

The Changing Spatial Distribution of Mortgage Denials:

Evidence and Policy Implications from the Great Housing Bust in Michigan

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- Mortgage denial rates have been higher for rural counties of Michigan the past two years
- Unemployment correlated to denial rates in urban areas, but not rural areas
- When non-owner occupied lending is above 30% in a county, big differentials in denial rates between owner occupied and non-owner occupied lending are seen

- Prior research has found that rural mortgages can be more expensive and experience predatory lending
- Is there a lending disparity between urban and rural counties in Michigan?
- Why is unemployment correlated to denial rates in urban areas, but not rural areas?
- Answering these questions can improve housing policies

Home Mortgage Disclosure Act(HMDA)

- Mortgage applications

Department of Housing and Urban Development

- Housing starts

Michigan Department of Technology, Management and Budget

- Unemployment

- Data manipulation in Stata
 - Combine datasets
 - Analyze correlation and denial rates across Michigan
- Spatial distribution in ArcGIS
 - Use urban and rural spectrum to map data
- Challenges
 - Size of HMDA data

Mortgage Denial Rates for Urban and Rural Areas of Michigan

	2006	2007	2008	2009	2010
Urban	16.17%	17.99%	16.79%	13.47%	14.03%
Rural	15.78%	15.80%	15.37%	14.09%	15.20%

Results

Two-sample t test with equal variances

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
d_urb09	25	.1281289	.0044475	.0222374	.1189497	.1373081
d_rur09	58	.1452446	.004354	.0331587	.136526	.1539633
combined	83	.1400893	.0034211	.0311678	.1332836	.146895
diff		-.0171157	.0072578		-.0315565	-.0026749

diff = mean(d_urb09) - mean(d_rur09)

t = -2.3582

Ho: diff = 0

degrees of freedom = 81

Ha: diff < 0

Pr(T < t) = 0.0104

Ha: diff != 0

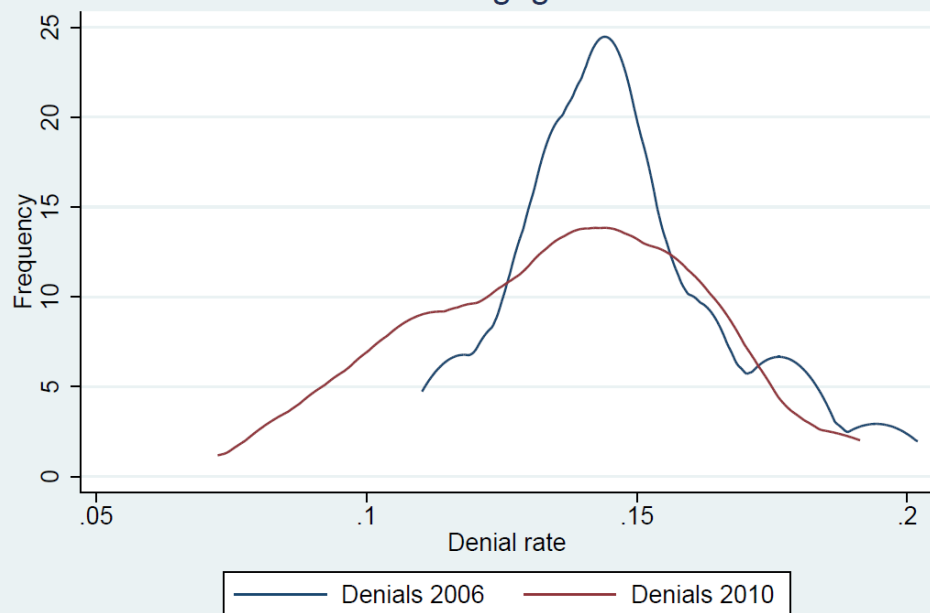
Pr(|T| > |t|) = 0.0208

Ha: diff > 0

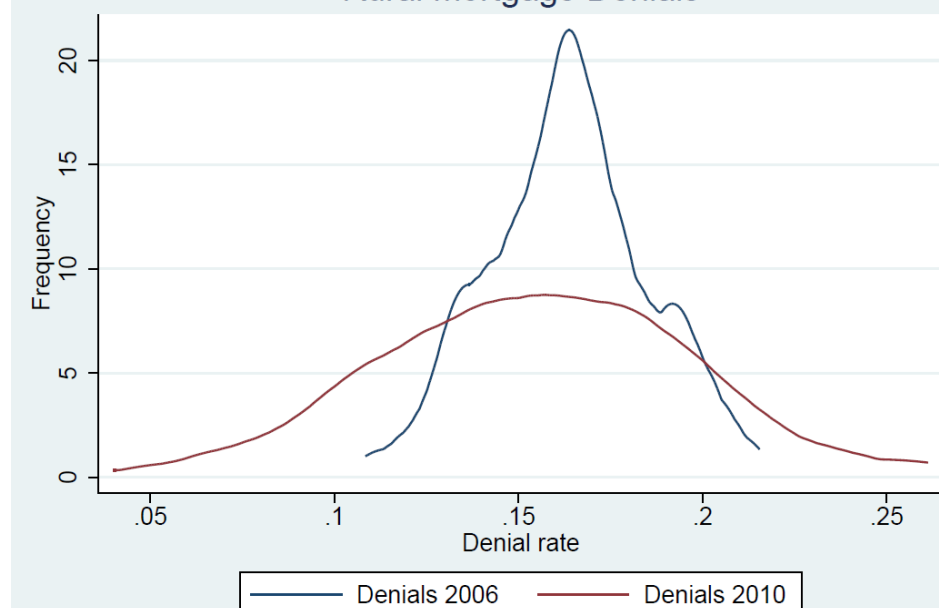
Pr(T > t) = 0.9896

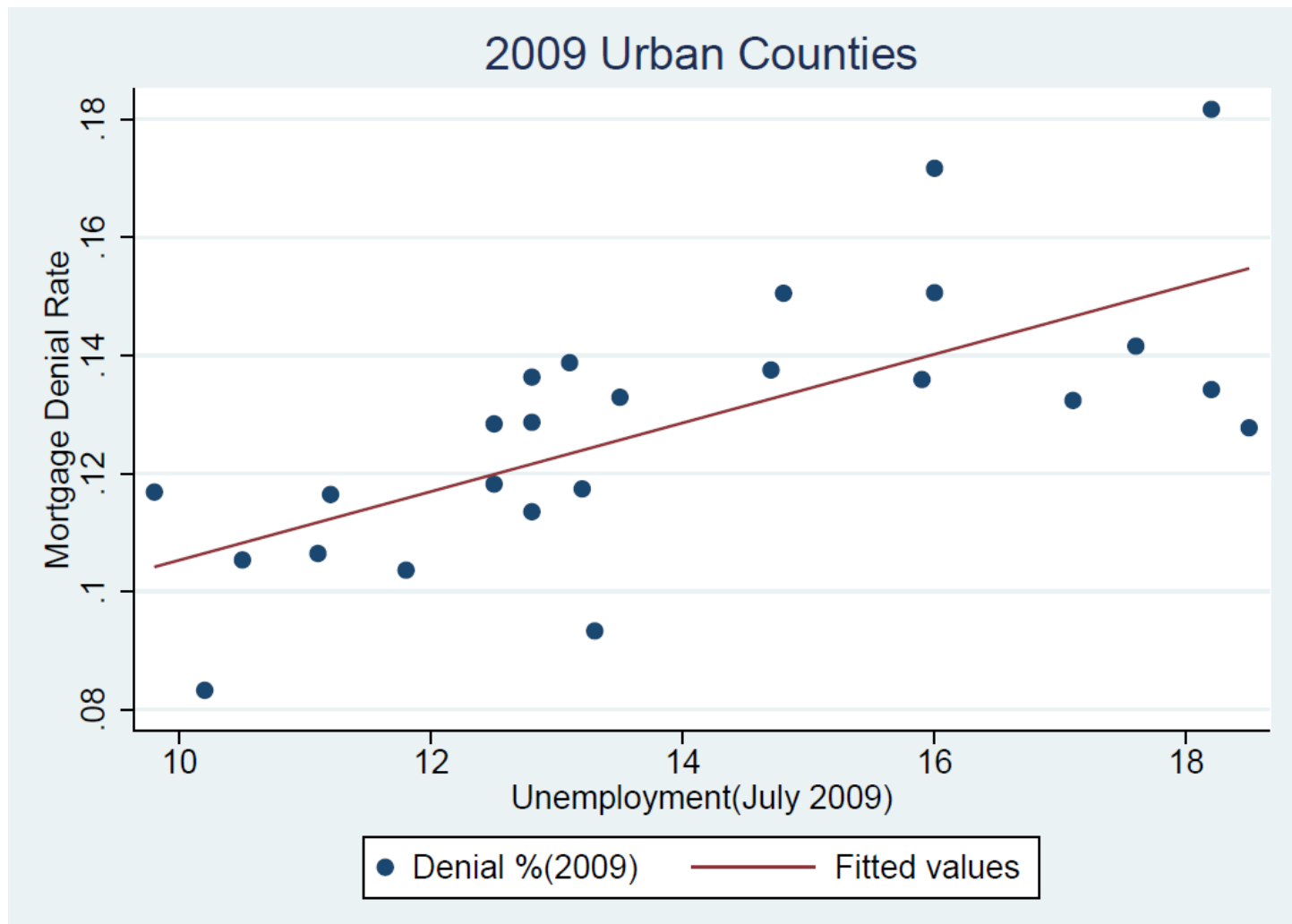
Results

Urban Mortgage Denials

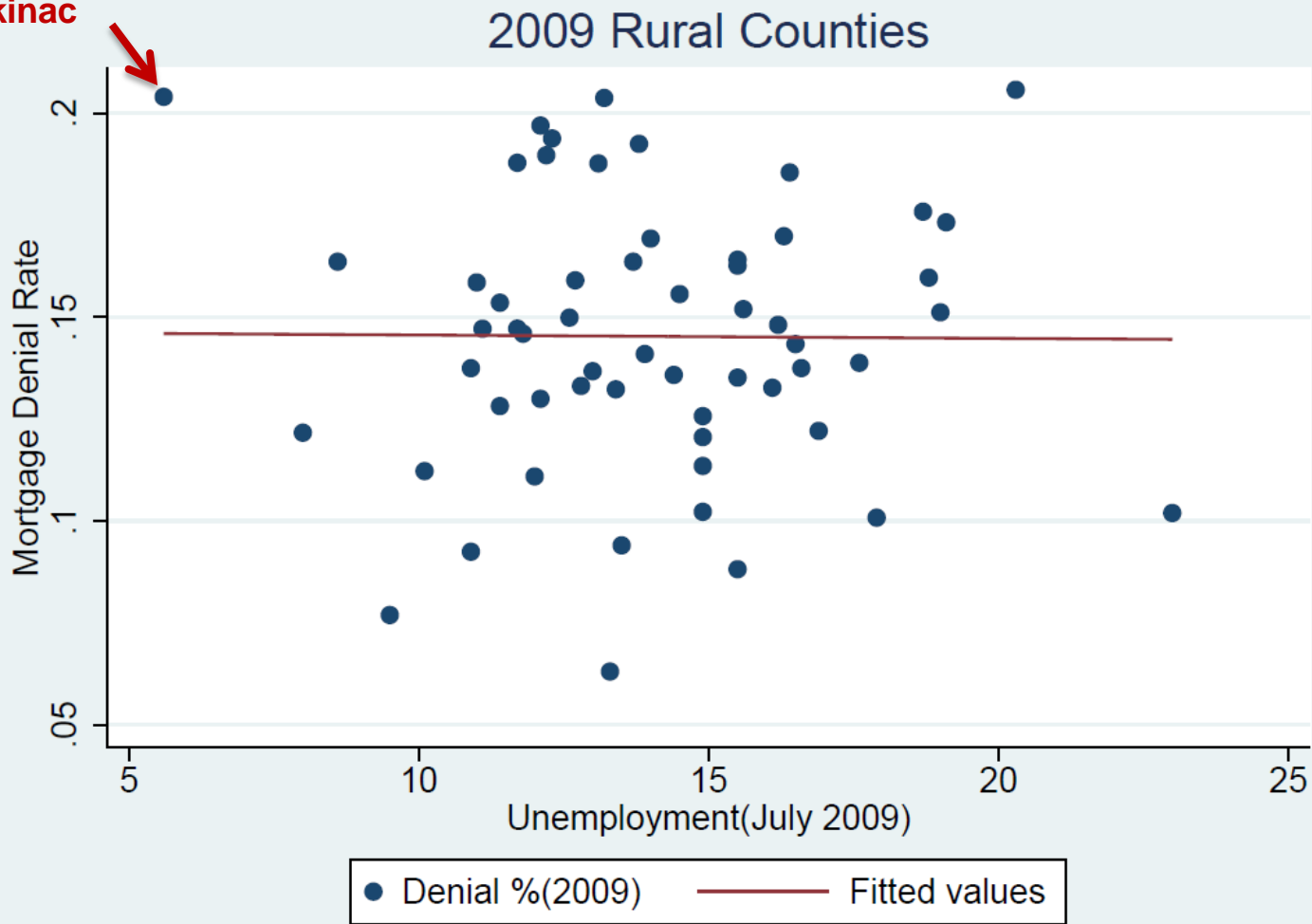


Rural Mortgage Denials





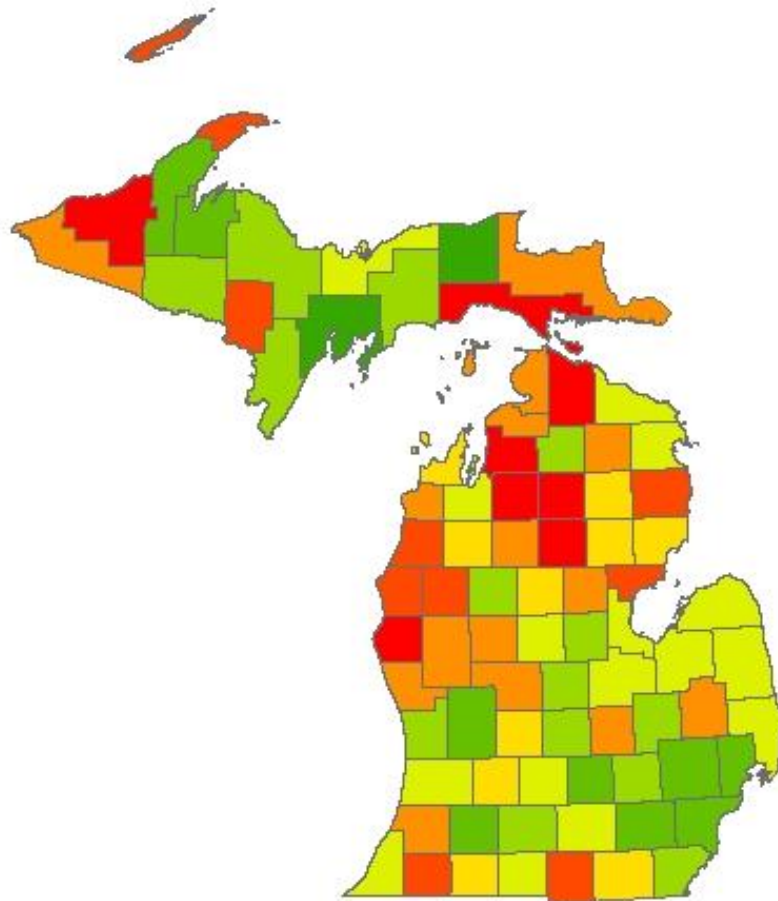
Mackinac



Results

County	Non-owner occupied lending percentage	NOO denial percentage	Owner- occupied denial percentage	Denial Differential
Alcona	44.4%	15.6%	22.4%	6.8%
Antrim	37.0%	12.2%	20.7%	8.5%
Benzie	36.8%	15.6%	19.6%	4.0%
Charlevoix	32.1%	16.8%	21.3%	4.5%
Iosco	34.7%	17.2%	19.7%	2.5%
Keweenaw	33.3%	0.0%	6.0%	6.0%
Lake	40.1%	17.0%	22.5%	5.5%
Leelanau	31.7%	15.8%	17.7%	1.9%
Mackinac	41.6%	15.1%	25.4%	10.3%
Ogemaw	30.6%	14.1%	16.9%	2.8%
Ontonagon	30.3%	13.9%	21.7%	7.8%
Oscoda	36.8%	17.3%	19.0%	1.7%
Roscommon	43.2%	11.6%	20.3%	8.7%

Denial Differentials in the State of Michigan



KEY:

Red=Owner occupied lending has higher denial rates than non-owner occupied lending
Green=Owner occupied lending has lower denial rates than non-owner occupied lending

- Mortgage denial rates are greater in rural than in urban counties
- Unemployment correlated to denial rates in urban areas, but not rural areas
- Where non-owner occupied lending is above 30% in a county, denial rates vary greatly with owner occupied lending
- Non-owner occupied lending may crowd out owner occupied lending in rural areas

- My research has identified that there could be a lending gap in the rural mortgage industry
- How are home purchase and refinance applications affected by being in a rural or urban area?
- Do the findings in Michigan hold for the rest of the U.S.?
- My sponsor and I are preparing to submit this research for a conference presentation