

HOUSING PRICES AND HOMEOWNERSHIP RATES IN EASTERN METROPOLITAN AREAS

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AGENDA

- Background
- Current Literature
- Variables
 - Dependent Variable
 - Independent Variables
- Data and Methods
- Results
- Conclusions

OUR GOAL/BACKGROUND

- Analyze the effects of housing prices, unemployment rates, and weekly wages on homeownership rates for East Coast Metro Areas
- Specifically focusing on the effects on homeownership rates during the housing crash of 2008
 - Try to determine which factors led to the changes in homeownership rates during this time period
- Homeownership plays significant role in wealth accumulation and economic activity
- Runup to Great Recession
 - Weak underwriting of mortgage loans fostered an increase in housing prices, home construction, and homeowner wealth
 - Assumption that housing prices would continue to rise led banks to continue to lend to high-risk borrowers

CURRENT LITERATURE

- Glaesar (2010) found that rising demand was fueled by wildly unrealistic expectations about future house price growth
- Mejia and Ubogu (2013) found that excess credit also played a role in the formation of the homeownership bubble, causing significant market volatility and distress
- Cheng et al (2014) noted that Wall Street played a significant role in the credit expansion and were exposed to information that others were not
 - Analyzed whether midlevel managers in securitized finance were aware of the housing bubble and failed to adapt underwriting standards
- Hendershott et al (2015) noted that the Federal Reserve's attempt to ease economic slowdown through their quantitative easing program that unlocked households with below market interest rates
 - Found that this quantitative easing program did little to help the economic situation in the United States

CURRENT LITERATURE (CONT.)

- Hendershott et al (2015) analyzed the effect of the Great Recession on housing turnover in Chicago, Illinois
 - Found that total transactions of housing units significantly decreased and distressed sales increased (Decreased from 7% in 2005 to 3% in 2008-2011)
- Dettling and Kearney (2011) examined the effect of housing market crash on fertility rates
 - Utilized MSA-level data for their study
- Sung and Qui (2019) analyzed the effect of housing prices on health and health related behaviors
 - Found positive effects on homeowners' mental health when housing prices increased and found negative effects on tenants' health and health related behaviors with increases in housing prices

VARIABLES

- **Dependent Variable**
- Homeownership Rate
 - Used to capture the quarterly change in the percentage of homes that are owner occupied in metro areas
- **Independent Variables**
- Purchase-only Housing Price Index
 - Quarterly change in the purchase-only housing price index
- Average Weekly Wages for Private Establishments
 - Quarterly change in the average weekly wages for employees in private establishments
- Unemployment Rate
 - Quarterly change in the percentage of unemployed people in the labor force

DATA AND METHODS

- Measure housing price with purchase-only housing price index
 - Schintler and Istrate (2011) find that FHFA House Price Index is only HPI with broad temporal and spatial coverage, therefore we follow Schintler and Istrate
 - Advantage of HPI is the control for differences in the quality of homes for the sample
- MSA-level data offers more accurate representation of housing price fluctuations compared to state-level (state-level could appreciate in one area, depreciate in another)
 - Adopted quarterly data to allow us to follow trends of housing price fluctuations over time
 - Most prior literature used quarterly MSA-level data to conduct their tests
- Included unemployment rates and average weekly wages as control variables

RESULTS

- Wooldridge test for autocorrelation in panel data found no evidence of autocorrelation ($p=0.63$)
- Only variable with significant effect is wages with t-value 1.67 and coefficient 0.0071386
 - If wages went up by \$1 in previous quarter, homeownership rate should increase by 0.007 percentage points
- Levin-Lin-Chu unit-root test allows us to reject null in favor of alternative hypothesis
 - H_0 : Panels contain unit roots ; H_a : Panels are stationary
 - P-value was 0.000 and adjusted t-value was -21.6580
 - Post Recession variable was significant at 5% and 10% level for change in weekly wages

TABLE 2

Variable	Change in Homeownership Rate	Change in Homeownership Rate	Change in Homeownership Rate
Change in Purchases-only Housing Price Index	0.0186942 (0.0408816)	0.0153002 (0.0406153)	0.0105157 (0.0470539)
Change in Average Weekly Wages	0.0071386** (0.0042707)	0.00857* (0.0042373)	0.0078554 (0.0046738)
Change in Unemployment Rate	0.1719955 (0.4518687)	0.1734113 (0.4292241)	-0.1471622 (.762047)
_cons	-0.1407494 (0.0293487)	0.1079264 (0.3990329)	0.8881936 (.8946872)
Quarter Fixed Effects	No	Yes	Yes
Year Fixed Effects	No	No	Yes
R ² -within	0.0036	0.0267	0.0331
R ² -between	0.0324	0.0149	0.0162
R ² -overall	0.0035	0.0267	0.0331
groups	10	10	10
n	550	550	550

TABLE 3

Variable	Change in Homeownership Rate	Change in Homeownership Rate	Change in Weekly Wages	Change in Weekly Wages
Post Recession	-0.1404577 (0.2006269)	0.2865031 (0.1919429)	-2.128326** (0.9687139)	-3.811084** (1.481313)
_cons	0.2673104 (0.4695017)	0.1043841 (0.4054989)	4.310009 (1.380149)	3.520538 (1.050038)
Quarter Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	No	No
R ² -within	0.0222	0.0226	0.0076	0.0073
R ² -between				
R ² -overall	0.0222	0.0226	0.0075	0.0073
groups	10	10	10	10
n	550	550	830	830

CONCLUSION

- Our results contradicted what we thought would happen, we thought each variable would have a significant effect (largest effect being POHPI)
- Homeownership did not go up with prices or unemployment; likely governed by longer term economic growth that brings in high wage workers or raises productivity which in turn makes homes more affordable
- For future researchers I would recommend including more variables that capture the economic situation during this time period such as median household income
- I would also recommend to include more years before the recession of 2008