

An Analysis of the Impact of Growth Management Legislation on Housing Prices in U.S. Metropolitan Areas

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Overview

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- Data and Methodology
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What is Growth Management Legislation?

- Comprehensive growth management is legislation that is enforced statewide meant to limit sprawl and enhance quality of life in cities while also preserving natural resources.
- This type of legislation evolved from zoning regulations and comprehensive plans started in the 1920's by local governments to control sprawl.
- Florida was the first state to implement such legislation in 1985. Since, 10 more have adopted GMA legislation:
 - Georgia, Hawaii, Maine, Maryland, Minnesota, New Jersey, Oregon, Rhode Island, Vermont and Washington.

Impacts of GMA Legislation

- GMA legislation does not necessarily decrease housing affordability (Richardson et al., 1993)
- GMA legislation improves environmental quality, quality of life and provides stability (Washburn, 1997)
- Non-GMA states face the same affordability issues (Xinhua, 2005).
- Majority of residents support GMA legislation in their own state (Chapin & Connerly, 2004).
- Portland's Urban Growth Boundary had very little impact on the increase in housing values (Nelson et al., 2002).

Impacts of GMA Legislation

- GMA legislation has short- and long-term negative social and economic consequences for Florida residents (Anthony, 2003).
- GMA legislation is expensive in every aspect (Liou et al., 1994).
- GMA legislation needs to mature (Knapp et al., 2003, Avin & Bayer, 2003).

Research Question

- Does comprehensive growth management legislation really increase housing values or can other factors be blamed?
- I chose a dozen metropolitan statistical areas in GMA legislation states and dozen in non-GMA states.

- Other factors possibly influencing an increase in housing values include:
 - Certain industries flourish in some areas resulting in above average job creation
 - Higher incomes in certain areas attract educated employees from around the country.
 - In certain states the climate (e.g. Florida) accounts for a population increase.

Hypotheses

- H_01 : there is no relationship between change in housing values and employment change.
- H_A1 : there is a positive relationship between change in housing values and employment change.
- H_02 : there is no relationship between change in housing values and per capita income change.
- H_A2 : there is a positive relationship between change in housing values and per capita income change.
- H_03 : there is no relationship between change in housing values and housing units change.
- H_A3 : there is a positive relationship between change in housing values and housing units change.
- H_04 : there is no relationship between change in housing values and population density change.
- H_A4 : there is a positive relationship between change in housing values and population density change.
- H_05 : there is no relationship between change in housing values and population change.
- H_A5 : there is a positive relationship between change in housing values and population change.
- H_06 : housing values increases are higher in GMA state metropolitan areas.
- H_A6 : housing values increases are the same/lower in GMA state metropolitan areas.

Data and Methodology

- Dependent Variable: housing value change in percent between 1990-2000.
- Independent Variables: population change 1990-2000, per capita income change 1990-2000, population density change 1990-2000, housing units change 1990-2000, jobs change 1990-2000 (all of the above are percent change).
- Two dummy variables: intercept dummy and slope dummy.

The data was taken from the 1990 and 2000 Census (www.census.gov) and the Bureau of Economic Analysis (www.bea.gov)

The Metro Areas

GMA Metro Areas:

- Atlanta, GA
- Atlantic City, NJ
- Baltimore, MD
- Bangor, ME
- Burlington, VT
- Honolulu, HI
- Jacksonville, FL
- Minneapolis-St. Paul, MN
- Portland, OR
- Providence, RI
- Seattle, WA
- Tallahassee, FL

Non-GMA Metro Areas:

- Albuquerque, NM
- Birmingham, AL
- Charlotte, NC
- Colorado Springs, CO
- Detroit, MI
- Grand Rapids, MI
- Knoxville, TN
- Los Angeles, CA
- Louisville, KY
- Pittsburgh, PA
- San Antonio, TX
- Tucson, AZ

Multiple Regression

- Initial Regression Equation:

Δ housing values = a + intercept dummy + slope dummy
+ b1* Δ population + b2* Δ housing values +
b3* Δ population density + b4* Δ jobs + b5* Δ income

- Pearson's correlation:

population change	0.407
per capita change	0.661
jobs change	0.565
population density change	0.058
housing units change	0.457

Multiple Regression – The Final Model

R	R Square	Adjusted R Square	Std. Error of the Estimate
.833(a)	.694	.649	.1828180

	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.519	3	.506	15.152	.000(a)
Residual	.668	20	.033		
Total	2.188	23			

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics
	B	Std. Error	Beta			Tolerance
(Constant)	-.483	.267		-1.807	.086	
Dummy	-.356	.112	-.590	-3.189	.005	.446
SLOPE	1.358	.333	.710	4.083	.001	.505
PerCapitaChange	1.879	.494	.515	3.803	.001	.834

Final Regression Equation

$\Delta \text{ Housing Values} = -0.483 - 0.356 \text{ GMA} + 1.358 \text{ GMA} * \text{ Population Change} + 1.879 \Delta \text{ Income Change}.$

This leaves us with two separate equations, one for metro areas in GMA legislation states and one for metro areas without comprehensive statewide GMA legislation.

Cities = 0; $\Delta \text{ Housing Values} = -0.483 + 1.879 \Delta \text{ Income Change}$

Cities = 1; $\Delta \text{ Housing Values} = -0.839 + 1.358 \Delta \text{ Population Change} + 1.879 \Delta \text{ Income Change}.$

Conclusions

- Growth Management legislation alone has no impact on the increase in housing values.
- Other factors such as population growth and income change are needed as well for GMA legislation to have an impact on housing values.
- My research shows that if all other factors are disregarded (population and income increase) metro areas with GMA legislation actually have more rapidly decreasing housing values than non-GMA metro areas.
- This of course applies only for the 24 metro areas I have chosen.

■ Future research could include:

- a higher number of metro areas
- more demographic and economic variables
- also include rural areas to fully understand the impact of GMA legislation on housing values.