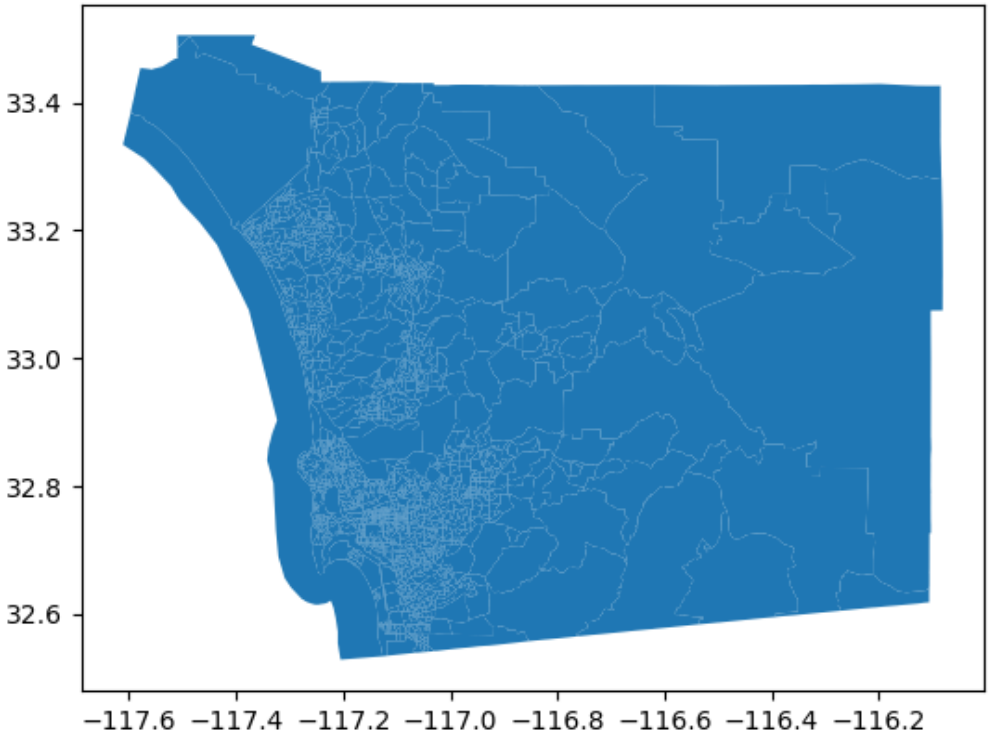

Figure 2: SD Map