COVID-19 Impacts on Rent Prices in North Carolina

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Question and Hypothesis

- **Interest:**
    - COVID-19 drastically impacted the U.S.'s economy, increasing gas prices, basic necessities, interest, and rent.
- **Question:**
    - How has the cost of rent changes post-COVID in North Carolina?
- **Hypothesis:**
    - We hypothesize that rent prices increased by 20% post-COVID-19.
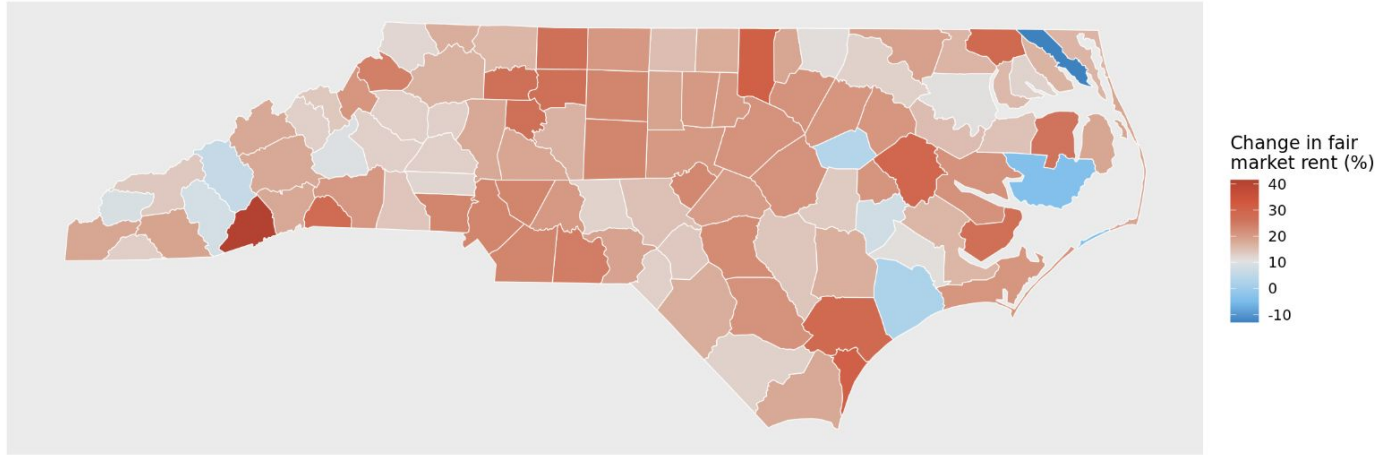
Data and Fair Market Rent

Variable Name	Explanation
fmr	The fair market rent as described above for a specified number of bedrooms and year.
bedrooms	The bedrooms variable indicates the number of bedrooms for a specific fair market rent value.
countyname	The county name for a specific fair market rent value.
year	The fiscal year for which data used to calculate the fair market rent value was collected.
state_alpha	The state for a specific fair market rent value. In our analysis, we focused on North Carolina, so all of our observations had a state_alpha equal to "NC".
fmr_pct	fmr_pct is a variable that we calculated in our analysis to use in our map graph. It represents the average change in fair market rent from 2020 for a specified year by county (irregardless of # bedrooms) .

Outcomes Pt. 1

Did rent increase in your county after COVID-19?

North Carolina counties where fair market rent increased from 2020 to 2023 [1]

Change in fair market rent (%)
40
30
20
10
0
-10

Outcomes Pt. 2

Which counties in North Carolina had the largest rent increases after COVID-19?

North Carolina counties with fair market rent increasing by 25% or more from 2020 to 2023

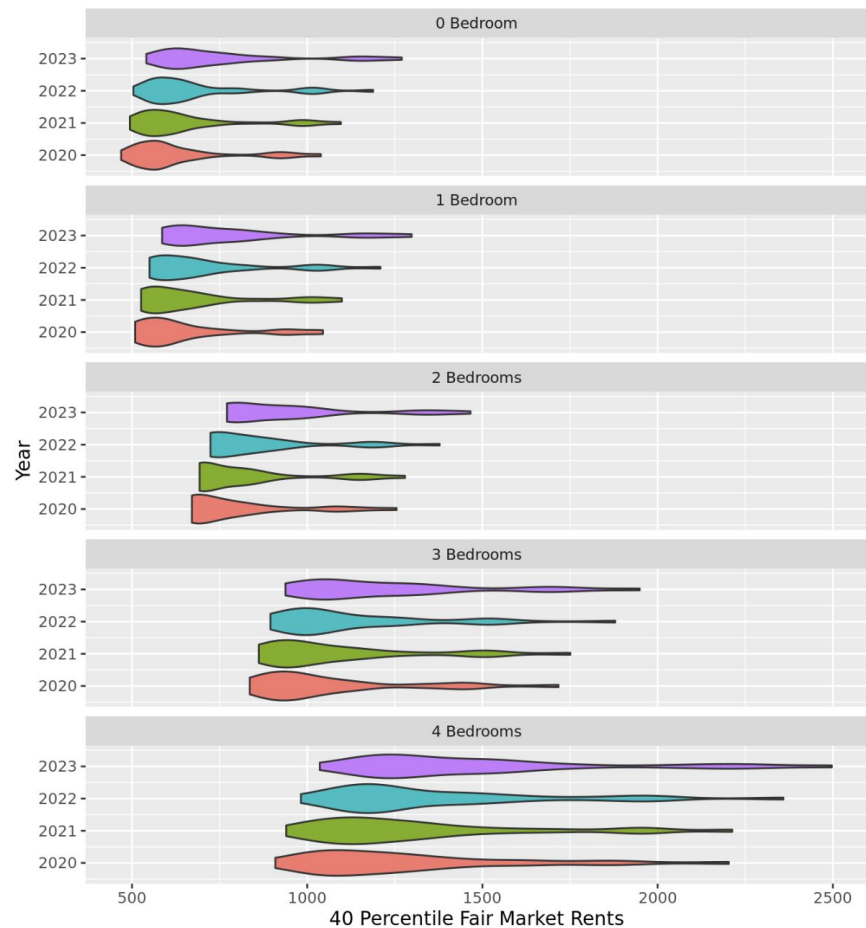| County Name	Change in Fair Market Price (%)
Transylvania County	41.52622
Granville County	31.38713
New Hanover County	31.31379
Pitt County	29.45726
Pender County	28.69983
Gates County	28.43547
Polk County	28.25967
Pamlico County	27.26291
Davie County	26.74854
Forsyth County	26.74854
Stokes County	26.74854
Yadkin County	26.74854
Tyrrell County	26.04116

Which counties in North Carolina had the largest decrease in rents after COVID-19?

North Carolina counties with fair market rent decreasing from 2020 to 2023

County Name	Change in Fair Market Price (%)
Camden County	-12.898954
Hyde County	-3.931737

Outcomes Pt. 3

Fair Market Rents from 2020 to 2023
based on the number of bedrooms

Linear Regression Model for Fair Market Rent

$$\widehat{fmr} = (50.36 * years\_since\_2020) + 606.12$$

$$+ (22.56 * one\_bedroom) + (177.24 * two\_bedroom)$$

$$+ (448.62 * three\_bedroom) + (680.97 * four\_bedroom)$$

```
regression <- linear_reg() |>
  set_engine("lm") |>
  fit(mean ~ year + bedrooms, data = rent_averages)

regression |>
  tidy() |>
  kable()
```

Adjusted R^2 = 0.9926

term	estimate	std.error	statistic	p.value
(Intercept)	606.1204	13.879189	43.67117	0.0000000
year	50.3614	4.760523	10.57896	0.0000000
bedrooms1	22.5675	16.830989	1.34083	0.2013267
bedrooms2	177.2425	16.830989	10.53072	0.0000000
bedrooms3	448.6225	16.830989	26.65455	0.0000000
bedrooms4	680.9775	16.830989	40.45974	0.0000000

Conclusions

- **Conclusion**
  - Most states had an average of 15-30% change in rent prices
  - We concluded about 20% change but the outcome indicated 25% average change

What now

- **Usefulness of Data:**
  - This data is applicable to other states
  - Can help individuals figure out where they want to rent
  - Can be used to implement policies that provide assistance for rent control
- **Future Research**
  - Adjust for inflation to better interpret how COVID-19 impact rent prices
    - Do rent prices increase with adjusted for inflation
  - Consider other states' data
  - Include other data sources to cross check information

Sources

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