Bayesian Spatial Relationsip Between Kaitz Index and PR Emplyment

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Introduction

There are many studies looking at the impact of minimum salarie on the employment but there are not many studies at looking the spatial effect in the changes in the minimum salaries. Throught this studies used the Kaitz index to measure the effects of mimnume salarieis in all the zipcodes of PR. We found there is a negative "spill-over" effect of the Kaitz index on employment

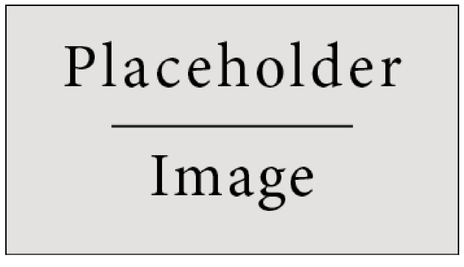

Figure 1:Figure caption

Materials

The following materials were required to complete the research:

- Curabitur pellentesque dignissim
- Eu facilisis est tempus quis
- Duis porta consequat lorem
- Eu facilisis est tempus quis

The materials were prepared according to the steps outlined below:

1. Curabitur pellentesque dignissim
2. Eu facilisis est tempus quis
3. Duis porta consequat lorem
4. Curabitur pellentesque dignissim

Mathematical Section

The main coefficient for this study is the **Kaitz Indez** [1]. The idez is calculated as follows:

$$Kaitz = \frac{m}{w} \tag{1}$$

where m represents the nomiinal legal wage, and w is the mean wage. To account fo the spatial autocorrelation, the Kaitz index is modified as:

$$Kaitz_{it} = \frac{m_t}{\bar{w}_{it}} \tag{2}$$

where m_t is the minimum wage for the specific time period, and $\bar{w}_{it}$ is the mean wage for the i-th zipcode at time t.
To asses teh impact of the Kaitz index and its spillover effects, follow the following model according to the speciifications in [2]

$$y_{it} = \rho \sum_{j=1}^{N} w_{ij} y_{jt} + Kaitz_{it} \cdot \beta + \mu_i + e_{it} \tag{3}$$

Where $\sum_{j=1}^{N} w_{ij} y_{jt}$ represents the mean Emplyment of the neighbors of zipcode i. ρ is the spillover effect, μ_i is the spatial error and ϵ_{it} is the error term

Data methods

For this study we desided to use a Bayesian apraach to estimate the spill-over effects in witch we specified weakly informative priors for all model terms, by loosely scaling them to the observed data and used a tune of 2000 samples and a target accept of .95

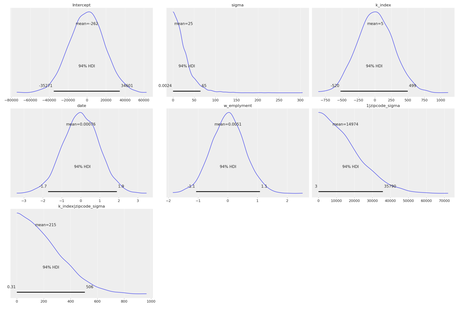

Figure 2:Figure caption

Results

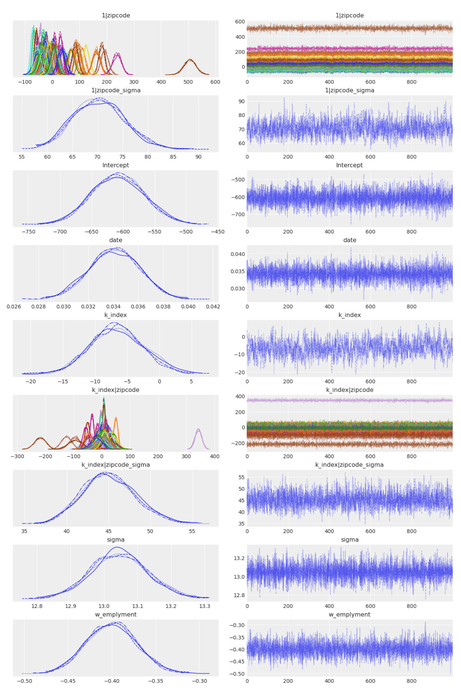

Figure 3:Figure caption

Nunc tempus venenatis facilisis. Curabitur suscipit consequat eros non porttitor. Sed a massa dolor, id ornare enim:

Treatments	Response 1	Response 2
Treatment 1	0.0003262	0.562
Treatment 2	0.0015681	0.910
Treatment 3	0.0009271	0.296

Table 1:Table caption

Conclusion

Nunc tempus venenatis facilisis. **Curabitur suscipit** consequat eros non porttitor. Sed a massa dolor, id ornare enim. Fusce quis massa dictum tortor **tincidunt mattis**. Donec quam est, lobortis quis pretium at, laoreet scelerisque lacus. Nam quis odio enim, in molestie libero. Vivamus cursus mi at *nulla elementum sollicitudin*.

References

[1] Susan Gonzalez Baker.
Demography–immigration and the work force: Economic consequences for the united states and source areas edited by george j. borjas and richard b. freeman.
Contemporary Sociology, 23(2):274, 1994.

[2] J Paul Elhorst.
Specification and estimation of spatial panel data models.
International regional science review, 26(3):244–268, 2003.

[3] Tomás Capretto, Camen Piho, Ravin Kumar, Jacob Westfall, Tal Yarkoni, and Osvaldo A Martin.
Bambi: A simple interface for fitting bayesian linear models in python.
Journal of Statistical Software, 103(15):1–29, 2022.

Acknowledgements

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