

Intergenerational Families in Kings Counties

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Intergenerational Relationships in Black Families

Black families face intergenerational challenges, due to systemic oppression that still impacts families today. Redlining, racism, discrimination, forced integration and segregation, and divestment has left black communities without the resources they need to survive, thrive, and build wealth.

(National Geographic, 2020)

Overview

National Association for Real Estate Brokers (NAREB) A black led organization that focuses on bringing together the minority professionals in the real estate industry to promote the meaningful exchange of ideas about our business and how best to serve their clientele.



Overview

How can home renovations increase the estimated value of homes in preparation for an influx of black intergenerational families in King County, WA?

Data Preparation and Understanding

- 'Zipcode' was dropped as a variable
- Categorical variables were dropped, and dummy variables were created
- Regression models were created
- Homoscedasticity, normality, and multicollinearity tests were performed to confirm assumptions for linear regressions

Model 1

```
=====
                        OLS Regression Results
=====
Dep. Variable:          price      R-squared:                0.493
Model:                  OLS       Adj. R-squared:            0.493
Method:                 Least Squares   F-statistic:            7003.
Date:                   Sun, 17 Apr 2022   Prob (F-statistic):      0.00
Time:                   20:58:24    Log-Likelihood:         -3.0005e+05
No. Observations:      21597        AIC:                   6.001e+05
Df Residuals:          21593        BIC:                   6.001e+05
Df Model:               3
Covariance Type:       nonrobust
=====
                        coef      std err          t      P>|t|      [0.025      0.975]
-----
Intercept    -3.815e+04    5252.893     -7.262     0.000    -4.84e+04    -2.79e+04
sqft_living   297.9354         4.483     66.458     0.000     289.148     306.723
sqft_above   -18.4232         4.479     -4.113     0.000     -27.202     -9.644
bathrooms    -3972.1769    3545.059     -1.120     0.263    -1.09e+04     2976.400
=====
Omnibus:      14748.993    Durbin-Watson:      1.982
Prob(Omnibus): 0.000    Jarque-Bera (JB):    538245.600
Skew:         2.806    Prob(JB):            0.00
Kurtosis:     26.804    Cond. No.            9.59e+03
=====
```

Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The condition number is large, 9.59e+03. This might indicate that there are strong multicollinearity or other numerical problems.

Model 2

```
=====
                        OLS Regression Results
=====
Dep. Variable:          price    R-squared:                0.507
Model:                  OLS      Adj. R-squared:            0.507
Method:                 Least Squares    F-statistic:          7398.
Date:                   Sun, 17 Apr 2022    Prob (F-statistic):    0.00
Time:                   21:06:31    Log-Likelihood:       -2.9976e+05
No. Observations:      21597    AIC:                  5.995e+05
Df Residuals:          21593    BIC:                  5.996e+05
Df Model:              3
Covariance Type:       nonrobust
=====
                        coef      std err          t      P>|t|      [0.025      0.975]
-----
Intercept      7.704e+04    7684.108      10.026      0.000      6.2e+04    9.21e+04
bedrooms     -5.775e+04    2324.412     -24.846      0.000     -6.23e+04    -5.32e+04
sqft_living    313.8304      2.467      127.187      0.000      308.994    318.667
floors        3476.4322    3480.340       0.999      0.318     -3345.290    1.03e+04
=====
Omnibus:          14415.709    Durbin-Watson:          1.985
Prob(Omnibus):    0.000    Jarque-Bera (JB):      491526.502
Skew:             2.733    Prob(JB):              0.00
Kurtosis:         25.723    Cond. No.              1.04e+04
=====
```

Notes:

[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

[2] The condition number is large, 1.04e+04. This might indicate that there are strong multicollinearity or other numerical problems.

Model 3

OLS Regression Results

```

=====
Dep. Variable:          price    R-squared:                0.509
Model:                  OLS      Adj. R-squared:            0.509
Method:                 Least Squares    F-statistic:              7451.
Date:                   Sun, 17 Apr 2022    Prob (F-statistic):       0.00
Time:                   22:15:14    Log-Likelihood:          -2.9972e+05
No. Observations:       21597    AIC:                     5.994e+05
Df Residuals:           21593    BIC:                     5.995e+05
Df Model:                3
Covariance Type:        nonrobust
=====

```

	coef	std err	t	P> t	[0.025	0.975]
Intercept	8.424e+04	6637.291	12.692	0.000	7.12e+04	9.72e+04
bedrooms	-5.959e+04	2327.075	-25.605	0.000	-6.41e+04	-5.5e+04
sqft_living	318.6333	2.383	133.727	0.000	313.963	323.304
sqft_lot	-0.3847	0.043	-8.922	0.000	-0.469	-0.300

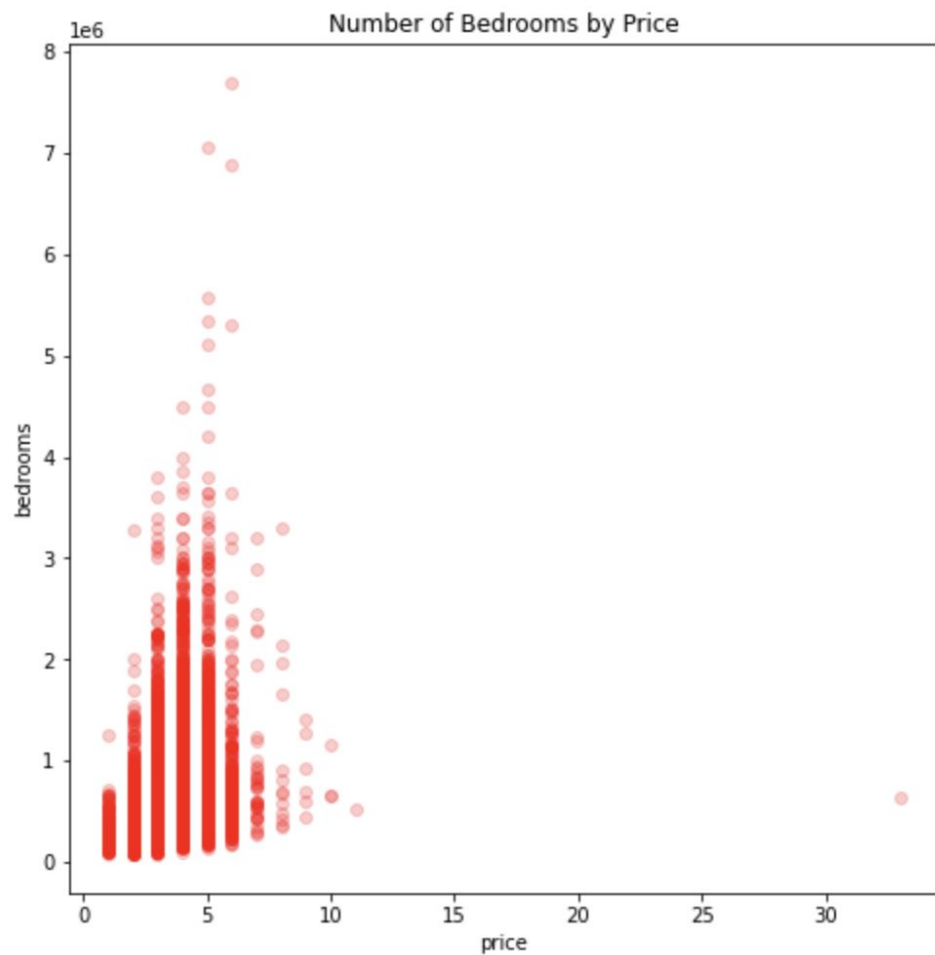
```

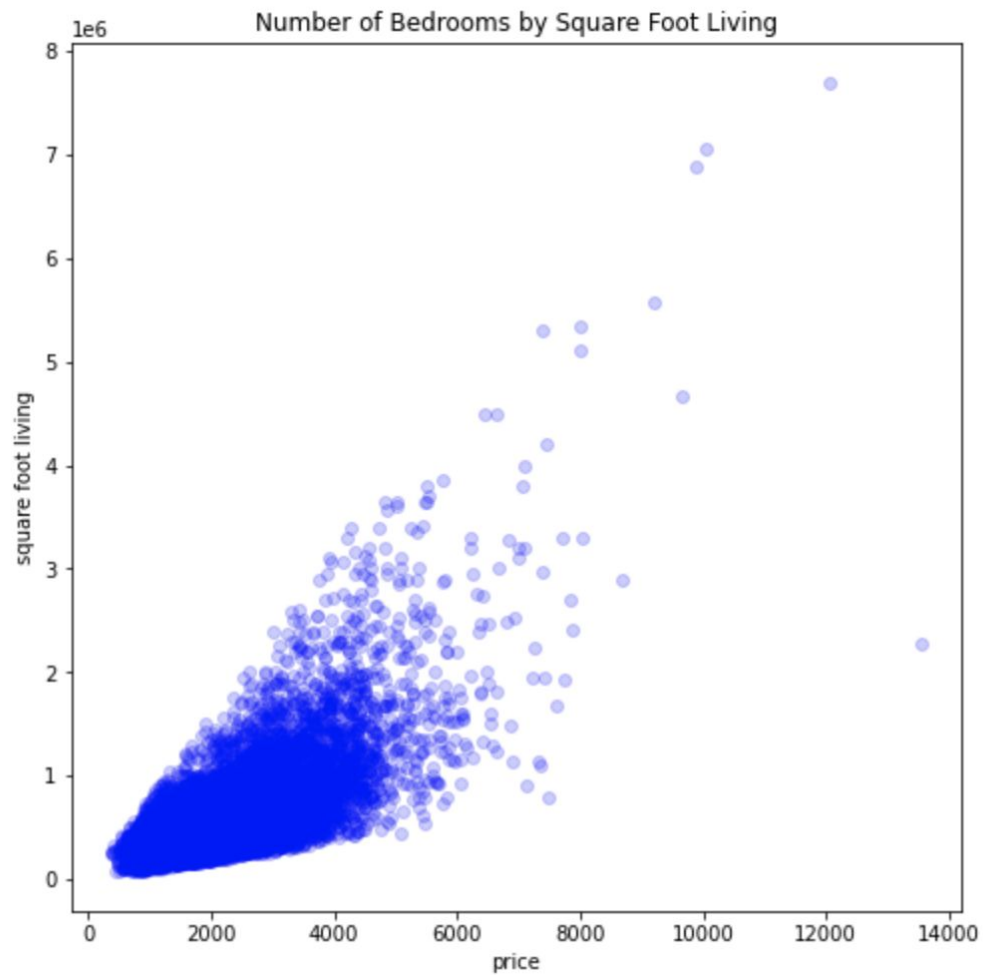
=====
Omnibus:                 14308.034    Durbin-Watson:           1.985
Prob(Omnibus):           0.000    Jarque-Bera (JB):        477721.465
Skew:                    2.710    Prob(JB):                 0.00
Kurtosis:                25.394    Cond. No.                 1.73e+05
=====

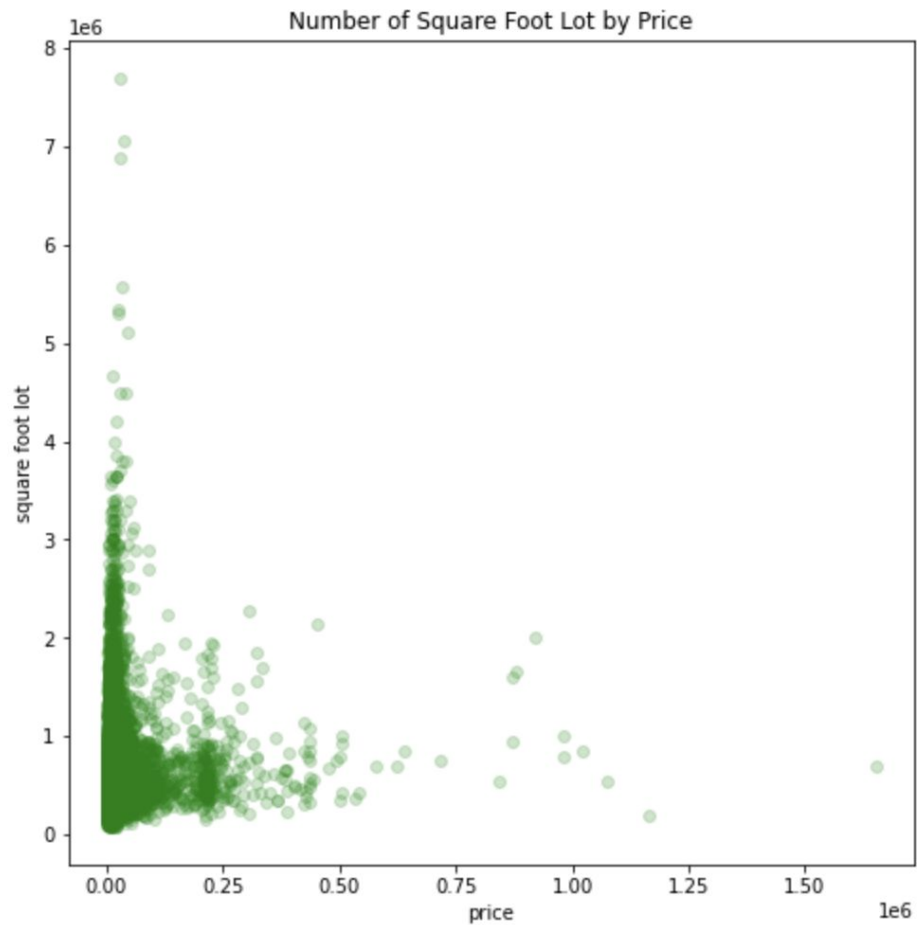
```

Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The condition number is large, 1.73e+05. This might indicate that there are strong multicollinearity or other numerical problems.







Conclusion

The third model has showed square foot lot space, square foot living spaces, and bedrooms spaces were good variables to further analyse.

However, when we look at these variables, we can also see that there are many outliers that need to be dropped to get a clearer understanding of normality before moving forward.

Next Steps

In the future, we as analysts should sharpen our focus on our normality testing, by dropping the outliers in this data.

I recommend continuing to explore square foot living space, square foot lot space, and bedrooms space as variables. They have the lowest random chance, they also offer the most opportunity for renovation in the future. I would also recommend, web scraping for public health data about what black families need as they grow intergenerational families.

Thank You! - [Beau Morton \(GitHub\)](#)

