

RESEARCH QUESTION

Did the adoption of an accessory dwelling unit (ADU) ordinance passed in Bloomington, Indiana lower the cost of rent in Monroe County, Indiana?

Data + Definition of Sample Population

The sample population for this study is Monroe County, Indiana between 2005 and 2019. We use the year as a proxy for when the ordinance was not in effect and in effect.

Variables

- INCOME: total family income (IPUMS)
- UNITS: # of units in structure (IPUMS)
- RENT: monthly rent (IPUMS)
- RACE: race (IPUMS)
- YEAR: pre 2009, post 2009 (IPUMS)

REGRESSION w. CATEGORICAL VARIABLES

SIGNIFICANT FINDINGS

- The rent in Monroe County rises by an average of \$14.69 per year
- A white person has an average rent \$64.06 higher than an average non-white person in Monroe County.
- A Black person has an average rent \$148.72 lower than an average non-Black person.
- A Native American person has an average rent \$273.82 lower than an average non-Native person.
- A person of multiple races has an average rent \$132.03 lower than an average person who has a singular racial background.

MULTIVARIATE REGRESSION

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	-2.866e+04	7.595e+03	-3.773	0.000165	***
YEAR	1.469e+01	3.775e+00	3.892	0.000102	***
FTOTINC	-1.058e-05	1.321e-05	-0.801	0.422977	
UNITSSTR	-8.245e+00	6.986e+00	-1.180	0.237972	
Black	-1.611e+02	5.241e+01	-3.073	0.002138	**
Native	-2.830e+02	4.353e+01	-6.500	9.53e-11	***
Asian	4.227e+01	3.704e+01	1.141	0.253899	
Other	-1.261e+02	6.715e+01	-1.878	0.060442	.
Multiple	-1.626e+02	4.536e+01	-3.584	0.000344	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

- Controlling for year, family household income, units in a structure, and race -- the regression predicts that the rent will increase by an average of \$14.69 per year.
- Relative to white people, blacks, Native Americans, and people of multiple races have statistically significantly lower rents.
- The magnitude of the coefficient on the year variable is slightly larger than it was before, implying that some of the other variables are “working against” the yearly increases in rent.

REGRESSION + INTERACTION

	Interacted
(Intercept)	-30208.50 *** (p = 0.00)
YEAR	15.75 *** (p = 0.00)
logFTOTINC	-40.73 *** (p = 0.00)
UNITSSTR	-10.02 (p = 0.17)
Black	-1158.08 ** (p = 0.00)
Native	-550.70 ** (p = 0.01)
Asian	106.61 (p = 0.75)
Other	745.78 (p = 0.19)
Multiple	-663.38 ** (p = 0.00)
logFTOTINC:Black	73.40 ** (p = 0.01)
logFTOTINC:Native	18.65 (p = 0.22)
logFTOTINC:Asian	-6.02 (p = 0.79)
logFTOTINC:Other	-64.79 (p = 0.10)
logFTOTINC:Multiple	37.40 * (p = 0.02)
N	4946
R2	0.05

*** p < 0.001; ** p < 0.01; * p < 0.05.

For people of different races, is there a relationship between income and rent different?

- Relative to white people, both Blacks and people of multiple races have a significantly lesser discount on their rent as their incomes increase
- If you are white, your rent decreases as your income increases.

TRANSFORMING AN INDEP. VARIABLE (INCOME)

(Intercept)	-30623.42 *** (p = 0.00)
YEAR	15.94 *** (p = 0.00)
logFTOTINC	-37.88 *** (p = 0.00)
UNITSSTR	-10.22 (p = 0.16)
Black	-123.90 * (p = 0.01)
Native	-296.14 *** (p = 0.00)
Asian	25.84 (p = 0.54)
Other	-113.08 (p = 0.16)
Multiple	-151.65 *** (p = 0.00)
N	4946
R2	0.04

*** p < 0.001; ** p < 0.01; * p < 0.05.

- Squaring the income was associated with a \$37.88 decrease in rent. This is surprising, as an increase in income tends to increase spending.
- The Black variable is less statistically significant in this model than before, perhaps implying that there is some interaction going on between the Black and income variables.

CONCLUSIONS

- We cannot make any conclusions about the effect of the ADU ordinance on rental prices in Monroe County. Our next step is comparing price changes in pre- and post-ordinance periods by running two regression models.
- We also might need to control for factors like economic growth, interest rates, etc.