California's Housing Element Law: Evaluating and Predicting Municipal Effort, 1990-2007

by

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A dissertation submitted in partial fulfillment of

the requirements for the degree of

Doctor of Philosophy

(Housing Policy and Analysis)

at the

UNIVERSITY OF WISCONSIN-MADISON

2013

Date of final oral examination: 12/21/12:

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ABSTRACT

In this dissertation, I examine the effects of California's Housing Element Law on a municipality's inventory of low-income housing. I focus on low-income housing for two reasons. First, the law stratifies housing production by household income in order to provide housing opportunities at all economic segments. Second, if the inventory of low-income housing does not increase in proportion to a municipality's total housing inventory, then the housing opportunities for low-income families are constrained due to the interactions between scarce low-income housing inventory, limited income, and household size. California evaluates the law by annually enumerating the municipalities that maintain compliant housing elements. Yet, no agency or researcher has quantitatively stated how the law has affected low-income housing inventory; my dissertation responds to this need.

This research engages with literature on regionalism, governance, housing policy, and urban planning because this law incorporates aspects of each discipline into the implementation of its policies and programs. I take a pragmatic approach that employs mixed methods (e.g., Content Analysis, Multivariate Regression) in order to answer three questions. How has a municipality's inventory of "new construction" subsidized housing changed over time? What is the relationship between a municipality's housing demand, growth, political will, existing housing supply, and its annual inventory of "new construction" subsidized housing? Finally, what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, compliance, and its annual production of housing?

I argue that politically, municipal compliance relies on a regional governance scheme that identifies no clear umpire and abets political dissent. Fiscally, municipal compliance inflames political will by requiring municipalities not only to identify a permanent funding source for low-income housing, but also to forgo potential revenue. Technically, municipal compliance functions as a trope or phantom in which (a) the primary outcome of the law is a government document—not a housing unit, (b) the process relies on market solutions to fix a market failure, and (c) the causal relationship between housing "opportunities" and the increased inventory of subsidized units is unproven.

In order to answer my research questions, I examine 18 years (1990-2007) of annual municipal data and 130 municipal housing elements. A housing element is a local municipal plan that assesses current and future housing needs for all economic segments of the community. Most importantly, it identifies local housing policies and the programs that implement those policies (*California Planning Guide: An Introduction to Planning in California*, 2005). Because California's Housing Element Law effects all municipalities statewide, I employ a purposive sampling frame to examine 21 municipalities in Northern California and 32 municipalities in Southern California and divide the municipalities into two groups: central cities (e.g., Sacramento, Los Angeles), and non-central cities (e.g., Davis, Pasadena, Roseville).

The additional contributions of this investigation are threefold. First I create a primary data set that identifies the inventory of low-income housing within a municipality as it unavailable from state, regional, or municipal sources—this data will aid the agencies and may also allow other researchers to apply other statistical and mathematical tests. Second, I determine the associative and significant relationships between municipal characteristics and low-income housing inventory/housing production—these relationships will either confirm or refute the presented conceptual model. And finally, this research increases the number of investigations that examine housing elements and municipalities under statewide unfunded mandates. At present, the current studies do not take a longitudinal view.

To my knowledge, exploratory research that examines the effects of the Housing Element Law on municipal effort and low-income housing production using mixed methods, a longitudinal design, and non-equivalent groups has not been attempted before for two reasons. First, if the state or regional agencies had collected and maintained data on housing inventory by income, then we would know if the law has increased, decreased, or stabilized low-income housing inventory (Carreras, 2006; Luo, 2004). And second, if determining the effects of this law were a straightforward process, then an agency or researcher would have been completed that assessment by now (*Final Report*, 2004).

In close, this dissertation is exploratory in nature and my epistemological worldview is pragmatic, not constructivist, post-positivist, or advocacy (Creswell, 2009). Quite simply, I am trying to determine if California's Housing Element Law has had any effect on low-income housing production.

ACKNOWLEDGMENTS

First, I would like to thank my mother, Ruby Roena Cooke Ramsey, who saw me graduate from UCLA with a B.A. in Modern Dance, but did not experience my later accomplishments in Public Administration, Urban and Regional Planning, and now this.

I would also like to thank my committee:

- Victoria Basolo, for encouraging my ideas beyond my limits.
- Eric Camburn, for taking a chance on an unknown entity.
- Susan Coppersmith, for providing the platform for me to venture into the unknown.
- Kris Olds, for chairing my path to completion.
- Erik Nordheim, for not allowing me to sell myself short.

I also thank Kim Barber, Alex Deley, Jeanne Essame, and J. Brenton Stewart for their deep friendship, critical advice, and ongoing support. In addition, I would like to thank the following persons for their insights:

- Professor Kristin R. Eschenfelder – School of Library and Information Studies, University of Wisconsin-Madison. Thank you for helping me to envision a housing element as a "person" to be interviewed with a set of questions.
- Professor Carolyn Heinrich – School of Public Affairs, University of Texas, Austin. For months, I had struggled with creating a credible research design for this statewide mandate. Thank you for allowing me to audit your public evaluation course and for all of our subsequent discussions. As I often said in that class, "your readings are no joke."
- Tim Kennedy – Administrative Program Specialist, WI State Cartographer's Office. The maps in this dissertation would not be informative and great, if it was not for your expertise, friendship, and assistance.
- David A. Ward – Senior Lecturer & Coordinator of Professional Communication, University of Wisconsin-Madison. I am much improved in my writing, speaking, and presentation skills due to your guidance.

And lastly, I would to thank my husband Michael J. Ramsey-Musolf. I never set out to match you educationally, *but I have…*

In addition, I could not have completed this investigation without the timely assistance of the following persons:

- Lori Abrishami – Director of Long Range Planning, Los Angeles Metro
- Professor Marina Alberti – Department of Urban Design and Landscape, University of Washington
- the anonymous grant reviewers – Doctoral Dissertation Research Grant, Department of Housing and Urban Development, Washington DC

- Ben Bartolotto – *former* Research Director, Construction Industry Research Board
- Rochelle Branch – Executive Director of the Arts, City of Pasadena, CA
- Professor Patricia Flatley Brennan, Departments of Biostatistics & Medical Informatics, Nursing and Industrial Engineering, University of Wisconsin-Madison
- Professor Rachel G. Bratt – Department of Urban and Environmental Policy and Planning, Tufts University
- Gary Chew – Senior Planner, Sacramento Area Council of Governments
- Janice Coleman – *former* Executive Assistant to the Director, City of Glendora, CA
- Lenora Frazier – Senior Legal Analyst, California Department of Housing and Community Development
- Professor Robert F. Freeland – Department of Sociology, University of Wisconsin-Madison
- Professor Steve French – School of City & Regional Planning, Georgia Institute of Technology
- Professor Pupa Gilbert – Department of Physics, University of Wisconsin-Madison
- Elena Hsiao-Ching Hsu, Ph.D –Graduate School, University of Wisconsin-Madison
- Emeritus Professor Jack Huddleston – Department of Urban and Regional Planning, University of Wisconsin-Madison
- Ma'Ayn Johnson – Senior Regional Planner, Southern California Association of Governments
- Jason Josvai – Business Services Manager, Division of Diversity, Equity and Educational Achievement, University of Wisconsin-Madison
- Yashashree Dattatraya Kokje – Student Trainer, DOIT University of Wisconsin-Madison
- Professor Judith Kornblatt –Department of Slavic Languages, University of Wisconsin-Madison
- Professor John D. Landis – Department of City and Regional Planning, University of Pennsylvania
- Alice Justice – Department Administrator, Department of Urban and Regional Planning, University of Wisconsin-Madison
- Doug Kuczynski – Research Staff, California Department of Finance, Demographic Research Unit
- Professor Paul G. Lewis – School of Government Politics & Global Studies, Arizona State University
- Rob McAlear – Assistant Professor, Department of English, University of Tulsa
- TA McDonald – Doctoral Candidate, Department of Psychology, University of Wisconsin-Madison
- Jeff McLaughlin Ph.D – Affiliated Fellow, Center for Sustainable Suburban Development, University of California, Riverside
- Professor Terry Millar – Department of Mathematics, University of Wisconsin-Madison

- Professor Kurt Paulsen – Department of Urban and Regional Planning, University of Wisconsin-Madison
- Bill Riddle – Senior Librarian, California State Library, Sacramento, CA
- Stuart Robertson – Trainer, QSR International Pty Ltd
- Professor Judi M. Roller – *former* Associate Dean of the Community of Graduate Research Scholars, College of Letters and Science, University of Wisconsin-Madison
- Dean Gary Sandefur – College of Letters and Science, University of Wisconsin-Madison
- Professor Douglas Snow – Department of Public Administration, Suffolk University
- Professor Gwen Urey – Department of Urban and Regional Planning, CSU Pomona
- Dianne Walter – *former* Planning Manager, City of Glendora, CA
- Professor Rachel Weber – Department of Urban Planning and Policy, University of Chicago
- Professor Jan Whittington – Department of Urban Design and Landscape, University of Washington
- Barb Williams – Division of Accounting and Reporting, California State Controller's Office
- Stan Wong – *former* Director of Planning and Redevelopment, City of Glendora, CA
- Richard J. Zimmer – Lecturer, Department of Urban and Regional Planning, CSU Pomona

And lastly, I would like to thank all of the Planners, Planning Assistants, interns and administrative staff who aided in the collection of the housing elements.

PREFACE

I intend to distribute this dissertation to a wide audience of non-housing and non-urban planning readers. As a result, it may be more detailed than is normally required and thus longer, because I have made use of extensive footnotes in order to reduce jargon. These details are, arguably, necessary for relaying sufficient knowledge about the topics, contexts, and significance of previous research on low-income housing, as well as this dissertation. In addition, I have been preparing for this project since 2008; this dissertation reflects an iterative examination of the Housing Element Law phenomenon via academic literature, interactions with researchers at housing-related conference sessions, undertaking various strategies for identifying a research design, and devising potential statistical tests for a dependent variable that will proxy for the data of interest.

The UW-Madison Graduate School has allowed me to pursue a Special Committee Ph.D focusing on Housing Policy and Analysis. This degree speaks not only to my academic and professional experiences, but also recognizes that there are academic endeavors that are suitable for multi-disciplinary approaches. In particular, my interest in housing draws upon multiple fields of study, and in order to clearly communicate my research, I have relied upon Krathwohl and Smith's advice on dissertation preparation (2005). Their book is subtitled "Suggestions for Students in Education & the Social and Behavior Sciences," and this subtitle completely reflects my academic preparation in statistics, information sciences, sociology, education, geography, and urban planning.

Previous to my academic career at UW-Madison, I obtained a Masters of Public Administration from Suffolk University (Boston, MA) and completed internships at Civic Strategies (an educational reform non-profit contracted with the NYC public school system), WGBH-TV (assistant to the Program Manager of Greater Boston Arts program), and the City of Pasadena, CA. In Pasadena, I managed the city's cultural arts grants program, participated in the planning division's update of the general plan, and digitized paper maps to GIS data. It was here that I was bitten by the planning bug and continued the development of my views on opportunity costing via fiscal grants and land-use.

When working on general plan and planning decisions, I would ask various planning staff: who benefits, who loses, and why does the municipality promote this agenda? This line of questioning was an

extension of my academic work at Suffolk where my mentor, Professor Douglas Snow, taught a course on public financial management in which we examined the effects of federal devolution, unfunded mandates, and the intended and unintended effects of policy reform (i.e., the 1996 transition from general welfare to Temporary Assistance to Needy Families). After my 18-month stint with the City of Pasadena, I subsequently enrolled and obtained a Masters of Urban and Regional Planning from Cal Poly Pomona (Pomona, CA).

As a municipal planner, I worked for two Southern California cities that resided at the opposite ends of the social and political spectrum. The City of Hawaiian Gardens is located within urban Los Angeles and measures approximately one-square mile; its largest economic engine is a casino, and it contains a large population of lower-income Hispanic households. In this community, a frequent housing problem was the illegal conversion of garages into rental units.[1] In contrast, the City of Glendora is located within the foothills of the San Gabriel Valley, honors its heritage as a "dry-town," relies on competitive big-box centers as its primary economic engine, and contains a large population of aspirational middle- and upper-class households. A frequent housing problem was the McMansion-ization of residences within established neighborhoods. However, both cities were united in their opposition to low-income housing.

In Hawaiian Gardens, city officials believed that they were saturated with such units and needed no additional low-income housing units. In Glendora, city officials and residents did not want any low-income housing units because they believed that such units might attract crime, lead to lower property values, and demote community character. As a department insider, I observed the effects of California's Housing Element Law (e.g., 2006-2014 Regional Housing Need Assessment) on the planning staff of Glendora and neighboring municipalities. In general, I found chaos, anger, and resentment.

It was from these professional experiences that this topic of low-income housing has arisen, and it has provided me with the inspiration to explore the related issues of regionalism, governance, housing policy, and urban planning in the form of a doctoral dissertation.

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[1] The planning department's mitigation for this unwanted residential conversion was to require that all new single-family residences to install garage doors with windows. As soon as curtains were installed on the windows, planning staff assumed that the property owner had converted the garage to residential space.

ACRONYMS

ADU	Accessory Dwelling Unit
AMI	Area Median Income
BEA	U.S. Bureau of Economic Analysis
CDBG	HUD's Community Development Block Grant program
CEQA	California's Environmental Quality Act
COAH	New Jersey Council of Affordable Housing
COG	Council of Governments
DOF	California Department of Finance
CPI	Consumer Price Index
GML	Florida's Growth Management Law
HCD	California Department of Housing and Community Development
HEL	California's Housing Element Law
HUD	U.S. Department of Housing and Urban Development
HOME	HUD's Home Investment Partnership program
HOPWA	HUD's Housing Opportunities for Persons with Aids program
HOPE VI	Housing Opportunities for People Everywhere
IHO	Inclusionary Housing Ordinance
LCA	Minneapolis' Living Communities Act
LIHTC	Low Income Housing Tax Credit
LUPA	Minneapolis' Land-Use and Planning Act
MPO	Municipal Planning Organization
NCSH	New Construction Subsidized Housing
NIMBY	Not In My Back Yard
OLS	Ordinary Least Squares
PCPI	Per Capita Personal Income
PUD	Planned Unit Development
RCA	Regional Contribution Agreement
RHNA	Regional Housing Needs Assessment
RUCA	Rural Urban Commuting Area codes
SACOG	Sacramento Area Council of Governments
SCAG	Southern California Association of Governments
SCO	California State Controller's Office
SHRA	Sacramento Housing and Redevelopment Agency
T1	Treatment Period 1 (e.g., 1989-1997)
T2	Treatment Period 2 (e.g., 1998-2005)
T3	Treatment Period 3 (e.g., 2006-2014)
TIF	Tax Increment Finance
TOD	Transit Oriented Development
UA	Urbanized Area
UC	Urban Cluster

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INSTRUCTIONS FOR READING THIS DISSERTATION

As noted in my preface, this dissertation is intended for a wide audience that includes not only planners and academics, but also public administrators, low-income housing advocates, private developers, and the public. Therefore, I have included many footnotes to clarify acronyms and jargon and to provide the research with additional resources, if curious. When appropriate, I included examples from either my professional planning experiences, contemporary land-use issues, or the data itself in order to "operationalize" a planning concept. For example, I discuss the impact of a housing allocation on an established high-income community (e.g., Palo Alto), the proportion of returned sales taxes to municipal revenue (e.g., Bradbury, Duarte), the stratification of household income and housing need (e.g., Carson), the financial development gap for quality low-income housing construction (e.g., Pasadena, Heritage Partners), or the transformation of mobile home parks into high density housing (e.g., Glendora). I do this not for self-indulgence, but to provide readers unconnected to quotidian planning and housing issues a window for understanding the concept, the issues at hand, and how municipalities choose to operate.

Lastly, this is a seven-chapter dissertation. I have placed my findings Chapters Five and Six. Rather than force the reader to sift through detailed analytical data for the summary, I have front loaded the big picture summary for two reasons. First, I wish to state the overall outcome in a concise manner. Second, as one reads the analytical data, one can internalize the evidence that has led to my conclusion.

1.0 INTRODUCTION

California currently faces a multi-faceted housing crisis. In terms of price, housing that is near the central city may be too expensive or lower in quality (Cutler, Glaeser, & Vigdor, 1999, pp. 457, 476). If the unit is affordable, then it may be too far from job centers or too small in size (Ewing, 1997; Schuetz, 2009, p. 296). For households that rent, there are not enough multi-family units produced for low-income households with children (Landis, Reilly, Corley, & Jerchow, 2000). For households that qualify for home ownership, the choices can be limited, owing to housing inventory and household income (Ong & Haselhoff, 2005). Compounding this crisis is the role of zoning—where municipalities place restrictions on housing type, quantity, and the minimum sizes of lots and new units—further restricting housing inventory (Beitel, 2007, p. 745; Quigley & Rosenthal, 2005).

In this dissertation, I investigated the local effects of the State's response to these problems. Quite simply, I asked whether California's Housing Element Law has had any effect on either the construction of low-income housing or housing production in general. Other states, such as Illinois, Massachusetts, New Jersey, Oregon, Pennsylvania, and Rhode Island have attempted to address housing issues by either mandating statewide allocations, allowing housing court appeals, designating minimum development standards, mandating density bonuses, or requiring housing elements (Listokin, 1976; Meck, Retzlaff, & Schwab, 2003).[2] However, unlike California, none of these states has adopted a multi-level government agency approach that *links* regional, state, and municipal housing issues within a single document (e.g., the housing element), *records* municipal effort to produce low-income housing (e.g., compliance), and *assigns* no penalty for failure. California's Housing Element law has been accused of having no teeth (Veazey, 2008), and the presented research will attempt to explicate any effects on housing production. Furthermore, no agency or researcher can quantitatively state how the law has affected low-income housing inventory; my dissertation responds to this need.

This introduction has two sections. In the following paragraphs, I speak to three components of California's housing crisis (e.g., production deficiency, inaccurate forecasts, and price appreciation) and link them to findings from current literature. Next, I discuss how this dissertation connects and

[2] Other than housing court appeals, each of these tools is included in the California law.

contributes to the wider discussion of housing policy. I then continue with the explanation of my intent to examine subsidized housing, as opposed to affordable housing. In the second section, I discuss the State's response to the crisis (e.g., the Housing Element Law) and provide a detailed discussion on the regional implementation of the State's response (e.g., Regional Housing Needs Assessment aka RHNA allocation).

1.1 THREE ASPECTS OF THE HOUSING CRISIS

If California needs more housing units, then why doesn't the private sector build them? In the executive summary of California's 2000 statewide housing plan (encompassing the years 1997-2020), Landis et al. forecasted that California would require more than 200,000 new housing units per year to meet the housing demands of current and future residents (2000, p. 9). This figure was notable because during the period of 1954-2000, there were only four intervals (1962-66, 1970-74, 1975-80, 1984-1988) when the issuance of residential permits did exceed 200,000 permits per year, but those permits, prior to 1990, may have included federally-funded housing units. In the years following 1988, home production had averaged 141,000 units per year (Landis et al., Chapter 3, Exhibit 4). Critics have pointed to zoning, environmental regulations, and land scarcity as the leading culprits of low production (W.A. Fischel, Hale, & Hale, 2006; Mueller & Schwartz, 2008; Ottensmann, 1992, p. 97). Consequently, production deficiency constricts economic housing satisfaction and places positive pressure on housing price appreciation—effectively pricing many units out of the affordable housing range (Yates & Wood, 2005).

If California's population is increasing, then how do the State and municipalities account for housing demand? In a study of headship rates[3] and their relationship to forecasting housing demand, Myers et al. found that using averages in forecasts did not account for (a) the differences in headship rates for ethnic households (e.g., Hispanics, Asians), and (b) the location of either available land or job centers (2002). The authors also found that immigrant families tended to be larger and poorer in the first generation, with the subsequent second and third generations aligning with statewide averages (pp. 576-579). Previously, Landis et al. conceded that jobs may eventually follow residents to affordable suburban areas, thereby correcting the jobs/housing spatial mismatch (Landis et al., Ch 4, Local Growth Management). This latent solution, however, may abet sprawl (Calthorpe & Fulton, 2001; Duany, Plater-Zyberk, & Speck, 2001; Ewing, 1997). In addition, neither job movement nor housing construction is instantaneous, and if forecasts were inaccurate, then subsequent allocation strategies to satisfy housing needs for residents and in-migrants may produce inaccurate spatial results.

[3] Headship rates are defined as a population's propensity to form new households. Please see Myers, Pitkin, and Park for a larger discussion of headship rates, household formation, and their impact on housing (2002).

Regarding housing price appreciation, Landis et al. found that "between 1969 and 1999, California home prices increased at the average annual rate of 7.5%, resulting in a November 1999 median sales price of $221,890, which was 1.5 times the national average" (2000, p. 12). Between 1999 and 2005, "housing prices in the [Southern California] region more than doubled, increasing twice as fast" as prices nationwide (Ong & Haselhoff, 2005, p. 2). While household incomes in California may be slightly above the national level, such positive home price appreciation requires that Californians dedicate a higher percentage of income to satisfy their housing consumption needs. Even accounting for the recent slump in housing prices (2008-2009), current home prices in the Los Angeles region have fallen only to their 2003 level,[4] which is still more than double the national median (Kroll & Singa, Figure 2, p 28). Taken together, the factors of low construction, questionable forecasts, and price appreciation contribute to a housing market that allows many households to fall into housing precarity.[5]

The State's response to the crisis, the Housing Element Law, employs a "quasi" supply-side intervention. A supply-side solution may include increasing the supply of housing either to deflate existing housing prices or to provide new housing units at all prices (Listokin). At the opposite end of the spectrum, a demand-side solution to these housing problems may include raising household incomes either directly through wage supports and vouchers, or indirectly with compulsory education (Chevalier, Harmon, O'Sullivan, & Walker, 2005; Steele, 2001). In the examined phenomenon, California's Housing Element Law purports to increase the supply of housing units by requiring cities and counties to plan for housing "opportunities" (e.g., new construction, rehabilitation and preservation of existing subsidized units, and market-rate units) that will satisfy the State's current and future housing needs—vis-à-vis their municipal housing element. Yet, there is no evidence that these housing opportunities have transformed to housing units in proportion to local housing need (e.g., low-income vs. luxury).

I suggest that California's Housing Element Law is a "quasi" supply-side strategy because the State does not provide any subsidies linked to the planned housing, the deficiencies in household

[4] http://www.nytimes.com/imagepages/2011/03/30/business/30housing-gfc.html?ref=economy

[5] In the social and political sciences, "precarity" has been referred to as a condition that describes the ephemeral grasp that workers have on wages and social benefits due to flexible shifts in capital (Neilson & Rossiter, 2008). In this dissertation, I extend this concept by the focusing on housing as a precarious social benefit due to wage inequity (Gilbert, 2007).

incomes, the increases in housing prices, or the desired levels of housing production. Therefore, the State's response may actually constrain success and may perpetuate the crisis (Veazey, p. 81).

1.2 DISSERTATION FOCUS AND CONTRIBUTIONS

For this dissertation, I evaluate California's Housing Element Law (HEL) by examining the inventory of "new construction" subsidized housing (NCSH) at the municipal level. I shall specifically examine how a municipality's inventory of NCSH has changed over time, what factors are associated with those changes, and what factors are associated with housing production.

In this dissertation, I assert that HEL's outcome of legislative compliance[6] inhibits the creation of NCSH for two reasons. First, compliance is a political solution that rewards process because programmatic success is evaluated as the annual enumeration of municipalities with compliant housing elements, not the annual amount of NCSH created (Dodge, Shoemaker, & Stone, 2002; *Final Report*, 2004, p. 1). Second, municipalities skew compliance by implementing rehabilitation (i.e., repairs to existing housing units in order to eliminate blight) and preservation strategies (i.e., mortgage subsidies to existing subsidized housing units in order to extend their program usage) rather than "new construction" strategies (Rubin, Seneca, & Stotsky, 1990). For municipalities, rehabilitation improves the existing housing stock and property tax base; preservation does not technically increase the number of low-income households within a community; and more importantly, California's Department of Housing and Community Development (HCD) does not provide permanent and consistent funding for subsidized housing's construction, maintenance, or operation. Thus, if NCSH does not increase in proportion to a municipality's growing housing inventory, then housing opportunities for low-income households are reduced at the municipal level, shifted within the regional level, and ultimately restrained at the State level.

The primary contribution of the presented research is the following. California's Housing Element Law has guided municipal decisions regarding the planning, placement, and provision of local housing

[6] In this dissertation, the term compliance means that a municipality's housing element statutorily complies with California's Housing Element Law. Compliance signals that a municipality has planned for current and future housing production, but it does not guarantee that the public or private sector will construct any housing units (*Housing Element Law Overview*, 2007).

issues since 1967. However, no agency or research has been able to quantitatively state how that law has affected low-income housing inventory or overall housing production. With my mixed-method analysis that takes into consideration the philosophic, political and technical aspects of the law (Greene & Caracelli, 1997), I shall be able to state in clear terms, how the law has affected a sample of municipalities under their time invariant conditions such as household income levels, region, treatment period, location, and municipal typology. In addition, the conducted research also examines the relationship between housing production (subsidized and market-rate) and municipal financial data. The findings contained herein will answer the need for analytical information desired by municipalities, regional/state/federal agencies, housing advocates, and other interested parties. This research will also connect to the wider academic discourse in the following manner.

First, when researchers theorize that regional solutions should be more successful at implementing redistributive policies, the presented research will either confirm or refute those views with primary evidence (J. N. Levine, 2001; Lindstrom, 1998; Wheeler, 1993). Second, in my upcoming description of HEL and the RHNA allocation, one may find echoes of Pressman and Wildavsky's documentation of the implementation of federal economic policy at the municipal level (1984). In that particular example, federal intent and municipal effort in Oakland never coalesced due to conflicting goals, outputs, and leadership. Third, the presented research connects to discourses on governance (i.e., hierarchal, consensus, partnerships) and illustrates that consensual approaches are not optimal since local governments are beholden to the social, financial, and economic interests of their residents (Baer, 2008; Basolo, 1999, 2003; Bollens, 1997; Jonas & Pincetl, 2006; Lewis, 1998; Mitchell, 1999; Mogulof, 1971). And lastly, due to the devolution of federal and state powers (i.e., the rise of unfunded mandates), the presented research confirms previous research that argued that municipal governments are ill-equipped to handle the unmet housing needs of low-income households (Kleit & Page, 2008; Mueller & Schwartz, 2008).

The technical contributions of my dissertation are as follows. First, the presented research provides data and evidence that answers what has been HEL's effect on low-income and market-rate housing production. These answers have proved elusive to COGs, HCD, housing advocates, and the State.

Second, the presented research on housing employs a longitudinal design using non-equivalent groups that are stratified by location, government type, and urban setting. To my knowledge, this design has not been previously attempted. In the HEL phenomenon, the application of the statewide treatment (e.g., RHNA allocation) leaves no control group.

While studies of housing elements do exist, my research moves beyond their constructs. For example, Mitchell may have conducted a 20-year study on housing production in New Jersey and Pennsylvania; Goetz et al. may have examined 25-years of development in Minneapolis; and Hoch may purposively have gathered housing elements from 49 non-compliant municipalities (Goetz, Chapple, & Lukermann, 2003; Hoch, 2007; Mitchell, 1999). However, none of those investigations used annual municipal data in order to reduce the effects of history or periodicity. Therefore, their contributing research, while significant, also suffered from gaps inherent to their research design.

Third, this research project employs mixed-methods, as opposed to mixed-models that merely conjoin qualitative and quantitative studies, in order to understand municipal effort on housing. I provide this dissertation and its procedures as a "technical manual" for stimulating future replication. During my review of related literature that employed Content Analysis, I frequently noted that methodological discussions omitted key information regarding units of analysis, location of data within texts, and procedures for the documentation of findings—stymieing replication and objective assessment of the presented research. In this dissertation, I have written the methodological procedures as clearly as possible. Furthermore, for housing research employing regression methods, I found little discussion of Multicollinearity within the predictors, author confusion between R^2 and adjusted $\bar{R}^2$, and scant attention to residual analysis. In this dissertation, these statistical tools will refine the estimating equation and a potential statistical shift from Ordinary Least Squares to Generalized Least Squares models. More importantly, I define and employ a defensible mixed-method strategy to this dissertation (Greene & Caracelli, 1997; R. Johnson, Onwuegbuzie, & Turner, 2007).

Fourth, the presented research tests housing element compliance and its effect on annual housing production by measuring a municipality's compliance status for each year of the 18-year period of study. In Lewis' research, he examined a municipality's 1994 compliance status as a predictor of a municipality's year 2000 housing production. He found that compliance had no statistical relationship to future housing

production. This research longitudinally extends his examination and creates primary data (e.g., amount of low-income housing produced within each treatment period) derived from the housing element data. This data can inform state, regional, and municipal agencies of the longitudinal changes in housing production as affected by compliance. Furthermore, the presentation of this data in tables may inspire more statistically advanced researchers to apply additional tests on the primary data.

And lastly, the presented research employs an endogenous conceptual model (i.e., conditions relating specifically to housing) that is derived from the collective literature of regionalism, housing policy, governance, and urban planning, as opposed to laying an untethered theory (i.e., unrelated to any aspect of housing) on this phenomenon. I backstop this strategy in my upcoming discussions of Hoch, Castells, and other epistemological views that situate urban planning as a social endeavor, as opposed to a replicable science. I quantitatively test this conceptual framework, and if the ties between the conceptual and operational definitions statistically hold true, then future researchers may replicate this study or apply the conceptual model to other examinations of housing. However, if the model fails, then this failure still contributes to the discussion of housing production in a regional setting that is informed by an unfunded mandate.

In summary, my presented and exploratory dissertation will examine whether California's Housing Element Law has any effect on housing between the years of 1990 to 2007. Therefore, this dissertation is limited to the new construction of subsidized and non-subsidized housing within a manageable subset of California municipalities. The following topics, while pertinent and deserving, are beyond my current scope.

I do not examine race within the scope of the research because the units of observation[7] do not record housing production and race. Please see the literature of Dawkins, Defilippis & Wyly, Hoch, and Pritchett for examinations of race and housing (2005; 2008; 1993; 2008).

I do not examine racial housing preferences within the scope of the research because public input is limited to an initial scoping session at the beginning of the housing element creation. Furthermore, the

[7] In this dissertation, the units of analysis are California municipalities. However, the *units of observation* are the municipal housing elements. Please see Wolfer for a detailed discussion regarding the relationship between these terms (2007, Chapter 3).

housing element documentation of the required public meetings lists dates, times, and membership, but omits details from about public discussion; therefore, resembling Arnstein's' level of tokenism (1969, p. 219; *City of Covina Housing Element Update, draft*, 2010, pp. 11-12; *City of Diamond Bar 2008-2014 Housing Element, revised draft*, 2010, pp. E-1). Please see the work of Krysan and Krysan & Couper for examinations of racial housing preferences and housing (2002, 2008; 2003).

I do not examine the self-sufficiency of low-income households within the scope of the research. While the creation of a housing element may require a municipality to enumerate the quantity of federally assisted housing units and note if such units may transition from subsidized to market-rate status, the process does not directly interact with low-income households and the sources of their income, the changes in their educational attainment, or the conditions influencing their family size. Please see the literature of Berger, Heintze, Naidich & Meyers; Heintze, Berger, Naidich & Meyers; Shroder; and Van Ryzin, Ronda, & Muzzio for examinations of self-sufficiency of low-income households and housing (2008; 2006; 2002; 2001).

I do not examine the RHNA allocation methodology within the scope of the research. RHNA methodology is non-equivalent by region, meaning that the methodology of ABAG[8] in the San Francisco region is different from that of SANDAG[9] in the San Diego region, is different from SCAG[10] in the Los Angeles region, and is different from SACOG[11] in the Sacramento region. Please see the work of Myers, Pinter, Yu & Wei and Myers, Pitkin & Park for examinations of the RHNA allocation methodology and housing (2005; 2002).

I do not examine HCD technical criteria within the scope of the research as the HCD review of a housing element is a unique discretionary action. Perusal of the letters between HCD, the municipalities,

[8] The Association of Bay Area Governments (ABAG) is the regional planning agency for the nine counties and 101 cities and towns of the San Francisco Bay region. http://www.abag.ca.gov

[9] The San Diego Association of Governments (SANDAG) serves as the regional decision-making forum for that 18 cities and county government located in San Diego County. http://www.sandag.org/

[10] With 174 member cities and six-counties, the Southern California Association of Governments (SCAG) is the largest COG in the United States. The region's population exceeds 18 million persons in an area of more than 38,000 square miles. http://www.scag.ca.gov

[11] The Sacramento Area Council of Governments (SACOG), consisting of 22 member cities, is an association of local governments in the six-county Sacramento region. http://www.sacog.org/about/

and the municipality's consultants attest to this discretion.[12] Please see the literature of the Joint Committee Housing Element Group report, Myers, and Veazey for examinations of the HCD technical criteria and housing (*Final Report*, 2004; 2002; 2008).

I do not examine Low Income Housing Tax Credit programs operated by the Department of Treasury/IRS. While this program does provide a significant supply of low-income housing units, the IRS places boundary conditions on state participation, and in the examined phenomena, municipal effort is limited to housing project approval or denial. Please see McClure and Schwartz for more information on LIHTC and housing (McClure, 2006, 2008; A. Schwartz, 2006, Chapter 5).

And lastly, I do not examine California's Housing Element Law in contrast to either state housing programs (e.g., Illinois, Massachusetts, New Jersey, Oregon, Pennsylvania, and Rhode Island) or municipal housing programs (e.g., Minneapolis), or federal programs operated by HUD. In their examination of housing programs in New Jersey and Massachusetts, Graddy and Bostic found that comparative analysis of different legislative frameworks does not allow for a single, appropriate, or decisive performance standard (2010, p. 98). Please see Meck et al. for explications of state programs, Goetz for Minneapolis programs, and Schwartz for HUD programs (Goetz, 2000; Goetz et al., 2003; Meck et al., 2003; A. Schwartz, 2006).

[12] http://www.hcd.ca.gov/hpd/hrc/plan/he/he_review_letters/

1.3 WHY SUBSIDIZED AND NOT AFFORDABLE?

In this dissertation, I use the term "subsidized housing" to emphasize the fiscal deficit that low-income households experience as opposed to the generic "affordable housing" that includes not only low-income households, but also the middle- and upper-classes (Connerly & Muller, 1993, p. 186). For example, the celebrity Ed McMahon may have had a well-publicized housing crisis (i.e., mortgage default[13]), but his income and assets would disqualify him from occupying an income-restricted housing unit under California's scheme. This same rationale applies to middle- and upper-class households.

To qualify for subsidized housing in California, a household's income should be no more than 50% (Very-Low), 80% (Low), or 120% (Moderate) of a region's Area Median Income (AMI).[14] California agencies operationalized these income limits in the following manner. In 2009, the Los Angeles County AMI for a four-person household was $62,100. For a four-person household seeking government-funded subsidized housing, the maximum household incomes were as follows: Very-Low was $ 39,650, Low was $63,450, and Moderate was $74,500.[15]

In this dissertation, "subsidized housing" refers to housing units where an entity, such as a government or non-profit agency, provides a subsidy to close the financial gap between the household's income and the required rent or mortgage payment. This gap is determined by federal housing policy that dictates that a low-income household should contribute no more than 30% of their gross income to housing costs (A. Schwartz, 2006, p. 23). I find that terms like "affordable," "workforce," and "lifecycle" are too imprecise for the needs of this dissertation because my research examines low-income households

[13] http://thelede.blogs.nytimes.com/2008/06/06/ed-mcmahon-housing-crisis-casualty/

[14] The median income (derived from Census data) divides the income distribution into two equal parts: one-half of households falling below the median income and one-half above the median. The US Department of Housing and Urban Development (HUD) uses the median income for families in metropolitan and non-metropolitan areas to calculate income limits for eligibility in a variety of housing programs. HUD estimates the median family income for an area in the current year and adjusts that amount for different family sizes so that family incomes may be expressed as a percentage of the Area Median Income. http://flhousingdata.shimberg.ufl.edu/apps/azindex.pl?t=18

[15] http://planning.lacounty.gov/assets/upl/project/housing_2009-income-limits-costs.pdf

and the housing constructed for their residential satisfaction.[16] In addition, I shall use the term "municipality" as a reference to cities in order to clarify the taxonomy between municipal (i.e., local), regional, state, and federal action, and I shall also use the term "low-income" as reference to the Housing Element Law's stratification of household income into "Very-Low," "Low," and "Moderate" categories. In addition, I shall use the term market-rate in reference to housing units categorized as "Above-Moderate."

Following this introductory chapter is a review of the Housing Element Law (HEL) and the Regional Housing Needs Assessment (RHNA) process. My intent is that this section will provide the legislative and procedural background to California's "quasi" supply-side strategy of providing housing "opportunities" in a regional context. In the second chapter, I shall provide a review of related literature that focuses on municipalities, housing elements, and their compliance with unfunded state mandates. This review will provide an analysis of previous research and identifies gaps where my presented dissertation will either provide additional analysis or improve existing methodologies. In the third chapter, which includes the problem statement, I shall discuss the unintended consequences of the HEL/RHNA process as they relate to subsidized housing. This section will also contain my research questions, related hypotheses, and conceptual model. In the fourth chapter, I shall discuss the methodology of this investigation and outline any potential limitations. Chapters five, six, and seven will include the findings from the content analysis, the findings from regression analysis, and the conclusion, respectively.

[16] For further discussion of affordable housing nomenclature, please see Goetz, Lang et al., and Payne (E. G. Goetz, 2008; Lang, Anacker, & Hornburg, 2008; Payne, 2006)

1.4 THE HOUSING ELEMENT LAW

In 1969, the California legislature required that all municipalities produce a housing element[17] as part of the legal requirements of a general plan.[18] The law was enacted with the intent of solving the problem of exclusionary and restrictive zoning practices[19] that might inhibit the production of housing in suburban communities (Baer, 2008), raise "the prices of residential access" (Listokin, p. 12), and ultimately limit the housing opportunities for minorities and/or low-income households (Baer, 1988; Beitel, 2007; Calavita, Grimes, & Mallach, 1997; Veazey, 2008). The law required that municipalities demonstrate how they would accommodate local housing needs by planning for future housing production in their housing element.

In that hierarchal and command government approach, the State envisioned that this new legal doctrine would force municipalities to remove *local* housing constraints and increase the *local* housing supply. As a corollary, the State*'s* housing supply in all price ranges should increase—reflecting the diverse socio-economic characteristics of municipalities. Unlike other general plan elements that are locally mandated, the housing element was now subject to California's Department of Housing and Community Development (HCD) review and represented a state encroachment on home rule.[20] Unfortunately,

[17] For more information regarding the HUD origins of the housing element with regards to Section 701 planning grants and Comprehensive Plans, see (Listokin, pp. 1-12) and (Mogulof, 1971).

[18] A "general plan" legally establishes development strategies and policies that guide the future development of a community; such a plan usually takes a 20-year view in its outlook (*General Plan Guidelines*, 2003). In California, a general plan is required to have, at a minimum, the following elements: land-use, circulation, conservation, open space, noise, safety, and housing ("California Code; Government Code,"). Municipalities may elect to include additional elements (i.e., recreation, cultural resources, flood management, economic development, etc.) that are pertinent to their local circumstances.

[19] Exclusionary zoning practices may include mandating minimum lot and building sizes, prohibition or restriction of multiple-family units, excessive zoning of open space and commercial areas (N. Levine, 1999; Mitchell, 1999, p. 119).

[20] Home rule "is generally understood to be synonymous with local autonomy, the freedom of a local unit of government to pursue self-determined goals without interference by the legislature or other agencies of the state government" (Sandalow, 1963, pp. 643 - 644). Within California, home rule is amplified as cities are classified as either general law (governed "under standardized state law provisions"), or charter (governed "under a charter of their own devising" (Baer, 1988, p. 270). Therefore, for charter cities (i.e., larger municipalities located in metropolitan areas), the HCD encroachment was particularly offensive.

compliance and the increases in housing inventory did not follow as envisioned (*Analysis of the 2003-04 Budget Bill, General Government Chapter.*, 2003; Baer, 1988, 2008; Meck et al., 2003).

Between 1969 and 1975, the municipal compliance rate was negligible for two reasons. First, Ronald Reagan was elected governor in 1969. He viewed HCD as an unnecessary function of government and his administration "tried unsuccessfully to merge it with other state agencies;" however, he did succeed in reducing HCD's budget to the equivalent of one full-time employee (Lewis, 2003, p. 14). Reagan, as president of the United States, would repeat this "starve the beast" strategy with HUD (Krugman, 2010; A. Schwartz, 2006, pp. 41-42).[21] Second, HCD administrative purview was initially limited to the development of a statewide housing plan and the inspection of manufactured housing. Under those conditions, there was little administrative capacity to oversee municipal housing elements (Baer, 1988).

After Governor Jerry Brown's election in 1975, his placement of housing advocate and attorney Arnold Sternberg as head of HCD, and subsequent modifications to HEL, HCD implemented significant program changes that improved the effectiveness of the law, but also increased the tension between the State and municipalities (Baer, 2008, p. 57; Veazey, 2008). These changes included the development of detailed guidelines, the review of city and county housing elements, and the implementation of agency processes requiring that housing elements include "a needs analysis, a discussion of resources and constraints, statements of goals and specific policies regarding housing, as well as quantified objectives for construction, conservation, and rehabilitation" (Connerly & Muller, 1993, p. 185; Lewis, 2003, pp. 15-16; 2005, pp. 180-181).

It was also during this period (e.g.,1975-1988) that the State struggled with HCD's role as either an advisory agency (i.e., issuing guidelines) versus a regulatory agency (i.e., issuing mandates), since

[21] HUD is the U.S. Department of Housing and Urban Development. Established in 1965, HUD's mission is to increase homeownership, support community development, and increase access to affordable housing free from discrimination (Department of Housing and Urban Development, 2009).

After Reagan's presidential election in 1980, his administration pursued a dual strategy of cutting taxes and slashing federal government expenditures (Connerly, 1992). Subsequently, HUD's budget authority fell from roughly $60 billion in 1980 to $12 billion in 1989. At the same time, the construction rate of new public housing units decreased from roughly 120,000 units per year in 1980 to 9,000 units per year in 1989, forcing ill-equipped state and local agencies to fill regional public housing needs (Kleit & Page, 2008; Mueller & Schwartz, 2008; Schwartz, 2006, pp. 41-42, Figures 2.6 and 2.7).

California's District Attorney would interpret the HCD guidelines as regulations and threaten municipalities with lawsuits in order to enforce compliance (Baer, 1988, p. 266; 2008, p. 56). In either case, less than 30% of all cities complied with the housing regulations (Calavita et al., 1997, p. 117; Meck et al., 2003).

1.5 THE 1989 LEGISLATIVE UPDATE

In 1989, the State revised HEL to clarify HCD's administrative authority, implement a regional allocation system, elevate fair-share, and institute political compromise between legislature, local governments, housing advocates, developers, and residents.[22] In the next paragraphs, I shall detail the significance and outcomes of these items.

The first significant revision involved shifting HEL from hierarchal government to *governance*. In the HEL phenomenon, I define governance as *cooperation among equals without coercion*. This definition is supported by Vogel and Nezelkewicz's examination of regional transportation planning in the dual-state, nine-county region of Louisville, KY (2002, p. 108). The authors defined governance as "a system of cooperation that may take the form of a policy network" and also noted that governance is "coordination without hierarchy… in multi-organizational settings" (2002, pp. 108-109). Governance, in their view, is distinctly different from government, which is a "coercive power and command-and-control process embedded in hierarchal organization" (2002, p. 108).

The second significant revision involved the implementation of a regional system. While HCD's role as the arbiter of housing elements was retained, "Councils of Governments" (COG)[23] would act as the intermediary between HCD and the municipalities. COGs are regionally distributed throughout the state; many COGs (e.g., ABAG, SANDAG, SCAG, SACOG, etc.) also operate as Municipal Planning Organizations[24] (MPOs), and most municipalities utilize COGs for technical assistance in regional planning for federal transportation and air-quality projects (Listokin, 1976, p. 4). By adopting this regional governance approach, the State recognized that COGs might have a stronger relationship with

[22] Resident input has been interpreted as the passage of a restrictive property tax measure (e.g., Proposition 13) that limits property tax collection to 1% of assessed value and thus restricts local expenditures (Baer, 1988, p. 59)

[23] Councils of Governments are voluntary associations of cities and counties that recognize that there are issues that transcend local boundaries and should be mitigated by working together and planning a unified local response to regional concerns. Their governing boards are composed of locally elected members of city councils and county boards of supervisors (California Association of Council of Governments, 2009).

[24] Metropolitan Planning Organizations are federal agencies that coordinate the ranking of federal transportation projects in urbanized areas of 50,000 or more in population. http://www.ampo.org/content/index.php?pid=15

municipalities because of their voluntary relationship with them, equitable voting procedures, and shared governance. Thus, the COG/municipal relationship should aid in the municipal implementation of and compliance with HEL (Lewis, 1998; Lewis & Sprague, 1997).

In short, governance serves as the political compromise because of the following outcomes -- specifically, HCD authority has been reduced, COGs have been inserted as regional referees, and municipal home rule has been recognized and accommodated. In the Housing Element Law, all agencies have equal status in this regional process of creating housing since no agency is "commanded" by another agency. Please see Figure 1 as a visual description of the Housing Element law as implemented under regional governance.

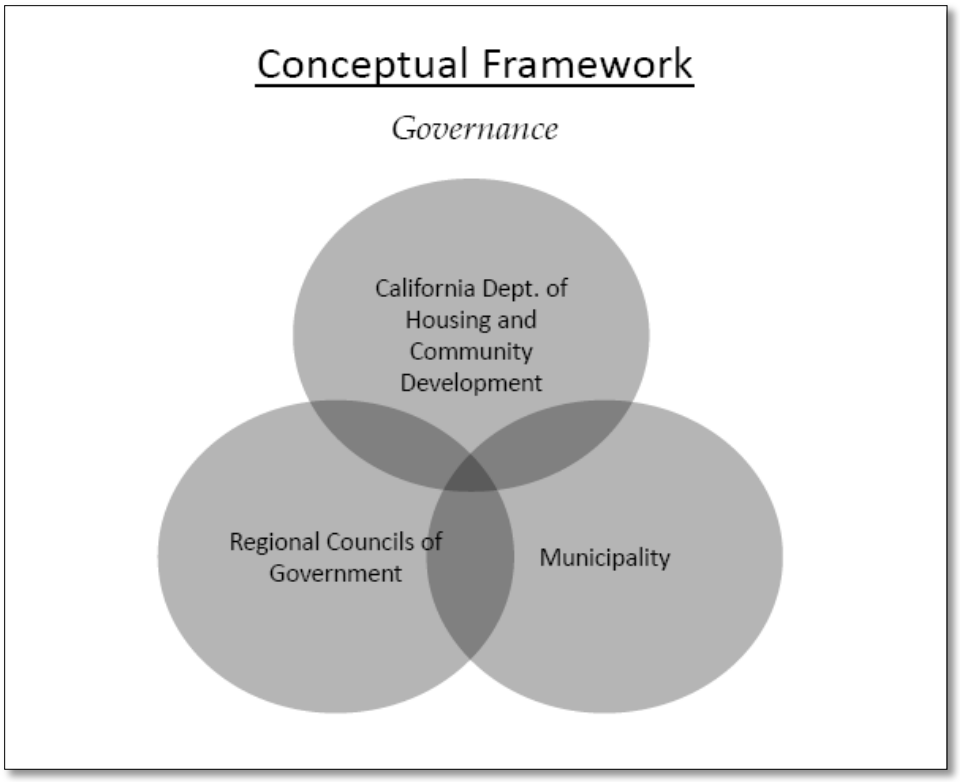

Figure 1: Governance as a triumvirate

This image depicts Governance as a triumvirate of statutorily consensual relationships between stratified government agencies in order to increase housing production.

The third significant revision was the codification of the "fair-share" approach. One view defines fair-share as a "redistributive policy or redirecting resources to benefit selective segments of society for equity concerns, usually by… taking from the 'haves' and giving to the 'have-nots'" (Baer, 2008, p. 52; Kroll & Singa, 2008). Another view of the fair-share doctrine asserts that "housing for all economic levels of society is a regional issue which all jurisdictions should be involved in addressing," as regional benefits do not stop at municipal borders (Veazey, p. 73). And lastly, fair-share can be viewed as a means of control, where one "attempt[s] to manage growth rationally and equitably," thereby placing housing opportunities where they are both needed and can be accommodated (Listokin, p. xvi). These views stem from the Mt. Laurel housing discrimination cases.

In essence, Mt. Laurel I is a legal decision in which the New Jersey State Supreme Court held that municipalities must create opportunities for low-income housing as part of the general welfare of the State, since local governments are creatures of the State (Briffault, 1990, p. 23). Mt. Laurel II is a legal affirmation of the former decision and holds that municipalities must account for a regional "fair-share" of affordable housing within three specific remedies: a state development plan, a fair-share formula, and builder's remedies[25] (Payne, 2006, p. 129). During the HCD/Sternberg administration, HCD fair-share allocations were implemented with *implied* legal standing (Baer, 2008, pp. 57, 60). The outcome of the State's "fair-share" codification would mean that wealthier California municipalities should disproportionately provide more housing opportunities to low-income households, while poorer California municipalities should disproportionately provide less housing opportunities to low-income households (Baer, p. 53). The intended effect should create a region where low-income households can find suitable housing adjacent to commerce and employment centers without increasing their rent burden.[26]

[25] A builder's remedy is a legal measure where a housing developer demonstrates that a municipality's land-use ordinances violate the *Mount Laurel* doctrine. If approved by NJ's housing court, "the developer is presumptively entitled to all approvals necessary to build on its site so long as at least 20 percent of the units it builds are affordable to low- and moderate-income households" (Payne, 2006, p. 133).

[26] Rent burden occurs when a household spends more than 30% of its gross income on rent and utilities. http://www.habitatnyc.org/advocate_nycstats.html

The fourth significant change in the 1989 revision is the shifting of the lead agency. In the revised law, COGs became the arbiter of the regional housing market. In the former hierarchal government strategy, HCD—acting as sole lead agency—assessed the housing needs for the State, and then subordinate municipalities adopted and planned for the lead agency's assessment. With the revision, the outcome was that COGs would address region-specific housing market characteristics; yet, HEL allows COGs to create non-equivalent and non-comparative RHNA allocations by regions (e.g., Los Angeles, Sacramento, San Diego, and San Francisco) and/or time (e.g., 1989-1995 vs. 2000-2005).[27]

In summary, the revised regional governance approach dictated that HCD and COGs play the leading roles of HEL—with COGs as the primary interface to municipalities. The law esteems that the agencies maintain equal status; however, municipalities remain subordinate to the actions of HCD and the COGs. While this statement of municipal subordination may appear to be in conflict with my earlier statement of equal status, it is not, and I shall clarify this in the next section when I explain the aspirational nature of the RHNA allocation and discuss the unintended effects of regional governance in the problem statement located in chapter three.

[27] Section 65584.04 of the California Government Code elaborates a multi-condition criterion that the COG should consider when it creates its RHNA allocation. However, this section does not specify any system of proportion or weights to the various factors. For example, should housing for college students have more importance than housing for farm workers? Should municipalities with voter-approved growth measures have less importance than municipalities seeking to retain open space? These discretionary decisions are left to the COG. For a critical examination of RHNA methodology, please see Myers et al. (2002).

1.6 THE REGIONAL HOUSING NEEDS ANALYSIS

This section briefly describes California's four-step RHNA allocation, which implements HEL. Please see Figure 2 for a flow chart that illustrates the RHNA process. What follows is a general description of the RHNA process.

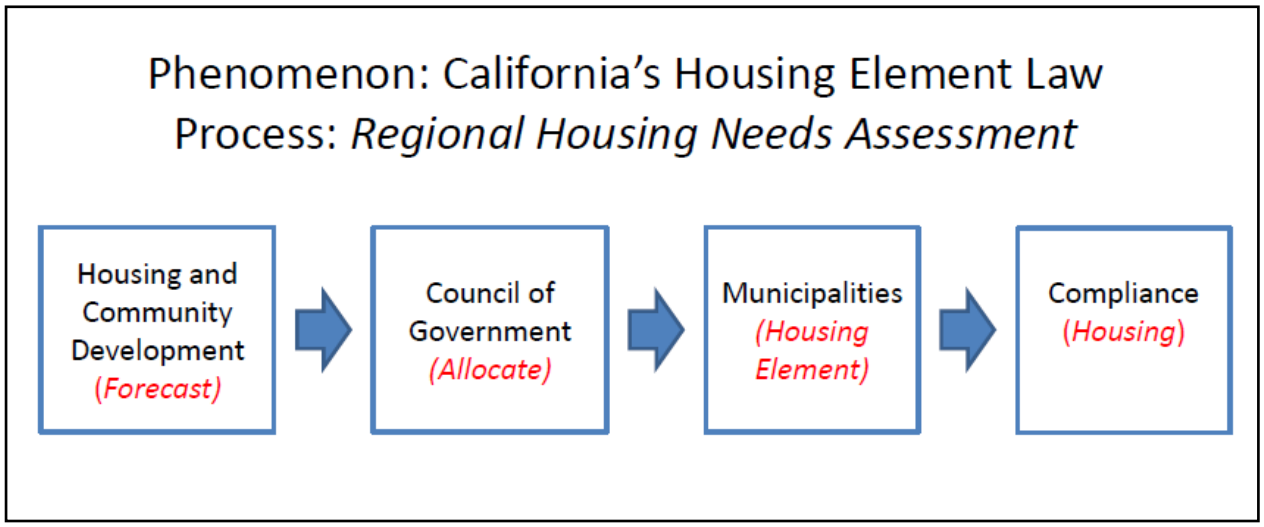

Figure 2: California's Housing Element Law Implementation.

Please note that the outcome or action for each stage is located within the parenthesis. For example, the outcome from HCD is the statewide forecast, and in theory, the outcome of Compliance is housing.

First, HCD makes a cyclical five-year[28] forecast of future statewide housing demand. This demand is based on the California Department of Finance's estimates for statewide population growth (Landis et al., 2000; Myers et al., 2005; Myers et al., 2002). HCD then breaks the statewide forecast into its regional components—from as small as a single county to as large as multiple counties. In large regions, a COG acts as the implementation agency for HCD. In the Los Angeles region, the Southern California

[28] In 2008, California Governor Schwarzenegger signed into law, SB 375, a law that regulates green house gasses. As part of new law's provisions, the time between Housing Element updates has been extended from 5- to 8-years in regions where local governments are under the MPO or regional transportation and the region does not meet the standards of the federal Clean Air Act. The first RHNA allocation using the 8-year effective period began in 2006. In this dissertation, the research period covers 1990-2007 and the periods between housing elements should be 5-years. SB 375 can be found at the following URL: http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb_0351-0400/sb_375_bill_20080930_chaptered.pdf

Association of Governments[29] (SCAG) is a COG/MPO, and its administrative boundaries contain the following counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. In the Sacramento region, the Sacramento Area Council of Governments[30] (SACOG) is a COG/MPO, and its administrative boundaries contain the following counties: El Dorado, Placer, Sacramento, Sutter, Yolo, and Yuba. In Northern and Central California's less populous rural counties, HCD creates and implements the RHNA allocation.

Second, the COG analyzes the General Plans and Housing Elements in its region and establishes a baseline of regional land-use. This baseline, along with other criteria (e.g., existing and planned infrastructure capacity, land availability, household growth, market demand, high-burden housing costs, loss of subsidized housing units, and housing needs generated by colleges and universities as detailed in Section 65584.04 of the California Government Code), is considered by the COG when it determines each municipality's five-year RHNA allocation using a fair-share approach ("Govermment Code: The Housing Element Law," Section 65583.2).

A RHNA allocation will contain three categories of subsidized housing units (Very-Low, Low, and Moderate) and one category for market-rate units (Above-Moderate). This stratification is based on a region's AMI as determined by HUD. Households desiring subsidized housing must earn less than the prescribed income limits. Above-Moderate is a private transaction between buyers and sellers and has no formal price controls. After HCD comments on the COG's regional draft allocation, the COG then distributes the individual RHNA allocations to the municipalities. HCD's technical criteria identify the municipality's housing allocation as the Quantified Objectives.

Third and according to HEL, the municipalities *should* integrate their RHNA allocation within their respective housing elements. The housing element will provide an implementation plan that encourages effective period construction of both subsidized and market-rate housing units. One should note that the housing allocation is an aspirational target. I use the term "aspiration" as the Oxford

[29] The Southern California Association of Governments (SCAG) is the largest COG in the United States with 174 member cities. The region's population exceeds 18 million persons in an area of more than 38,000 square miles. http://www.scag.ca.gov/about.htm

[30] The Sacramento Area Council of Governments (SACOG) is an association of local governments in the six-county Sacramento region with 22 member cities. http://www.sacog.org/about/

Dictionary defines the term as "ambition, aim, goal, or objective." In HEL, section 65583(9)(D)(b)(2) recognizes that a community's total housing need may exceed available resources and that a housing allocation need not be identical to the total housing need. As such, the allocation only establishes "the maximum number of housing units by income category that can be constructed, rehabilitated, and conserved over a five-year time period" (ibid) and is not an enforceable mandate for construction.

For example, Table 1 illustrates the City of Carson's 1998-2005[31] RHNA allocation, and I include the prescribed income limits for a four-person household as a guide. Please note that the accompanying figures are the 5-year housing production target as stratified by household income. For example, under the fair-share approach, the City of Carson should plan for the construction of 117 Very-Low income housing units between the years of 1998-2005.

Table 1: Example of a Regional Housing Needs Assessment (Carson)
This table documents Regional Housing Needs Assessment for the City of Carson (1998-2005) with the Area Median Income for the Los Angeles region.

Income Group	RHNA allocation	Los Angeles AMI (FY 2000) Household of 4 persons
Very-Low (<50% AMI)	117	Up to $26,050 per year
Low (51-80% AMI)	104	Up to $41,700 per year
Moderate (81-120% AMI)	143	Up to $62,500 per year
Above Moderate (121% + AMI)	259	Above $61,579 per year
Total	**623**	

Source: City of Carson(*Carson General Plan, Housing Element, Chapter 5*, 2010), County of Los Angeles, 2009[32]

Municipalities can appeal their RHNA allocation. If the appeal is approved, then the COG must redistribute the contested housing units within the region, which raises the RHNA allocations for other municipalities (Baer, 1988, p. 272). Furthermore, if a municipality chooses to reduce its housing

[31] Please note that I simply chose Carson from a haphazard Google search. The ensuing information regarding their housing element, HUD Funds, and redevelopment agency was discovered in the dissertation process, as opposed to some pre-conceived notion or idea about the manner in which the City of Carson operates its housing programs. However, I shall admit the city was on my radar because of its prior investigations of municipal corruption. http://www.entrepreneur.com/tradejournals/article/97768111.html

[32] http://planning.lacounty.gov/assets/upl/project/housing_2009-income-limits-costs.pdf

allocation, then its elected officials must pass a resolution making legal findings[33] that explain their unique circumstances. Under this strategy, the municipality risks non-compliance with HEL.

Fourth, HCD accepts the housing element and conducts a discretionary review of the documents adherence to the law's six technical areas: Public Participation, Review of Previous Housing Element, Housing Needs Assessment, Site Analysis, Constraints, and Quantifiable Objectives. HCD determines if a housing element is compliant, non-compliant, in-review, or due-for-review. However, the law is dichotomous—either a housing element is or is not compliant (Lewis, 2003). In this dissertation, I focus on the RHNA allocation[34] as the statewide treatment, and the Review of Previous Housing Element as the municipality's identification of NCSH. It is in the Review of Previous Housing Element where a municipality will note how well or how poorly it met its previous Quantified Objectives.

If HCD finds that a housing element is non-compliant, then the agency may withhold competitive housing grants and seek to terminate a municipality's federal CDBG[35] funds. In addition, the non-compliant municipality may be subject to housing lawsuits.[36] In the event that a court finds that the housing element is indeed invalid, then all land-use permitting ceases until the subject housing element has been cured (Calavita et al., 1997, p. 117; Lewis, 2003).

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[33] According to the state, findings are "the legal 'footprints' which an agency must leave to bridge the analytical gap between the raw data considered by the agency and its ultimate decision. [Findings expose the agency's] mode of analysis of facts, regulations, and policies" (*California Planning Guide: An Introduction to Planning in California*, 2005, p. 14).

[34] Regarding the Quantified Objectives, in many cases the municipalities have transformed the RHNA allocation into a package of new construction, rehabilitation, and preservation strategies. In my analysis of the housing elements, municipalities frequently exclude discussion of housing units that received rehabilitation as well as preservation strategies. For example, if a housing element states that 800 housing units will be preserved and 400 housing units will be rehabilitated, and the subsequent municipal evaluation does not provide any quantitative assessment of actual rehabilitated and preserved units, then no analytical conclusion for these strategies can be drawn. Moreover, the Quantified Objectives will be much lower than the RHNA allocation, and the document does not provide a detailed discussion regarding the differences. Therefore, I employ the RHNA allocation as the treatment because it is a quantity statutorily consistent with HEL.

[35] Community Development Block Grant Program (CDBG), Created under the Housing and Community Development Act of 1974, this program provides grant funds to local and state governments in order to develop viable urban communities by providing decent housing with a suitable living environment and expanding economic opportunities to assist low- and moderate-income residents (Department of Housing and Urban Development, 2009).

[36] Please see Dodge et al. for a brief summary of a 1992 court decision that found the City of Folsom's housing element invalid (2002).

In the "official" evaluation of the HEL/RHNA process, HCD enumerates—in an annual report to the California legislature—the number of municipalities with compliant housing elements, rather than the number of constructed units. As noted by Veazey, "planning agencies are not responsible for ensuring that housing is developed, but [HEL requires that] they are responsible for ensuring that there is sufficient, appropriately zoned land to accommodate the projected need" (Veazey, p. 75). In essence, municipalities are required to provide "housing opportunities," not units. However, if housing units that are targeted to low-income households are not produced in proportion to a municipality's total housing supply, then for low-income households the housing crisis persists and their situation is exacerbated. The following is an abbreviated review of the City of Glendora's RHNA process.

In the SCAG 2006-2014 RHNA process, the City of Glendora received a housing allocation of 744 housing units.[37] Please see Table 2 for the stratification of housing opportunities by income group and the locations of appropriately zoned land.

Table 2: Example of a Regional Housing Needs Assessment (Glendora)
The 2006-2014 RHNA allocation for the City of Glendora with the locations and current uses of appropriately zoned land for future housing development

Income Group	RHNA allocation	Location	Current Uses
Very-Low (<50% AMI)	191	Route 66 Specific Plan Area	Apartments, Mobile Home Parks, Motels, Auto Repair, non-conforming Single Family, Office, Retail
Low (51-80% AMI)	119		
Moderate (81-120% AMI)	127		
Above Moderate (121% + AMI)	307		
Total	**744**		

Source: City of Glendora (*City of Glendora 2008-2014 Housing Element*, 2009, p. 59)

The City of Glendora's housing element identified high-density zoning sites, demonstrated the total number of housing units to be accommodated at each site, and outlined the approval process for future housing projects (*City of Glendora 2008-2014 Housing Element*, 2009 Chapter 4, Housing Resources). With this and additional information pertaining to the HEL technical criteria, HCD certified

[37] http://www.scag.ca.gov/Housing/pdfs/rhna/RHNA_FinalAllocationPlan071207.pdf

the document as compliant.[38] On a closer read, one should note that Glendora's primary strategy for accommodating new housing is the re-zoning of existing mobile home parks to sites of high-density housing. The effect of the HEL compliance on the City of Glendora is the replacement of existing low-income residential areas with placeholders for new housing, but the placeholders are not necessarily directed towards *continuing* the housing satisfaction for low-income households.

In short, neither Glendora's housing element, nor its zoning code, nor the COGs RHNA allocation, nor HCD's issuance of compliance will insure that any new housing constructed in those locations replaces, will be, or contains units for low-income households.

1.7 SUMMARY

In summary, the 1989 revision streamlined the program processes for HCD and the COGs; however, municipalities shoulder not only the administrative burden, but also the financial expense of producing a compliant housing element. While this legislative revision placed a hallowed status on compliance, there is little programmatic evidence that connects compliance to the actual construction of low-income housing units (Baer, 2008, pp. 61, 63; Lewis, 2003, 2005). And lastly, the HEL phenomenon employs a conflicting top-down (HCD, SCAG) and bottom-up (municipalities) approach that is at odds with the intrinsic role of the municipality.

As a creature of the State, should municipal effort follow state mandates by "performing state functions in a state specified local area," or should municipal effort be indicative of resident preferences by making "laws and decisions in response to the demands of local residents" (Briffault, 1990, p. 89)? As I stated earlier and will discuss in chapter three, municipalities are beholden to the social, financial, and economic interests of their residents. Therefore, municipalities will limit their fiscal liabilities (Tiebout, 1956). This is the underlying flaw of California's response to its housing crisis—as evidenced by the City of Glendora.

[38] http://www.hcd.ca.gov/hpd/hrc/plan/he/he_review_letters/langlendora080309.pdf

2.0 REVIEW OF RELATED LITERATURE

In this dissertation, I examine how a municipality's inventory of subsidized and non-subsidized housing has changed over time, and what factors are associated with those changes. In preparing for my preliminary examination, I surveyed relevant literature (post-1980) to understand how municipalities responded to internal and external demands for subsidized housing. In order to distinguish between the current dissertation's literature review and the preliminary exam, I shall refer to the latter as the regional governance essay.

The regional governance essay reflected the retreat of federal expenditures, the currency of debate, and focused on the municipal actions associated with subsidized housing production within an arena of competing choices and limited capital. When conducting that review, I was curious to know if the municipal resistance found in California was any different from the resistance found in municipalities that do not operate under a regional governance approach. Thus, the regional governance essay analyzed over 30 articles that were categorized in four themes: regional governance, regional planning theory and implementation, political will, and municipal choices.

Initially, I defined regionalism and governance, noted California's coalescence to regional governance (e.g., cooperation amongst equals without coercion), and commenced to discuss three theoretical positions on regional planning: Levine (e.g., urban economics), Basolo (e.g., public choice, local autonomy, collective action), and Jonas and Pincetl (e.g., a world of regionalisms) (1999; 2006; 2001). It was here that I argued that regional governance, while politically feasible, exacerbated California's housing crisis because of regional governance's emphasis on agency parity. It was my view that agency parity allowed municipalities to distort state goals by adopting housing elements that were compliant with HEL, yet did not effectively mitigate the low-income housing crisis with the subsequent housing production. In the regional governance essay, I concluded that compliant housing elements are an inus condition[39] requiring the alignment of political will, municipal decisions, planner action, and

[39] Inus condition, as defined by Mackie, is "an *insufficient* but *non-redundant* part of an *unnecessary* but *sufficient* condition" (Mackie (1974) as quoted in Shadish, Cook, & Campbell, 2002, p. 4; Italics in original).

private capital in order to produce a single subsidized housing unit. This position became the basis of this dissertation's conceptual model.

In the regional governance essay's discussion on implementation, I analyzed seven studies that examined regional planning implementation and the consequent municipal reactions. I grouped these articles into three sub-themes: political fragmentation, support for regional planning, and administrative conflict. On political fragmentation, Vogel and Nezelkewicz examined its effect on transportation planning in Louisville, and Aurand tested its effect on the spatial concentration of subsidized housing within MSAs (2007; 2002). On support for regional planning, Baldassare et al. surveyed California planning directors, and Wassmer & Lascher polled California residents in order to discern who supported voluntary or mandatory regional planning regimes (1996; 2006). On administrative conflict, Lindstrom explored how growth issues bound Chicago region councils of governments, Lewis critiqued voting equity in California MPOs, and Goetz identified policy disconnects within Minneapolis' regional fair-share housing program (2003; 1998; 1998). Also in this discussion, I noted how well these implementation studies supported the theoretical positions advanced by Levine, Basolo, and Jonas and Pincetl.

Based on my analysis of the implementation literature, I concluded that regional planning within the United States would remain legislatively impotent because this regime lacks hierarchal and administrative legitimacy from planners, municipalities, and wealthy, educated citizens. In the few cases in which it is supported, the actors advocated regional planning for services that would overwhelm a municipal tax base or a household income (e.g., the Los Angeles County Metropolitan Transportation Authority, the South Coast Air Quality Management District, and the Transportation Corridor Agencies) (Bollens, 1997, p. 106). Therefore, any regional planning regime that advanced redistributive efforts, such as low-income housing, would be met with indifference at best and hostile intransigence at worst.

In the next section of the regional governance essay, I then discussed five studies that examined the link between political will and municipal action. I grouped these studies into two sub-themes: opposition and exclusion. Opposition meant that residents and/or elected officials took active on-the-record stances against subsidized housing. The opposition literature included Pendall's search for the

differences between anti-growth and NIMBYism[40] protests in California and Goetz's study of low-income household dispersal in Minneapolis (2002; 1999). Exclusion meant that municipalities knitted restrictive land-use practices into their zoning code in order to reduce the incidence of subsidized housing within their borders (Glaeser, Gyourko, & Center, 2002). The exclusion literature included: Goetz's continued examination of Minneapolis municipal intransigence in the face of legal remedies; Mayer and Somerville's examination of the financial relationship between land-use regulation and new residential development in Florida; and Knapp et al.'s exploration of regulatory barriers in large metropolitan areas (2004; 2007; 2000).

Unfortunately, none of the aforementioned studies provided any evidence of political or residential support for low-income housing; therefore, I concluded in my regional governance essay that the construction of subsidized housing or multi-family housing in suburban communities could act as a lightning rod that united opposition, or it may be an opportunity for residents to chastise municipal decision makers. In addition, for the limited number of households who did secure suburban low-income housing units, different variables may have been at work when those successful households (i.e., more motivated, smaller in size, better access to information, higher educational attainment, etc.) were compared to the general population of low-income households. It also appeared that dispersal's positive effects might take more time to accrue than is allowed by federal housing programs. This lag may be due to program participation rates, housing market vacancy rates, and householder conditions. Therefore, I suggested that analysts revise federal poverty dispersal programs, as explained below.

First, the programs should expand their evaluation timeline because it may take years, not months, for a household to securely integrate into a new community (Blackwell & Bell, 2005). Second, such programs should expand their units of analysis to include the educational attainment of household children. While current studies have shown that such children immediately perform no better or worse than prior to the move (Jacob, 2003; Leventhal, Fauth, & Brooks-Gunn, 2005), it may take matriculation within a better and safer system to prepare such children for good adult decision-making because "the children of suburban movers dropped out of school less frequently and were more likely to go on to

[40] In planning research, NIMBY means 'not in my backyard' and "connotes a selfish desire to abdicate responsibility for important community facilities" (Pendall, 1999, p. 112).

college" than non-suburban movers (Varady & Walker, 2003, p. 19). Third, such programs should combine moving with mandatory and long-term counseling. Quite simply, issuing a voucher alone may not be enough to ensure suburban success as evidenced by the recent studies on the self-sufficiency of public housing residents (Heintze et al., 2006; Shroder, 2002; Van Ryzin et al., 2001). And lastly, planners and policy makers should advocate for the usage of impact fees and in-lieu payments toward the creation of affordable housing trust funds since subsidized housing entails a permanent fiscal gap (Calavita & Grimes, 1992; Gillette Jr, 2006; Schuetz, Meltzer, & Been, 2009).

In the last section on municipal choices, I closed the regional governance essay with a discussion of five studies that examined municipal opportunity costing when subsidized housing was a considered option. I categorized those decisions as internal, projected, and protected conflict. Internal conflict meant that a municipality pursued policies that have conflicting goals. The internal conflict literature included Steinacker's research on the fiscal tension between subsidized housing and infill development and Courchesne's research on the equity tension between subsidized housing and open space preservation (2004; 2003). Projected conflict meant that a municipality adopted a redistributive policy of producing subsidized housing, but required that other actors (i.e., county agencies, non-profits, private developers) execute the implementation. The projected conflict literature was Johnson and Talen's survey of subsidized housing inclusion within New Urbanism (2008). Protected conflict meant that the municipality has committed to a redistributive policy in name only. The protected conflict literature included Hoch and Lewis' separate analysis of housing elements as municipal reactions to unfunded state mandates (2007; 2005).

From my analysis of this literature, I concluded that municipal resistance to subsidized housing stemmed from fears that were both real and false. The real fears were that such housing represented a permanent fiscal deficit because low-income households cannot completely cover the financial commitments of purchase, rental, and/or maintenance of their occupied housing units (Mueller & Schwartz, 2008, p. 129; Shlay, 2006). The false fears, which focused on perceived negative changes to a municipality's social standing, class stratification, personal safety, and property values, were more difficult to quantify and resolve (Freeman & Botein, 2002; Galster, 2004; Nguyen, 2005). This conclusion informed the problem statement of this dissertation.

2.1 FOCUS OF THE CURRENT REVIEW

For this dissertation's literature review, I decided not to merely insert the regional governance essay, but to move into in-depth analysis of literature that focused on my units of analysis (municipalities), my units of observation (housing elements), my methodology (Content Analysis and Regression), and the issue of compliance with an unfunded mandate. I excluded much of the literature on comprehensive plan analysis for three reasons (Berke & Conroy, 2000; Berke & French, 1994; Edwards & Haines, 2007). First, general plan documents are too widespread in their legislative scope. Second, municipalities do not always interpret general plans as a threat to local autonomy. And lastly, those studies examined plan intent, not plan intent and plan results. In this dissertation, housing elements and the subsequent housing production drive the research.

Therefore, the proceeding analysis of each study will have three parts: a discussion of the findings, an analysis of the study's strengths and weaknesses, and commentary on the study's significance to this dissertation. While some critics may assert inclusion of such details may be pedantic, I respond that the journey is just as important as is the destination. As a social science, urban planning does not have the benefit of random sampling or random assignment in the implementation of prescriptions. Therefore, if future researchers or planning practitioners wish to adopt, amend, or replicate such prescriptions, then it is important that we researchers document the journey with clarity. In land-use studies, the context of plan implementation and its subsequent evaluation matters greatly.

In addition, I tried to exclude literature reviewed in the regional governance essay. Yet, when I examined such articles again, I emphasized how that investigation would inform this dissertation.

This current dissertation literature review contains three sections: municipal expenditures, housing element analysis, and HCD compliance. In the first section, I begin with Basolo's national examination of municipal expenditures for low-income housing in the face of regional competition and Rubin et al.'s investigation of municipal opportunity costing under New Jersey's court-mandated, fair-share housing scheme. In the second section, I discuss three investigations of housing element analysis: Connerly and Muller in Florida, Goetz et al. in Minneapolis, and Hoch in Illinois. In the final section, I close with Lewis' examination of HCD compliance and its effects on California's housing production.

Because I concurrently discuss each study's significance and scholarly extension, this chapter will not contain a summary section.

2.2 MUNICIPAL EXPENDITURES

In 1999, Basolo conducted a national survey of housing and economic development administrators (n= 709, response 61.6%) to answer the following questions: (a) are cities with higher levels of inter-jurisdictional competition (e.g., fragmentation[41]) less likely to spend local dollars on affordable housing programs, as compared to cities in less competitive environments, (b) do cities spend more local dollars on affordable housing programs as the level of the inter-governmental (i.e., federal, state) funding for such housing increases, (c) are cities that are required by the state to prepare a housing plan more likely to spend local dollars on low-income housing programs than cities without such a requirement, and (d) are cities with state set-aside mandates for low-income housing more likely to spend local dollars on low-income housing programs than cities not subject to such mandates (1999)? In this investigation, Basolo employed Tiebout's public choice model as the theoretical foundation.

Tiebout argued that when municipalities competed for high-income and mobile residents, these municipalities would inevitably limit any redistributive fiscal activity in order to repel low-income households and those household's disproportionate need for social services (Tiebout, 1956, pp. 419-420). Baer, in his examination of California's fair-share policy, added that municipalities "prefer to engage in *developmental* policy to enhance economic growth, increase jobs, and augment their tax base, and they tend to do it through land-use controls" (Baer, 2008, p. 52, italics in the original). Basolo provided additional views from Downs, Rusk, and Schneider, who collectively argued that the federal or state levels are best for directing redistributive policies, as such policies are not in the fiscal interest of municipalities (2004; 1993; 1989).

From her survey, Basolo found the following: at least 48% of respondents cooperated with neighboring cities, 32% did not consider their neighboring cities, and at least 19% competed with neighboring cities when considering economic development. She also found that at least 54% of respondents did not spend any local money on affordable housing. Moreover, for all respondents, it appeared that the federal government spent the lion's share of funding for low-income housing. Using this

[41] Fragmentation is the "abundance of cities and other political entities" (Basolo, 2003, p. 449) and can be measured by counting "the number of government bodies or governments per capita in a geographic region" (Aurand, 2007, p. 403).

dataset, Basolo employed regression analysis in two models in order to understand more deeply the effects of competition on low-income housing expenditures. In Model 1, the response variable was a municipality's likelihood to spend local dollars on low-income housing. In Model 2, the response variable was the municipality's funds expended on low-income housing—excluding public housing authorities.[42]

Basolo found that intercity competition (e.g., fragmentation), entitlement status,[43] and northeast regional location negatively affected a municipality's likelihood to spend funds at the $p<.001$ level. She also noted that federal funds, population, and median house values positively affected a municipality's likelihood to spend funds at the $p<.001$ level. In her forecast model, Basolo showed that state-mandated planning, state-mandated set-asides, and population positively affected a municipality's low-income housing expenditures at the $p<.001$ level and that homeownership rates negatively affected a municipality's low-income housing expenditures at the $p<.001$ level.

In summary, local cities are less likely to spend local dollars on low-income housing, but when they do, it is a function of state mandates and redevelopment set-asides. The significance of Basolo's investigation of inter-city competition to my presented research is threefold. First, Basolo's results indicated that states might be instrumental in the housing planning, but federal dollars funded low-income housing construction, therefore, I should find very little low-income housing construction. Second, Basolo employed a regression analysis based on a robust conceptual model containing both predicting and control variables in a cross-sectional analysis of ratio data. In this dissertation, I examine a conceptual model within a longitudinal statistical analysis of dichotomous and ratio data. Third, Basolo created primary data and employed secondary data in order to triangulate her initial results. I employ

[42] Public Housing Authorities (PHAs) may stand for any state, county, municipality, or other governmental entity agency that is authorized to engage or assist in the development or operation of low-income housing under the U.S. Housing Act of 1937 (Department of Housing and Urban Development, 2009). PHAs may develop and administer public housing with long-term, tax-exempt debt guaranteed by HUD, which also regulates their operations. Depending on their charters, some PHAs have the legal authority to issue bonds to finance housing development themselves (Kleit & Page, 2008, p. 35). See Kliet and Page, for a review of PHAs and their precarity.

[43] Entitlement status refers to a municipality's eligibility for HUD formula grants such as CDBG, HOME, and HOPWA (Basolo, 1999, p. 676). The requirements are as follows: (a) metropolitan cities that are principal cities of Metropolitan Areas (MAs), (b) other cities within MAs that have populations of at least 50,000, or (c) urban counties within MAs that have a population of 200,000 or more (excluding the population of metropolitan cities within their boundaries) (*Programs of HUD*, 2011, p. 7).

municipal level data to produce primary data (i.e., the change in low-income housing constructed within a municipality) and secondary state data in order to predict the inventory of NCSH and housing production.

As creatures of the State, local governments are obligated to implement state level mandates because it is the State that grants municipalities their legitimacy and power (Burns & Gamm, 1997). However, when the mandate is unfunded and potentially noxious, what will a municipality do? In an explorative investigation of a low-income housing mandate, Ruben, Seneca, & Stotsky asked, "for those New Jersey municipalities which seek the legal protection offered by state-certification of an affordable housing plan, the question is how to select among the available options" (1990, p. 330). Using a purposive sample (n=45, municipalities that were certified in 1989), the authors examined the attendant housing plans to ascertain each municipality's strategy for satisfying its regional fair-share obligation.

The four municipal strategies were as follows. One, *regional contribution agreements* (RCA) transferred a municipality's fair-share housing obligation. A "sending" municipality could transfer up to 50% of its housing obligation to a "receiving" municipality for an average cost of $20k per unit. The sending municipality bore the cost. Two, *density bonuses* allowed housing developers to construct more housing units than the existing zoning permitted as long as the project provided at least 20% of the total units to low-income households. In this case, the surfeit market-rate housing units created an internal cross subsidy. Three, *rehabilitation* meant that the municipality would improve its existing housing stock. A rehabilitation project must cost at least $10k of internally controlled funds and the recipient household must have met New Jersey low-income standards. And lastly, *municipal construction* meant that the municipality would fund and construct new low-income housing units.

Rubin et al. found that approximately 78% of their sample employed rehabilitation strategies, and that 77% of their sample included density bonuses as part of their housing plan. However, of those municipalities, 78% opted to rehabilitate all internal units first, and then used density bonuses to meet their remaining fair-share obligation. The authors also conducted t-tests and found that the communities who implemented density bonuses also contained statistically higher per capita incomes and lower population densities ($p<.05$). The authors explained that less dense areas might be able to afford the congestions costs (i.e., traffic, infrastructure) more easily than dense and more urban communities. These statistics may also signal that established and high-income municipalities may be unwilling to impose

internal taxes for subsidized housing (i.e., Tiebout). Of the remaining strategies, 24% implemented RCA strategies, 20% implemented municipal construction strategies, and 40% of the sample used other unidentified means for meeting their regional fair-share obligations. These percentages total to more than 100%, as 63% of the sample used multiple strategies. In the authors tobit analysis of municipal decision-making, Rubin et al. found that income per capita, population density, and percentage black were statistically significant to a municipality's positive likelihood of implementing density bonuses ($p<.10$).

In summary, this sample of New Jersey municipalities indicated two things. First, municipalities preferred to internally improve their existing housing stock and second, that municipalities employed external cross-subsidies (i.e., incoming residents with no established electoral power) in order to meet their fair-share objective for low-income housing. I found this study of municipal compliance in New Jersey significant to my research for three reasons. First, when a municipality experiences administrative, legal, and fiscal pressure to produce low-income housing, they are more likely to rehabilitate existing housing units because (a) the municipality has identified units and the households, (b) rehabilitation costs are lower than new construction projects, and (c) removing blight improves the municipal tax base. In this dissertation, I included rehabilited and preserved housing units as predictors of low-income housing production. Second, to understand the New Jersey phenomenon, the authors used a non-probability framework to evaluate a statewide treatment. This sampling technique validates my research approach to HEL. And third, since the authors did not examine municipal construction, my presented examination of NCSH will provided needed data on low-income housing production under an unfunded statewide mandate.

2.3 HOUSING ELEMENT ANALYSIS

In 1985, the state of Florida enacted the Growth Management Law (GML) that required that municipalities adopt a housing element as part of a comprehensive plan to accomplish three state goals: anticipate future housing, address blight, and identify future sites for housing. By 1991, more than 75% of Florida's municipalities had adopted comprehensive plans with attendant housing elements. In 1993, Connerly and Muller conducted a purposive sample (n=10) that "attempt[ed] to evaluate the potential and limits of state actions to stimulate local planning responsibility for affordable housing" (1993, p. 186).

What is unique about Florida's scheme is the vertical consistency mandate, in which municipal plans must be consistent with state and regional plans. Therefore, if the state plan addressed housing demand, existing housing supply, available land, and funding in a prospective approach, then under vertical consistency, the regional and municipal plans should implement state goals. However, if the state plan is vague, skewed by politics, or lacking in vision, then subordinate plans may follow accordingly. This is different from California's Housing Element Law, where there is no vertical consistency between state, regional, and/or municipal plans, but vertical and horizontal consistency[44] is required within a municipality's general plan, housing element, and zoning code (Curtin & Talbert, 2006, p. 25). In short, municipal documents are consistent with the interests, desires, and whims of local officials and influential resident elites (Babcock, 1966; Molotch, 1976).

In this study, Connerly and Muller's sampling frame "focused on whether there is a significant number of people living in jurisdictions that lack good housing plans" (Connerly & Muller, p. 198, endnote #4) and this rationale produced a sample of 10 housing elements coming from five municipalities and five counties. The authors evaluated the plans using a broad seven-component rubric (e.g., inventory, needs assessment, projection of future need, constraints analysis, data consistency, solutions, and vision) with detailed criteria that stemmed from planning and public administration practice. However, much of the

[44] In California, the housing element builds upon the six other required general plan elements (e.g., Land-Use, Safety, Circulation, Open Space, Conservation, and Noise) and is consistent with the policies and goals set forth by the general plan. An example of horizontal consistency is a when (a) the municipality's residential development capacity established in the land-use element, (b) the capacity is explained and categorized with RHNA housing allocation located in the housing element, and (c) the environmental constraints are mitigated in the safety and noise elements.

authors' evaluation criteria was not mandated by the GML. For example, under the needs assessment component, the GML required municipal analysis of housing affordability, but only a partial analysis of structural deterioration, and no analysis of discrimination, neighborhood revitalization, or estimates of homelessness (1993, Tables 11.1 - 11.3). Therefore, when the authors gave their sample failing scores, it was because the sample lacked items from the author's criteria, not the GML criteria. In a subsequent study that examined the role of a "state of agents" in MA and NJ housing mandates, Graddy and Bostic cautioned against evaluating housing programs with criteria unrelated to *program criteria* since the *program results* tend to be "a framework-specific response" (2010, p. 97).

Connerly and Muller's solution to Florida's housing dilemma stressed the following points. The state should take an active role in defining and creating a statewide policy for housing, especially low-income housing. Housing elements should contain a quantifiable needs analysis with an attendant implementation plan. Housing elements should be rigorously assessed and the state should provide municipalities with resources for creating, maintaining, and implementing housing elements. Regional planning councils should not only provide municipalities with technical support, but also investigate the adoption of regional fair-share principles. In short, this early exploratory study recommended components of California's Housing Element law; however, I do not support their remedies for the following four reasons.

First, Connerly and Muller's analysis compared the plans of counties and cities. Even though the county populations ranged from the small and coastal Citrus County ($\pm$76 thousand persons) to the large metropolitan Dade County ($\pm$1.8 million persons), county and city processes are non-equivalent, as Lobao and Kraybill found that county planning processes are associated with urban morphology—with outer-ring and rural counties having less funds available for housing and economic activities (Lobao & Kraybill, 2005). Second, the legislative framework in Florida is "growth management" and this framework takes an urban containment approach, as opposed to California's expansive planning for future housing development and opportunities (Anthony, 2003; Lewis, 2005; Wassmer & Lascher, 2006). I make this distinction by noting that Florida's three housing element goals encourage development within urban service boundaries, as opposed to promoting annexation of developing land. Third, the authors research

assumes that "that decent, safe, affordable housing[45] is of great concern to local governments" (Connerly & Muller, p. 186). They are correct to a point. I conditionally agree that municipalities are concerned with providing low-income housing and *may* rehabilitate, preserve, or construct low-income units *as long as* there are consistent, larger, and external funding streams (Basolo, 1999; Goetz, 2000; Hayden, 2007; Lewis, 2003; Provo, 2009; Rubin et al., 1990; Steinacker, 2003). And lastly, their evaluation did not include any analysis of state or regional plans. Therefore, could the low ratings of their sample's housing elements be a vertical reflection of state and regional plans? We do not know.

In summary, researchers, policy makers, and housing advocates who entertain the expectation that growth management regimes will encourage affordable housing production are irrational, unless the specific policy addressed low-income housing production.[46] Yet, I found this study on Florida housing elements significant to this dissertation for three reasons. First, the authors employed a purposive sampling frame in order to understand how Florida's GML affected the statewide population of municipalities. This sampling technique validates my sampling approach to HEL. Second, the authors conducted a criteria analysis based on the content of each housing element. In this dissertation, I examine housing elements for their quantitative and qualitative data. Furthermore, I limit my analysis to the data required by HEL. Lastly, the authors' study co-mingled the units of analysis (e.g., municipalities and counties). In this dissertation, the units of analysis are only municipalities, but they may be stratified by location (north/south), legal type (general law/charter), typology (urban, suburban, rural), or group (Central City/Suburban).

A continuance of housing elements analysis is Goetz et al., who demonstrated that the establishment of a regional government and its attendant fair-share housing policy does not necessarily lead to an increase in subsidized housing inventory. In 1976, the Minneapolis Metropolitan Council enacted the Land-Use Planning Act (LUPA) as a mandatory fair-share housing program that required

[45] In this research, Connerly and Mueller define affordable housing as housing for households that earn less than 80% of the AMI and spend no more than 30% on housing-related expenses (p. 198).

[46] The cities of Davis, CA and Boulder, CO have enacted stringent growth management plans to curtail sprawling development. However, both municipalities have knitted Inclusionary Housing Policies in which residential development targeted to low-income household are exempt from management regulation, but not zoning.

municipalities to "provide sufficient existing and new housing to meet the local unit's share of the metro area need for low and moderate income housing" (Goetz et al., 2003, p. 213). The authors considered the implementation of LUPA a failure because of the decreased proportion of subsidized housing to total housing and the region's quantity of rent-burdened households. Using data from the comprehensive plans of 25 municipalities (N=144) and subsequent interviews (n=41), Goetz et al. asked the following questions: (a) did comprehensive plans fail to provide for sufficient modest-cost housing to comply with LUPA, (b) did planners and developers make little effort to build subsidized housing, and (c) did municipalities downzone land originally set aside for future subsidized housing to lower densities?

In their LUPA discussion, Goetz et al. noted the following. First, the governor appointed the Metropolitan Council, and this political action tempered the level of subsidized housing advocacy within the council. Such political temperance was also evident in New Jersey, where the ratio of fair-share housing set-asides shifted from 1 subsidized unit to every 5 housing units (20%) in 1893, to 1:8 (12.5%) in 2004, to 1:4 (25%—corrected via a court intervention) in 2008 (Bratt, 2012, p. 103; Graddy & Bostic, p. 87; "South Burlington Cty NAACP v. Mount Laurel Tp," 1983, pp. 447, Footnote 48).[47] Second, LUPA did not define its outcome by quantities of housing units, but "the amount of land set aside for high-density development," under the assumption the this land-use designation would be "most likely to produce" subsidized units (Goetz et al., p. 216). Third, in the absence of HUD funds (post-1980), the Metropolitan Council lost the ability to encourage municipalities to provide subsidized housing and subsequently ceased calculating fair-share allocations. It is these actions, the authors contend, that set the stage for the regional "retreat" in subsidized housing.

In their review of the initial comprehensive plans (from 1976 to 1982), Goetz et al. found that, in general, the number of strategies decreased from at least four per document to two per document.

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[47] In 2009, Chris Christie (R) was elected governor to the state of New Jersey. Like HCD in California, municipalities, developers, and the legislature disliked the power of New Jersey's Council of Affordable Housing (COAH). In late 2010, a Democratically-led committee advanced a bill to abolish COAH and replace the agency with a statewide mandate of mandatory inclusionary housing (at 10%) to be subsidized by a 2.5% commercial development impact fee (Friedman, 2010).

In January 2011, Governor Christie vetoed the bill as an objection to the impact fee, but by September 2011, the governor submitted an executive order that would abolish COAH by June 2012 (DeMarco, 2011). At present, COAH still exists due to a unanimous decision by the state's appeals court. The court found that "only the Legislature can eliminate COAH, an independent agency" (Friedman, 2012).

Specifically, for question one (*did comprehensive plans fail to provide for low-income housing?)*, 75% of municipalities relied on PUD[48] designations, 58% relied on increased density, 58% relied on reducing minimum unit sizes, and regarding local subsidies, only 8% relied on tax increment financing.[49] In 1995, when the Living Communities Act (LCA) replaced LUPA, comprehensive plan strategies also shifted. The authors found that 59% of municipalities relied on PUD designations, 19% relied on increased density, 12% relied on reducing minimum unit sizes, but 25% now relied on tax increment financing to close low-income housing's fiscal gap. Please see Table 3 for a comparison of these descriptive statistics and note that of these examined strategies, only one category increased—contingent[50] redevelopment funds.

Table 3: Planning Strategies of LUPA and LCA
This table describes the municipal planning strategies contained in two sets of comprehensive plans.* The percentage reflects number of municipalities employing that strategy**

Planning Strategy	Land-Use Planning Act (enacted in 1976, n=24***)	Living Communities Act (enacted in 1995, n=16***)	Change (+/- %)
Planned Unit Development (PUD)	75%	59%	-16%
Increased Density	58%	19%	-39%
Reduced Minimum House Size	58%	12%	-46%
Manufactured Housing	29%	6%	-23%
Tax Increment Financing	8%	25%	+17%

*The authors published table contains more planning strategies than are listed here. However, I selected these strategies due to their relevance to this dissertation.
** Totals exceed 100% as municipalities employed more than one planning strategy.
***n refers to the number of documents reviewed in relationship to the 44 municipalities sampled.

Source: (Goetz et al., p. 218)

[48] A Planned Unit Development (PUD) allows projects to deviate from the proscribed zoning regulations. In the 1960s, PUDs were hailed as flexible zoning tools for municipalities to use in regulating complex projects; however, they frequently transformed into negotiated contracts between developers and elected officials without the input of residents (Babcock, 1966, p. 11).

[49] Tax Increment Financing (TIF). Municipalities often activate redevelopment agencies to improve blighted areas. As the project area is redeveloped, it may generate new property tax revenue. This revenue is known as the tax increment and must be spent on activities associated with the redevelopment.

As of February 2012, California redevelopment agencies have been dissolved and this may negatively affect low-income housing production. http://www.dof.ca.gov/redevelopment/

[50] I use the word contingent because there is no guarantee that a redevelopment project's value will increase and thus yield TIF.

From these selected descriptive statistics, two things are clear. First, the diversity of planning strategies declined over time. This decline may reflect that subsidized housing had a lower municipal priority, or that municipalities shifted subsidized housing construction to "contingent" status (i.e., the inus condition). Second, municipalities had taken a potentially hostile stance toward subsidized housing since PUD negotiations require municipal approval. I say "hostile" because PUDs are typically negotiated contracts between the municipality and the developer, and the negotiation often occurs outside of public forums.[51] Since municipalities historically relied on pass-through funding from the Metropolitan Council (e.g., HUD funds), the current implementation of developer cross-subsidies from the high-density development would occur only if subsidized housing was proposed and accepted. In summary, under Minneapolis comprehensive planning, subsidized housing would be built only if it was included in the PUD, survived municipal approval, and was then funded by non-municipal sources—quite similar to California's model.

With their interviews, Goetz et al. were able to triangulate their document analysis, as planners confirmed that 71% of municipalities advocated PUD designations, 50% permitted ADUs,[52] 42% permitted

[51] The following example operationalize the interaction between PUD projects, TIF funds, and municipal political will. Since 2008, the City of Madison, WI has been working on updating its zoning code in order to achieve vertical consistency with its 2006 adopted Comprehensive Plan (*The Comprehensive Plan. Volume I: Background Information*, 2006). At present, the zoning code was last updated in the late 1960s and therefore, all complex projects require a zone change to PUD and sponsorship by a Common Council member (Czubkowski, 2010).

In 2009, the owner of an existing and aging hotel had a series of closed meetings with Mayor Cieslewicz (Doherty, 2011). Subsequently, the developer applied for two items, a PUD for redevelopment of this site and $16 million in Tax-Increment Financing for construction. Unfortunately, the development exceeded the height and setback standards within its historic district and waterfront location and was denied approval by the Historic Preservation commission. The controversy of this project contributed to the dismissal of the Community Development Director (e.g., the 20-member Common Council overturned the commissions' decision) in 2010 (Ivey, 2011), and became a factor in Mayor Cieslewicz' defeat in 2011.

Ultimately, newly elected Mayor Soglin did not to cast a deciding vote on the project's TIF request (e.g., 10 council member in support, 10 members opposed) and therefore, the project's TIF was reduced to $3.2 million due to the economic downturn; however, the PUD entitlement remains (Boutelle, 2011). As of October 2012, a private philanthropist may finance the gap in funds (Tarr, 2012). For more on the interaction of politics, planning, and PUDs in the City of Madison, please see Greg Filsram's article in *Planning* (2012)

[52] An Accessory Dwelling Unit (ADU) is also known as a "mother-in-law" or "granny" unit. Usually they contain a separate kitchen, as well as sleeping and bathroom facilities, and are attached or detached from the primary residence on a single-family lot. In most cases, they are a garage conversion, a small backyard cottage, or guesthouse structure. http://www.cityofsantacruz.com/index.aspx?page=1150

reduced lot sizes, 21% permitted zoning variances, and 21% allowed fee waivers. In addition, one planner indicated that the seemingly weak relationship between subsidized housing construction and the municipalities stemmed "from a lack of coordination with the city council. [Since] a housing plan adopted in one year is not necessarily embraced by" a subsequent city council (p. 220). Furthermore LUPA "did not grant the Metropolitan Council any authority to enforce compliance with the low- and moderate-income housing elements of the statute," and therefore, municipalities were free to deviate or reduce LUPA goals (p. 217).

The authors maintained that in this LUPA environment, planners "generally failed to take initiative in monitoring and promoting… [subsidized housing] through regulatory or political means" (p. 220). This is a fair assessment; however, readers must also acknowledge that planners are civil servants unprotected by a tenure system. Taking into account the findings from Baldassare et al. on regional support and Howe's research on planners' ethics, values and roles, we should expect that any planner who promoted redistributive policies was likely to invite professional risk because, ultimately, planner power is a limited and passive power (Forester, 1982, p. 196; Howe, 1980, 1994; Howe & Kaufman, 1979; McGrath, 1982). From their interviews with developers, Goetz et al. found that neighborhood opposition was the most frequently mentioned obstacle, followed by land availability, zoning regulations, municipal support, and attendant financing.

Regarding the downzoning of land, Goetz et al. conducted a document analysis that compared 1976 land-use designations of high-density parcels to land-use designations post-1995. The authors found that municipalities downzoned 38% of parcels to lower residential densities, 17% of parcels to non-residential properties, and 16% of parcels to PUD. Yet, 17% of parcels had no change and 5% of parcels were zoned to higher residential densities. In short, municipalities had reduced their potential exposure to subsidized housing by removing at least 55% of land that could potentially produce multi-family subsidized housing. In summary, Goetz et al.'s findings make clear that within the LUPA/LCA framework, subsidized housing required municipal consensus because the regional planning agency had very little leverage to ensure that a municipality implemented a plan's objectives as proposed. Yet, I also found confusion with their framing of this Minneapolis crisis and their methodology.

I use the term "crisis," as it was implied within the opening sentence in the paper's third paragraph: "Twenty-five years later, more than 161,000 household in the Twin Cities region pay more than one-half of their incomes for housing and/or live in substandard housing…" (p. 214). Because the authors do not explain what proportion of regional households this figure represented, or how this figure has increased or decreased since 1976, or what were the separate proportions for rent-burden and substandard housing were, this figure, while seemingly substantial, appeared as hyperbolic arm-waving.

Regarding methodology, Goetz et al. provided an excellent four-step method for structuring their analysis of the comprehensive plans, but they failed to address any potential selection bias in their sampling methods (N=144, n=25). On page 215, the authors provide a map (e.g., Figure 1) that illustrated the entire region. From my analysis of Figure 1, the sampling reads as purposive (inner-ring suburbs) and quota (at least one municipality from each county), but it is not clear if this sampling strategy was intentioned. The authors also included growth rate, land availability, and plan completion as part of the sampling criteria, but provided no other evidence or reference to backstop this sampling design.

Suggested references that may have improved the sampling design include the following studies, all of which were published before Goetz et al.'s research. Pollakowski and Wachter's study of housing prices within suburban Washington DC found that vacant land had a negative effect and income had a positive effect on housing prices (1990). In addition, Dowall and Landis examined zoning and housing prices in the San Francisco region. They defined growth as "population growth in excess of 5%" and found that vacant land and income have positive effects on housing prices in suburban cities (1982, p. 84). Since the Goetz et al. investigation examined the relationship between the persistence of high-density land and municipal decision making, these earlier studies could have supported their choice of sampling design, and may have also been helpful in explaining the municipal shifts in land designations (from high density to other densities) to accommodate higher-income residents. Incorporating these studies would also have added a deeper meaning to the persistent usage of PUDs as this strategy "require[s] negotiations with planners, decision makers, and the public over the arrangement and amount of building on each site" (Pendall, 1999, p. 116).

I found this study on regional compliance significant to my dissertation for three reasons. First, Goetz et al. employed a non-supported non-probability sampling frame in order to examine municipal

effort on low-income housing. In this dissertation, Tobler's First Law of Geography (e.g., spatial relationships), Foucault's opinions on disorder and discipline (e.g., a precise manual on specifying compliance), and Veazey's view on regional benefits (e.g., positive and negative neighborhood effects do not terminate at municipal borders) backstop my sampling frame (1977; 1970; 2008). Moreover, my sample will not only analyze a connected unit (e.g., San Gabriel Valley area of the Los Angeles region), but also disparate patches (e.g., Sacramento region) within a region. Second, their 25-year analysis contains a clear beginning, but the intervening years are unexamined, and the termination date of the study is not justified. In this dissertation, the legislative revision of California's Housing Element Law brackets my evaluation (e.g., 1989, 2005) and the period of study occurs under one law, not two laws (e.g., LUPA and LCA). And lastly, like Goetz et al., I shall gather consecutive housing elements, but I employ annual data and groups to reduce the effects of periodicity and history.

Another investigation that examined municipal reactions to a state's low-income housing mandate is Hoch's investigation of housing elements. In 2003, Illinois passed a housing law mandating planning for low-income housing that combined aspects of Massachusetts Chapter 40B statute[53] and California's HEL. "If less than 10% of an Illinois municipality's or county's housing stock was classified as affordable… [then the law] required that local government… make and adopt an affordable housing plan by April 2005" (Hoch, 2007, p. 88). Using a phone survey and secondary data, Hoch asked: (a) did the Illinois housing mandate shift local policy attention to subsidized housing, (b) were the legislative justifications offered for the mandate perceived by planners as legitimate, and (c) were the submitted plans consistent, coherent, relevant and committed? In his survey (n=49, response 59%), Hoch found that 51% agreed that the mandate shifted attention, but 59% felt that the mandate imposed an unfair burden, and 76% felt that the mandate made little economic sense. Regarding justification (e.g., job/housing mismatch, diversity, traffic congestion), the results were mixed. And finally, his analysis of the elements showed that 97% were compliant with the mandate.

[53] In 1969, the Massachusetts legislature enacted Chapter 40B to reduce local barriers to the affordable housing production. This state law requires that all jurisdictions maintain at least 10% of all housing inventory to be affordable to low-income households (Courchesne, 2004; Graddy & Bostic, 2010).

While this article provided insight into municipal perceptions of a mandated state requirement, issues with the methodology weakened the impact of his findings. To his credit, Hoch stated that the research was limited to "noncompliant jurisdictions without an adopted affordable housing plan" (p. 88); however, this admitted selection bias of municipal foot-dragging may indicate that these municipalities *were indeed different* from the general population of municipalities. In addition, Hoch does not provide any information regarding the statewide population of municipalities affected by the law; therefore, we cannot ascertain if this sample (n=49) can be extrapolated to the regional or state level. On page 91, the author provides a map (e.g., Figure 3) of the Chicago region which illustrated the region's municipalities and hinted the study population (N=272), but it was implicit, not explicit (p. 89). In addition, Figure 1 also suggested that compliant municipalities were wealthier than non-compliant municipalities (pp. 88-89). An improvement in this investigation would have been the employment of a t-test of compliant and non-compliant municipalities designed to ascertain any differences in location, population, spatial size, or household income.

Regarding question three (e.g., *were the submitted plans consistent, coherent, relevant and committed?*), Hoch referenced previous housing elements analyses that introduced those concepts, yet he did not provide any conceptual or operational definitions that guided <u>his</u> methodology (pp. 86-87, 89). Did Hoch amend, improve, or simply replicate previous definitions and procedures? We do not know. To his credit, he stated that a "lack of resources precluded… [his] using multiple readers," (p. 93); however, this lack of transparency is surprising coming from the author of *Pragmatism, Planning and Power, Racism and Planning,* and *What Planners Do: Power, Politics, and Persuasion* because not only did the scant methodology limit the study's reliability and replication, but it also increased reader skepticism (Hoch, 1984, 1993, 1994).

Regarding home rule, Hoch stated that "many officials in home rule municipalities claimed the law did not apply to them," but failed to provide a context for home rule application in Illinois (2007, p. 93). In California, the State categorizes municipalities as a either a "general law" or "charter" city. A general law city is incorporated under and subject to the laws of the State, whereas a charter city is incorporated under their own charter and enjoys broader powers regarding land-use regulations and adherence to state laws (*California Planning Guide: An Introduction to Planning in California*, 2005).

More importantly, “in the case of charter cities in California… the state cannot intervene in land-use decision making unless the matter is of statewide concern” (Baer, 1988, p. 270). This type of contextual information would have deepened the understanding of home rule resistance in Illinois.

Lastly, one must ask, what exactly was the “index of Quality Variation (Hoch, 2007, p. 88)? Like Steinacker in her investigation of the fiscal conflicts inherent in urban infill and low-income housing policies, Hoch employed an index metric to explain the variance of home prices, but also like Steinacker, he neither tethered the index to research data, nor did he explain its measurement validity or its usage reliability (Steinacker, 2003). In summary, housing elements drawn from this Illinois sample indicated that while municipalities may have complied with the housing law, but without the commensurate political will, these plans might not necessarily lead to an increase in the municipal and regional inventory of low-income housing.

I found Hoch’s study on Illinois housing elements significant to my presented research for the following four reasons. First, Hoch’s purposive sampling frame consisted of municipalities that were non-compliant. In this dissertation, the purposive sampling frame consists of municipalities that are compliant and non-compliant, stratified by location, and linked by an administrative authority (i.e., the regional COG). As such, I must limit my findings to my sample; however, I may extend them to the region or state depending on characteristics of the sample and population. Second, Hoch failed to define his conceptual and operational definitions. In this dissertation, I define NCSH as “new construction” subsidized housing units, and I measure the incidence of NCSH with data originating from the housing elements. Third, Hoch does not explain the legal significance of Illinois “home rule.” In this dissertation, I explain home rule via California’s general law and charter cities and intend to capture these dichotomous values with data from the California State Comptroller’s office. And lastly, Hoch employed an index metric but tethered it neither to housing research, nor to Illinois housing elements. In this dissertation, I shall measure NCSH as the total amount of “new construction” subsidized housing units within a treatment period; yet, I shall measure compliance in it annual form, but also as a clearly defined index (number of compliant years / number of a housing element’s effective years).

2.4 HCD COMPLIANCE AND HOUSING PRODUCTION

The work of Connerly and Muller, Goetz et al., and Hoch collectively illustrated the perfunctory efforts of municipalities when required to comply with an unpopular and unfunded housing mandate. In this next review, I examine Lewis' investigation of California's Housing Element Law.

Using residential building permits as the response variable, Lewis used multiple data sources[54] to determine if municipal compliance with California's HEL was a significant predictor of housing production (2005). In his discussion, Lewis noted that prospective state strategies (e.g., California, Oregon), which encouraged planning for future demand, neither contained accountability measures in their processes, nor provided an adequate evaluation of housing unit production. Whereas retrospective state strategies (e.g., New Jersey, Massachusetts), which examined the proportional deficiencies of low-income housing to total housing, contained punitive accountability measures (e.g., court-approved building permits also known as a builder's remedy), but also maintained corrosive intergovernmental relations. Yet, retrospective strategies allowed for quantitative evaluation of subsidized housing production (Graddy & Bostic, 2010; Lewis, 2005, pp. 182-184; Meck et al., 2003).

In his investigation, Lewis found that for the log of annual multifamily permits, compliance was not statistically significant, but median housing unit age, population size, and the square of median household income were statistically significant ($p<.01$). And, for the log of annual single-family permits, Lewis again found that compliance was not statistically significant, but median housing unit age, population size, and fiscal effort[55] were statistically significant ($p<.01$), as were the changes in a municipality's total housing units between 1980 to 1990 and in median household income ($p<.05$). Therefore, one must wonder: does compliance actually matter? In this investigation, Lewis' statistical evidence suggests that the answer is "no."

[54] The data sources are the US Census Bureau, the Construction Industry Research Board, and California's Department of Finance, Department of Housing and Community Development, and State Comptroller's Office.

[55] Fiscal Effort is measured as the ratio of municipal general revenues to the aggregate personal income of the city's residents (Wolman (1996) as cited in Lewis, 2005, p. 189).

In his closing, Lewis recommended that California revise the compliance process by reviewing elements within a region (accounting for regional markets), enacting a Massachusetts Chapter 40B builder's remedy (as a strong "stick" penalty), revising tax policy (i.e., redistribution of sales taxes and property valuation taxes), and creating a trust fund as a dedicated subsidy (as a "carrot" approach). In my view, the only weakness in this investigation stemmed from the usage of building permits as the response variable, since permit issuance does not ensure the completion and occupancy of a housing unit. In addition, the permit does not specify if the unit will rent or sell as subsidized or market-rate. Therefore, researchers must link multi-family housing production to subsidized housing production. But, at what level?

Should we consider 10% of multi-family permits as subsidized housing (e.g., Massachusetts)? Should we consider 9, 12 or 15% of total residential building permits as subsidized housing as required by some inclusionary housing ordinances (Schuetz et al., 2009)? Or should we consider even 20% of building permits as subsidized housing as proposed by New Jersey's third round of fair-share housing regulation ("Substantive Rules of the New Jersey Council on Affordable Housing ", 2008). This measurement dilemma or fuzziness is due to the imprecision of HEL, not Lewis.[56]

HEL requires that municipalities demonstrate that the housing element and its implementation will allow future housing production (e.g., opportunities). However, in my informal data collection for this dissertation, I found HCD's evaluation of the "Review of the Previous Element" to be inconsistent, and surprisingly optional as some housing elements contained extraordinary quantitative detail, and others contained no details; therefore, in this dissertation, building permits will serve as an additional, yet imprecise proxy for housing production. There is simply no other reliable source for housing data as per my conversation with Mr. Lewis in spring 2010.

I found his Lewis's study of municipal compliance to California's Housing Element Law significant to my dissertation on many levels. I use similar data sets from the same California state

[56] As an aside, in 2004 and 2006, SCAG produced the *Housing Element Compliance and Building Permit Issuance report* as a listing of a municipality's RHNA housing allocation and the subsequent number of municipality residential permits issued. I say listing because no analysis connects the RHNA allocation, the permits, or housing production to the municipal or regional need for subsidized or market-rate housing (Carreras, 2006; Luo, 2004).

agencies, but as annual waves. I also focus on municipalities and their housing production and measure compliance within a multivariate regression analysis. The areas where my research extends Lewis' study are the following departures. I expanded the response variable to include "new construction" subsidized housing. Rather than use year 1994 data to forecast year 2000 values, I employed 16-year longitudinal statistical approach that estimated the municipal production of NCSH in treatment periods and a 18-year longitudinal statistical approach that estimated the municipal annual housing production. Rather than take a statewide approach, I focused on two regions within California, in order to obtain a deeper understanding of municipal reaction to state-level unfunded mandates.

In the next chapter, I discuss this dissertation's problem statement, research questions, and conceptual model.

3.0 PROBLEM STATEMENT

In the previous chapters, I identified the research focus as the "new construction" of subsidized housing (NCSH), provided an explanation of the HEL/RHNA process, and situated this dissertation within current literature. In this Problem Statement, I assert that it is neither clear nor proven that municipal compliance to HEL leads to an increase in the production of subsidized housing units. I argue that this discrepancy is due to the negative political, fiscal, and technical aspects of municipal compliance.

In this dissertation, I argue that politically, municipal compliance relies on a regional governance scheme that identifies no clear umpire and abets political dissent. Fiscally, municipal compliance inflames political will by requiring that municipalities not only identify a permanent funding source for low-income housing, but also forgo potential revenue. Technically, municipal compliance functions as a trope in which (a) the primary outcome of the law is a government document—not a housing unit, (b) the process relies on market solutions to fix a market failure, and (c) the causal relationship between housing "opportunities" and the increased inventory of subsidized units is unproven.

In the next sections, I advance my argument on the troubling aspects of municipal compliance. Following this discussion, I review my research questions, my epistemological worldview, and I explain why the a-priori application of theory is inappropriate to this investigation. Lastly, I ground the dissertation's conceptual model, the concepts' definition, and their operation.

3.1 POLITICAL ASPECTS

I assert that the political problems of municipal compliance stem from two aspects of the devolved HEL/RHNA process. First, regional governance eliminates hierarchical directives and promotes a shifting administrative landscape in which accountability is contextual to the agency, not the law. Second, the production of subsidized housing, when mandated as a redistribution of benefits, requires political coercion, not consensus. In the next sub-sections, I shall discuss why a regional governance scheme reduces low-income housing production.

3.1.1 ACCOUNTABLE TO WHO?

When the State adopted a regional governance approach, it implemented a political scheme that contained no central authority. Under regional governance, neither COGs nor municipalities are under the command of HCD, and COGs maintain no direct power over municipalities. Moreover, COG leadership is composed of its municipal members, who may be reluctant to identify and condemn exclusionary[57] land-use. In addition, municipalities can adopt, appeal, or amend the RHNA allocation—as "broad discretion is given to the unit of local government preparing the housing element" (Calavita et al., 1997, p. 112). Therefore, as municipalities fail to produce subsidized housing, presently no agency exacts a serious penalty. Thus, the municipal effort for subsidized housing is tepid, yet the municipal effort for market-rate housing is vigorous, as noted by the production of market-rate housing that is double or triple its RHNA allocation.

Without an umpire, regional governance allows each agency to project the failure the HEL /RHNA process as the fault of the other participating agencies. For HCD, the lack of housing production lies with municipalities that prohibit multi-family housing "by right,"[58] or refuse to increase the densities

[57] In a paper on municipal action, Fischel et al. describe exclusionary land-use as zoning that "attempts to reduce the overall rate and ultimate density of housing development" (2006, p. 3). To achieve this desired exclusivity, municipalities will implement zoning that requires either large lot sizes and/or minimum house sizes that tend to increase the taxable revenue from such housing units.

[58] "By right" means that a housing development is automatically approved without a discretionary public hearing because the project meets the development standards (i.e., land-use, size, parking, height, setback, etc.) for the residential use. Please see HCD's discussion of this land-use tool in their discussion of the municipal provision of adequate sites for housing opportunities in all income categories. http://www.hcd.ca.gov/hpd/housing_element2/PRO_adqsites.php

of the established neighborhoods. For COGs, the lack of housing production may lie with HCD forecasts that contain an aggressive 5-year absorption rate (*Final Report*, 2004). For municipalities, the lack of housing production lies with HCD's critical application of HEL, the COG's discretionary RHNA methodology, and the absence of consistent government and private subsidies. Collectively, these conditions support a shifting landscape of precarious low-income housing production in which municipalities explain failure as the *action* and/or *inaction* of other agencies, not themselves.

3.1.2 COERCION, NOT CONSENSUS

In my second proof of the political problems of regional governance, I assert that the creation of a perceived negative amenity (i.e., subsidized housing) requires political coercion. If researchers view regional governance as a network, then one can see that housing information (e.g., population projections, housing allocations, zoning, federally assisted units, etc.) flows freely among the actors. Yet, when HEL imposes any penalties, they only flow in one direction—towards the municipality. The law does not penalize HCD for a faulty forecast, or the COGs for an inequitable allocation (Myers, 2002). For municipalities, the penalty for non-compliance is twofold. Municipalities may lose competitive state/federal funding targeted for subsidized housing, which may not be a hardship, and they may be subject to lawsuits based on the denial of subsidized housing projects.

In California, if a municipality denies a subsidized housing project, then the municipality frames the denial as an inconsistency between the proposed project and the municipality's current General Plan and/or Zoning Code. In a housing lawsuit, the aggrieved plaintiff must not only prove discrimination, but also that their proposed project is consistent with the municipality's General Plan and Zoning Code. For private housing developers, this legal approach may increase project uncertainty (Christensen, 1985; Goetz & Sidney, 1994; J. S. Johnson & Talen) and as a result, developers eschew subsidized housing in their residential projects in order to reduce risk and failure (J. S. Johnson & Talen, 2008). Subsidized housing developers avoid hostile municipalities, since these municipalities deplete time and finite resources (Goetz et al., 2003). Therefore, if no agent, agency, or coalition attempts this legal approach, then municipalities remain unchallenged in their exclusivity.

Next, I discuss how California planning directors' act as guardians and/or enablers of municipal self-interest by fostering intransigence to policies perceived as antagonistic to director agency.

In 1996, seven years after the 1989 Housing Element Law revision, Baldassare et al. used survey data (N= 402, 56% response rate[59]) to uncover the extent of general support for regional government among planning directors in California municipalities (1996). In general, the authors found that directors supported a regional government for the management of public and quasi-public goods like public transit, waste disposal, water supply, and roads. For goods of a private nature, such as growth management or land-use, planning directors maintained that they were better managers of and more responsive to local issues than regional government.

Specifically, the authors found that 57% of directors opposed regional control of land-use planning, 55% of directors opposed regional control of commercial development, 65% of directors opposed regional control of residential development, and 43% of directors opposed regional control of parks. Collectively, the regional control of these specific items could support the municipal construction of multi-family and low-income housing; yet, Baldassare et al.'s paper illustrated how director opposition thwarted that potential reality.

In many municipalities, planning directors are the administrative change agents for municipal processes. When it comes to land-use processes, however, directors may be the lead person, but not necessarily the municipal *leader,* since these directors serve at the pleasure of the city manager and city council (Kravitz, 1970). As noted by Tiebout, "city managers are under greater pressure to minimize costs than their private-market counterparts" (1956, p. 422, footnote #18). Therefore, a compliant housing element may increase the probability of low-income housing production, which may increase the service costs borne by the municipality. In turn, these low-income housing units may conflict with the city manager's financial views and may consequently reduce the planning director's agency and status.

[59] The survey included 89% of all California municipalities because "the sample consisted of city planning directors in all California cities with populations of 4,000 or more" (1996, p. 22).

Furthermore, in cases where a municipality must increase its residential densities, the RHNA allocation creates a conflict between a directors' position as an arbiter of a municipality's police powers[60] and the municipality's neighborhood character. Unless the HEL/RHNA process grants protection to the planning director's status, he/she may be unlikely to propose the bold visions required for full implementation of the housing element's programs. Or at a minimum, he/she may be unlikely to ensure that a low-income housing project receives the same political consideration that a market-rate housing project receives.

In summary, since regional governance operates among equal agencies and one agency may be exclusionary and recalcitrant, is regional governance the best scheme for the redistribution of public and private goods in this political triumvirate? I assert that it is not, as regional governance has no obvious umpire. With the 1989 revision of HEL, the State charged HCD with creating the statewide forecast of housing need using the inputs of headship rates and existing housing supply (Myers et al., 2002). It also charged COGs with regionally allocating housing units to municipalities using an unspecified and regionally non-equivalent methodology. Lastly, it charged municipalities with creating a housing element as an institutional reaction to the HCD forecast and COG allocation. Yet, the State failed to place a central authority in charge of mitigating failure.

As such, regional governance accountability floats on reactive islands of self-interest. On each island, each agency will implement prescriptions *if* and *when* the proposed intervention serves their interest. Therefore, we should not expect that planning directors would risk their livelihood and champion this redistribution of benefits. Thus, low-income housing has no "inside" political champion within the municipality.

[60] In California, "the legal basis for all land-use regulation is the police power for the city to protect the public health, safety, and welfare of its residents" as accepted by the state constitution (Curtin & Talbert, 2006).

3.2 FISCAL ASPECTS

In this section, I discuss the fiscal problems of municipal compliance with HEL. I assert that compliance inflames political will by requiring municipalities to identify a permanent subsidy for low-income housing and to forgo potential revenue. Collectively, these actions require that municipalities implement land-use processes that they perceive as antagonistic to their self-interest. Moreover, when those actions have fiscal connotations—owing to our capitalist frame—the actions may result in strongly oppositional political will.

In the proceeding sub-sections, I address three central issues related to the un-identified and un-secured subsidy: subsidy identification, tax exemptions, and revenue displacement. As theorized by Tiebout, and tested by Basolo and others, when residents are faced with increased taxes and/or declining municipal services, high-income and mobile residents will "vote with their feet" and locate to municipalities better aligned with high-income resident self-interest (Banzhaf & Walsh, 2008; Basolo, 1999; Dawkins, 2005; W.A. Fischel, 1992; Tiebout, 1956). Therefore, municipalities have a vested interest in retaining high-income households by repelling fiscally unsustainable policies. In this case, low-income housing—in the municipality's view—is fiscally unsustainable.

3.2.1 SUBSIDIZED THREATS

First, a subsidized housing unit requires a permanent subsidy for the effective period of the subsidized housing unit or for the tenure of any low-income household. Low-income households, who limit their housing consumption to no more than 30% of their household income, will require a subsidy unless the household endures the conditions of overcrowding,[61] filtering,[62] or subfamilies.[63] Second, in the

[61] Overcrowding means that there is more than one person per bedroom. This concept originated in the federal Housing Act of 1937 and emphasized housing construction (A. Schwartz, 2006, p. 101). For a discussion on overcrowding, please see Schwartz (2006, p. 23). For a discussion of the conflicted origins of federal public housing policy, please see Hoffman (2005).

[62] As defined by Lowry in 1960 and advanced by Grigsby in 1963, "filtering" is an economic process whereby low-income households satisfy their housing needs by residing in older and sometimes deteriorating residences "as a result of decline in market price, i.e., in sales price or rent value" (Grigsby; Lowry, p. 362). This process also requires two concurrent conditions: (1) upwardly mobile households are moving, and (2) a housing supply that exceeds housing demand (Collins, Crowe, & Carliner, 2002, pp. 175-177). For more discussion of filtering, please see Galster (1996). For a discussion on the precarity of low-income household ownership, please see Shlay (2006).

case of new construction, the housing unit incurs a subsidy from the moment an agency indicates that the unit will contain a low-income household, as FIRE[64] and housing construction neither discount their commissions nor costs for altruism. Third, if the housing unit is new construction or existing, then municipality must secure a consistent subsidy (i.e., a federal, state, regional, local, or private source) to transform the housing unit from market-rate pricing to low-income pricing. Furthermore, if the subsidy is not regular and consistent, then the twin issues of low-income housing preservation and low-income household precarity arise. In the following example, I shall illustrate the fiscal deficit that occurs during subsidized housing construction.

Heritage Housing Partners,[65] a non-profit agency located in Pasadena, promotes affordable housing and neighborhood revitalization through the preservation of existing historic homes and the new construction of single/multiple-family residences. A review of their development costs for a recently constructed multi-family housing project indicated that the City of Pasadena provided 42% of the gap financing required for the construction of each unit. The gap financing sources included IHO in-lieu fees, TIF funds, and HUD funds. Table 4 lists the development costs for a typical housing unit in their Fair Oaks Court project, which is located in the City of Pasadena's lowest cost neighborhood.

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[63] The U.S. Census Bureau defines a "Subfamily" as a family with or without children that resides in a household in which the head of household, who maintains the residence, is not a member of the subfamily. An example may include a residence in which the parents and the grandparents share the same residence, or the parents and an adult-child's family share the same residence. http://www.census.gov/sipp/appen-b17.pdf

[64] FIRE stands for the collective industries of finance, insurance, and real estate.

[65] http://www.heritagehousingpartners.org/aboutus.html

Table 4: Heritage Housing Partners' Development Costs This table demonstrates the Financial Gap per unit for their Fair Oaks Court multi-family residential project.		
Total Development Cost per housing unit	$476,553	100%
Average Sales Price per "affordable" housing unit	$213,528	44.8%
Financial Gap	***$263,025***	***55.2%***
City of Pasadena Subsidy	$111,097	42%
Net New Market Tax Credits	$88,471	34%
County of Los Angeles Subsidy	$33,457	13%
State of California Subsidy	$30,000	11%
Subsidy Total	***$263,025***	***100%***

Source: Heritage Housing Partner http://heritagehousingpartners.org/uploads/file/FactSheet7-16a.pdf s

In a robust real estate market, the figures in Table 4 indicate that subsidies (e.g., 55% of construction costs) are required in order to financially transform "for-sale" housing units to qualified low-income households. These subsidies also signal the efforts of Heritage Housing Partners in terminating subsidized housing's reputation for shoddy and utilitarian construction because quality housing is not cheaply constructed (von Hoffman, 2005, p. 246). As noted by proponents of New Urbanism, "affordable housing should not look different from market-rate housing. The last the poor need is a home that stigmatizes them as such" (Duany et al., 2001, p. 52).

After the non-profit sells the housing unit to a low-income household, the subsidy operates as a deed restriction with Heritage Housing Partners and/or the subsidy source as the owner of the restriction and holder of extensive rights of purchase and/or financial appreciation. While some critics may encourage production of subsidized housing in communities with lower development costs (i.e., more bang for your buck), such a concentration of housing units may exacerbate environmental injustice by re-concentrating low-income households in either neighborhoods of poverty or neighborhoods lacking desirable amenities (Beatley, 1989; Goetz, 2002). Therefore, when planners or agents speak of the need for subsidized housing, they must also speak to the un-identified and unsecured subsidy—for "plans without finance, are but a nuisance" (Baer, 1988, p. 270).

3.2.2 TAX THREATS (OWNER-OCCUPIED HOUSING)

In this sub-section, I continue my discussion of subsidized housing's fiscal threats by asserting that such units represent forgone revenue in two areas: property taxes and sales taxes. I shall first discuss the property tax threats of owner-occupied subsidized housing.

Since the passage of Proposition 13[66] in 1978, California has taxed real estate at 1% of its last sales transaction, and the State limits any increase in assessed value to 2% annually or the CPI (whichever is less). For example, if a residence sells for $310,000,[67] then the base[68] annual property tax would be $3,100, and the following year's tax may increase to $3,162, from a potentially increased assessed value of $316,200. In order to make this housing unit affordable to a four-person household that earns no more than 50% of the Los Angeles AMI (e.g., $42,700, as set by HUD[69]), the residence should cost approximately $175,000.[70] Yet, this solution—a reduction in price—has the diametric effects of positive housing satisfaction for the low-income household and negative fiscal precarity for the municipality.

A reduced price of $175K would relieve the low-income household's long-term tax burden, but the municipality would forgo tax revenue needed for short-term general services such as education, police, recreation, etc. If we leave the sales price at its market-rate, then this price may satisfy the municipal coffers, but it may also fiscally strain the low-income household (Shlay, 2006). Municipalities may decry HEL's fiscal constraints as an unfunded mandate for low-income households, but they also protect their financial interests by zoning municipal land for its highest return on investment (Dowall, 1990).

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[66] For a detailed view of Proposition 13 and its neighborhood effects on land-use, property and sales taxes, education, and governance, please see Chapman (1998).

[67] This is the 2010 median price of a detached single-family home in Los Angeles County. http://www.laedc.org/businessscan/index.html#median

[68] In many municipalities, the base 1% tax is supplemented by additional voter- approved debts for schools, utility upgrades, recreation, and other services. Therefore, the tax rate may range from 1 – 3% depending on community desires and political will.

[69] The 2011 Area Median Income (AMI) for a four-person household in Los Angeles County is $64,000. http://planning.lacounty.gov/assets/upl/project/housing_2011-income-limits-costs.pdf

[70] This price ($175,000) assumes a 30-year mortgage, with 20% down ($35,000) at 4.7% interest. The non-profit agency would supply a down payment that carries either deed-restrictions or equity-sharing provisions. Equity-sharing provisions may require that the low-income household accept a lower rate of return if the property is sold, or forgo allowing child family members from inheriting the residence. Please see the National Housing Institute's report on shared equity (Davis, 2006)

In this ownership dilemma, the second-best solutions may be the following: (a) steer low-income households from homeownership to renters, (b) provide low-income households with a voucher[71] that enables them to rent housing from the private market, (c) increase the supply of subsidized rental properties targeted to low-income households, or (d) increase the supply of all rental properties to depress rents. Since HEL takes a supply-approach to increasing the statewide supply of housing, and since the State cannot guarantee that housing opportunities become low-income housing units, the voucher solution has become the default program in many municipal housing elements. Yet, if municipalities do not increase the total supply of multi-family rental units, then too many low-income households will chase too few housing units (Coan & Salmon, 1995, p. 827). In the next section, I shall discuss the tax threats of renter-occupied subsidized housing.

3.2.3 TAX THREATS (RENTER-OCCUPIED HOUSING)

I assert that subsidized rental properties are perceived to threaten the fiscal well being of municipalities. In California, property tax revenue depends not only on the residential use, but also on the status of the property owner. If the sole owner is a non-profit agency, or a non-profit agency that is the managing partner of a LLC,[72] then the State grants a welfare tax exemption to the housing units provided to low-income households ("Low-Income Housing Exemption," 2009). Depending on the size of the rental building or the number of subsidized units within a residential complex (1 unit to 100 units), the foregone property tax is a fiscal issue that municipalities do not easily overlook, and may attempt to minimize financial exposure by reducing the new construction of multiple-family housing units or instituting PILOT[73] policies. For municipalities, the remedy to this subsidized rental dilemma is the reduction[74] of

[71] Originally known as Section 8 when instituted under President Nixon's agenda of devolution, Housing Choice Vouchers provide rental assistance to low-income families who are unable to afford market rents. This demand strategy allows the household to reside in an existing housing unit owned by either a non-profit or the private sector entity.

[72] Bridge Housing, based in San Francisco, is one of the nation's largest providers of low-income housing. My analysis of their 2007 IRS 990 tax form reveals that the agency isolates each low-income housing project as an independent limited liability corporation to reduce the overall risk of its entire real estate portfolio. http://www.bridgehousing.com/

[73] Payment In Lieu Of Taxes (PILOT) in an agreement between a municipalities and a non-profit agencies in which municipalities seek a fraction of the property tax payment that would have been paid by a for-profit property owner. For a discussion of this fiscal relationship, please see Kenyon and Langley (2010).

high-density residential zoning, or the prohibition[75] of multi-family zoning, since both designations may increase the incidence of low-income households.

The second threat that municipalities perceive as originating from subsidized housing is decreased sales tax revenues. Owner-occupied and renter-subsidized household units may signify reduced household incomes, and this reduction may translate to lower sales tax revenue for municipal operations. With an increase in the number of households containing lower incomes, any municipality that explicitly relies on sales taxes to fund general services may interpret these additional low-income households as increases in requested services without the commensurate tax revenue. Should a subsidized housing unit contains two-, three-, or four-bedrooms, then there may be higher probability that new and large households could occupy these units and these low-income households may displace "full paying" residents for school, park, and emergency services.[76]

As part of California's Bradley-Burns Act,[77] the State returns a percentage of sales tax revenue to local cities and counties for discretionary spending. California's basic statewide sales and use tax rate is 7.25% and, per the Bradley-Burns Act, this rate is divided as follows: 6.25% State, 0.75% Local Jurisdiction (city or county of place of sale or use), and 0.25% Local Transportation (city or county of place of sale or use). What is important about this returned revenue is that (a) its creation is influenced by municipal land-use policy to zone land for commercial uses; (b) the proportion of the returned tax to total

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[74] For readers of this dissertation familiar with Madison WI, you may recall the municipal hostility encountered by the proposed purchaser of the Pyare Square building in Shorewood Hills. In 2009-10, an Illinois developer requested permission to demolish a 14-story vacant office tower and construct a six-story, 69-unit moderate-income housing project. The village board denied the plan with a 6-1 vote (Simms, 2010; Verburg, 2009).

[75] According to the 2008-2016 housing elements for the cities of San Marino and Bradbury, neither municipality contains multi-family zoning. Both municipalities intend to meet their low-income RHNA allocations with unrestricted (in terms of household income) granny flats.

[76] This was the argument put forward by the Village Board of Shorewood Hills. However, a subsequent lawsuit filed by the ACLU cited a local planning firm's fiscal assessment that found that a low-income multi-family residential project would have no negative impact on village finances. This assessment was requested and read by Shorewood's village board prior to their vote to deny the project (Verburg, 2010).

[77] The Bradley-Burns Uniform Local Tax Law (1955) allows a percentage (usually 1%) to be added to a statewide sales tax. Effective on January 1, 1962, all counties have since adopted ordinances for the Board of Equalization to collect this local tax. http://www.boe.ca.gov/sutax/localdist.htm

municipal revenue may be as low as 5% or as high as 60%; and, (c) the amount returned to municipalities may drastically change from year-to-year.

In the accompanying figure, I have included a listing of treatment municipalities, their average population during the study, and the proportion of returned sales tax to total municipal revenue. In this haphazard sample, I have also labeled those municipalities with the highest (Duarte) and lowest (Bradbury) proportions. What Figure 3 demonstrates is point's b and c – the overall importance of sales tax to municipal budgets.

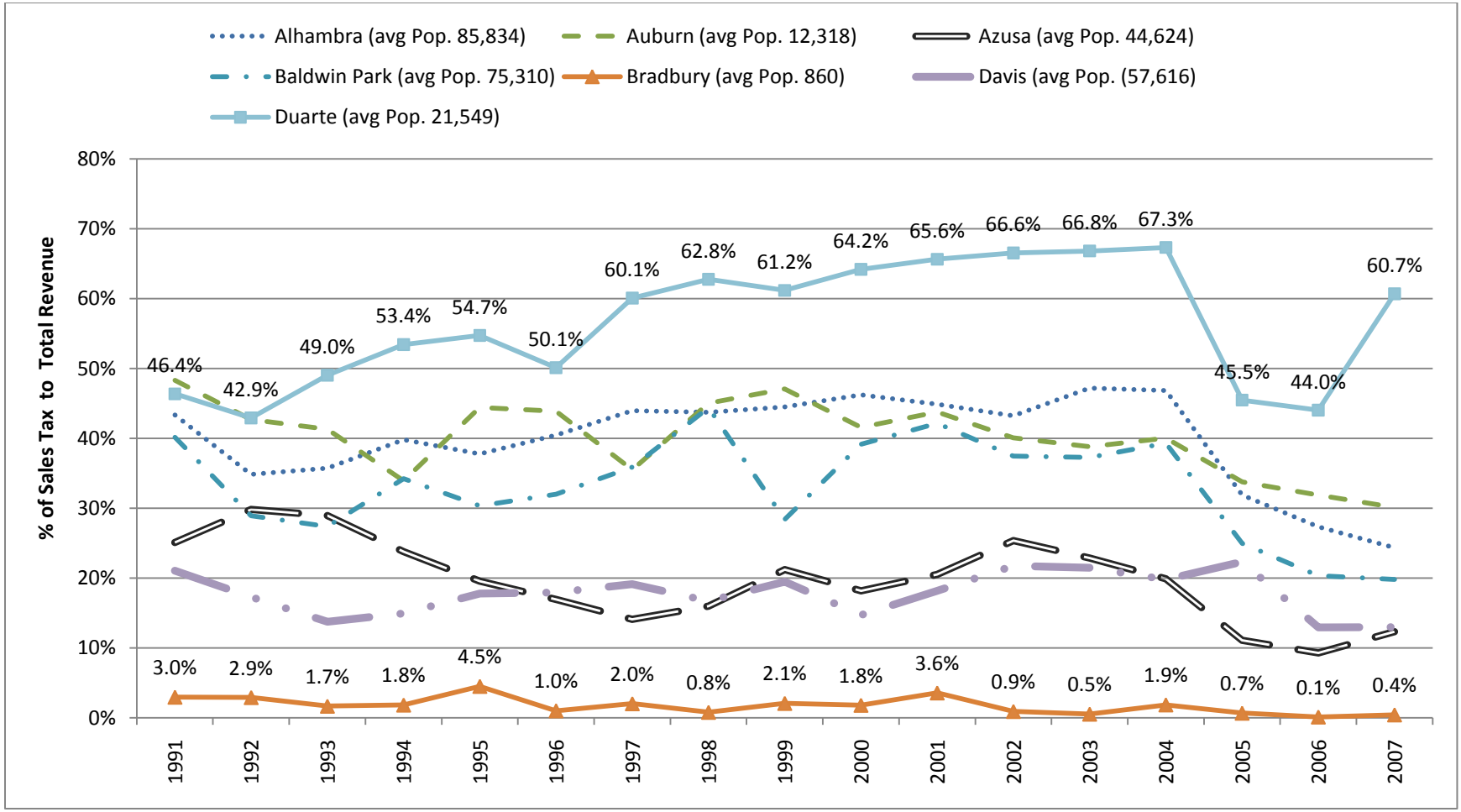

Figure 3: Proportion of Sales Tax to Total Revenues, annually

The City of Duarte is depicted on the top as the solid line w/ squares. The City of Bradbury is depicted on the bottom as the solid line w/ triangles.

Sources: Population, California Department of Finance; Sales Tax Revenue, California State Comptroller – Cities Annual Reports

Because of this potential revenue displacement, municipalities that choose to continue to offer quality services may institute or increase fees to offset revenue loss. These fees may take the form of increased property taxes on existing residents, impact fees for new users, or enterprise schemes for all users (Rubin et al., 1990). Alternatively, the municipality may reduce the provision of general services. In either case, economic geographers suggest that high-income and mobile residents may "vote with their feet" and move from such communities because of higher taxes or perceived deteriorating neighborhood character (Tiebout, 1956).

In summary, the HEL/RHNA process coerces municipalities to provide housing and financial opportunities for the region, whereas municipal elites explicitly design and operate municipalities in order to provide maximum benefit to themselves (Babcock, 1966; Basolo, 1999, 2003; Molotch, 1976; Rubin et al., 1990) .

3.3 TECHNICAL ASPECTS

In this section, I assert that compliance functions as a trope[78] in which (a) the primary outcome of the law is a government document—not a housing unit, (b) the process relies on market solutions to fix a market failure, and (c) the causal relationship between "housing opportunities" and the inventory of subsidized units is unproven. In the following sub-sections, I speak to the administrative burdens borne by municipalities, provide an example where a municipality has identified subsidized housing provision as a market failure, and lastly, assert that the real beneficiary of this process is the private housing market because municipal compliance streamlines private real estate development by reducing uncertainty and creating residential placeholders.

3.3.1 ADMINISTRATIVE BURDEN AND MARKET FAILURE

In its current iteration, HEL places administrative and financial burdens of compliance on municipalities in three ways. First, municipalities must produce a housing element, but HCD determines the housing element update schedule, and the COGs determine the amount of land recycling[79] via the RHNA allocation, whereas other general plan elements are updated when the municipality determines that the element is obsolete. For many municipalities, planning staff is usually limited to a director, a principal planner, and one or two assistant planners. In addition, city managers may base planning staff budgets on the municipality's commercial and residential activities.[80] Therefore, the imposition of the RHNA allocation is an external directive affecting not only community character, but also planning staff allocation (Lewis, 2003).

[78] As defined by the Oxford Dictionary, a trope is a figurative (i.e., metaphorical or *ironical*) use of a word (*The Oxford American Dictionary and Thesaurus*, 2003, Italics mine). In this dissertation, I emphasize trope's ironic usage as I call into question the Housing Element Law's connection between compliance and low-income housing production.

[79] Land recycling is the reuse of abandoned, vacant, or underused properties for redevelopment. It may also refer to the increase of density or usage of existing developed land. http://www.cclr.org/101/#/definitions

[80] During my fieldwork in the Sacramento region, I discovered that the City of Colfax laid-off its planning staff, while it also contracts with a private planning firm, and has installed the public works director as its planning director. In addition, the Town of Isleton contracts with an outside planning firm that is only "in-house" on Mondays.

Second, housing element production requires considerable expertise due to the law's technical requirements and California's environmental requirements.[81] An adopted housing element must demonstrate that it is not only consistent with the municipality's General Plan and Zoning Code, but it must also demonstrate compliance to HEL. For many municipalities, it is not feasible to complete the housing element and manage quotidian land-use processes, hence the rise of the private consultant. A consultant's fee may range from $30K to $100K; depending on municipal size and the scope of work, this expenditure affects competing general fund and/or redevelopment priorities. Lastly, one should also note that the State exempted HCD forecasts and COG housing allocations from the State's strenuous environmental requirements ("Housing Law Allocation," 2009; "Housing Needs Allocation," 2009). Thus, the administrative burden to produce a housing element is not equally shared among the agencies.

Third, should a municipality desire to construct subsidized housing, the municipality must secure funding during the effective period of the housing element, as there is no consistent state or regional housing subsidy. In the evaluation of its 1984-1989 housing element, the City of Pasadena noted that "the low income housing group… is not being addressed by current building activity" and "without government intervention, new construction may not provide the type of housing unit best suited for these diverse needs, particularly those with income limitations" (*City of Pasadena 1989-1994 Revised Housing Element of the Comprehensive General Plan* 1989, pp. 54-55). In essence, the low-income production failure was due to other actors and not the City of Pasadena.

In Pasadena's subsequent 1989-1994 housing element, SCAG allocated a five-year housing need of 3,392 housing units (2,068 low-income, 1,323 market-rate). Pasadena modified and reduced that allocation by providing housing opportunities for the construction of 2,000 housing units, rehabilitation of 750 units, and preservation of 1,243 units. (*City of Pasadena 1989-1994 Revised Housing Element of the Comprehensive General Plan* 1989, pp. 65, 80). At the close of that period, there were 938 new low-income housing units produced. However, 73% (or 685) of those units were targeted toward Moderate income households and this left the Low income segment deficient by 49% (257 units) (*City of Pasadena*

[81] The California Environmental Quality Act (CEQA) "requires government agencies to consider the environmental consequence of the actions before approving plans and policies or committing to a course of action on a" land-use project (Curtin & Talbert, 2006, p. 143).

2000-2005 Housing Element, 2002, pp. 5-1, 5-5). Please see Table 5 for a) the SCAG/RHNA allocation stratified by income, b) the municipal reaction that shifts from new construction into preserved and rehabilitated units, c) and the results of this municipal strategy.

Table 5: RHNA Allocation and Construction for City of Pasadena (1989-1994)

Income Group	RHNA allocation	Pasadena Adopted	*% of RHNA*	Actual Construction	*% of RHNA Allocation*
Very-Low (<50% AMI)	586	200	*34.12%*	253	*43.17%*
Low (50-80% AMI)	880	320	*36.36%*	685*	*46.22%*
Moderate (80-120% AMI)	602	230	*38.20%*		
Above Moderate (+120% AMI)	1,323	1,250	*94.48%*	203	*15.34%*
Sub Total	3,392	2,000	*58.86%*	1,141	*57.05%*
Rehabilitation		1,000		912	*91.20%*
Preservation		1,250		1,315	*105.20%*
Grand Total	***3,392***	***4,250***		***3,368***	***99.29%***

**Estimated at Low and Moderate Income, no legal income restrictions (City of Pasadena 2000-2005 Housing Element, 2002, pp. 5-1 to 5-5)*

From the data in Table 5, it appears that Pasadena has planned for 4,250 housing opportunities. However, on close inspection, the municipality shifted 70.5% (2,392 units) from "new construction" to rehabilitation or preservations strategies. Due to the economic recession in from 1987-1992, the housing market collapsed and it appeared that there were more low-income units (e.g., 938 units) produced than market rate (e.g., 203 units). Yet, that is an illusion. The 685 Low/Moderate units were "estimated" at those prices and over time, they may have strayed into market-rate pricing (Yates & Wood, 2005).

3.3.2 OPPORTUNITIES FOR WHO AND WHAT?

In this sub-section, I assert that a compliant housing element does not guarantee that subsidized housing will be constructed in the effective period, but it does indicate that a municipality may create housing opportunities for future housing projects. In this section, I provide an opportunity example that not only illustrates how the reliance of housing opportunities yields few or no NCSH, but also demonstrates how these housing opportunities benefit private real estate interests.

Let us assume that an urbanized municipality has identified a 2-acre site as a potential location for a low-income housing opportunity. This location can accommodate between 22 and 45 housing units and the municipality credits the higher number (45 units) toward its RHNA allocation for low-income housing units. The housing element details how the municipality has streamlined its approval process for this location by proactively designating high-density housing in the General Plan and Zoning Code—as opposed to forcing an applicant to apply for such designation. In addition, multi-family housing projects in that location will only require the discretionary review by the Planning Commission—as opposed to the Planning Commission and City Council. Furthermore, since this site allows less than 100 housing units and is smaller than 5-acres, any low-income housing project will be exempted from a lengthy environmental review ("Low-Income Housing Exemption," 2009).[82] In short, the stage is set for the construction of low-income housing.

Conversely, compliance may also make this site very attractive to a private housing developer, depending on the community's land-costs and amenities. Therefore, to ensure that this site would produce only subsidized housing, the municipality's zoning designation must specify low-income housing only—a severe measure. A less draconian strategy would be to enact a mandatory inclusionary housing ordinance (IHO).[83] Yet, an IHO scheme may reduce the number of subsidized housing units to a

[82] The CEQA Environmental Checklist is a document completed by the lead agency that assesses if a potential land-use policy or project is statutorily exempt, or will have "no-impact," "less than significant impact," "less than significant with mitigation," "potentially significant impact" in 17 environmental areas. Please see the City of Pasadena's guidelines for the Environmental Review Process. http://cityofpasadena.net/Planning/Environmental_Review_Process/

[83] Inclusionary Housing Ordinances "require the provision of housing, or fees in lieu of such housing, for low or moderate income households at below-market prices or rents as a condition of approval or market-rate residential developments" (Wheaton, 2008, p. 37)

proportion (10-15%) of the total market-rate units. Therefore, under an IHO, a residential project of 45 housing units may contain 5- to 7-subsidized units or none.

None? Many IHOs allow a developer to choose between (a) building the subsidized units on-site, (b) building the subsidized units off-site in another location within the municipality, or (c) paying an in-lieu fee (Wheaton, 2008).

In general, in-lieu fees do not recoup the full cost for constructing a housing unit and the fee varies among communities. In an examination of San Francisco Bay Area IHOs, Dodge et al. found that "San Francisco and East Palo Alto… have in-lieu fees of approximately $150,000 and $125,000 per affordable home, respectively," whereas suburban and high-income Santa Rosa had an in-lieu fee of $20,000 (2002). In a more recent study of IHOs in San Francisco region, Schuetz et al. found that in-lieu fees were the most preferred option in 77% of the sampled municipalities (n=55), and the authors generally noted that "jurisdictions have set the amount of the in-lieu fees considerably below the costs of construction" (2009, p. 450). Furthermore, inclusionary housing ordinances are neither popular with developers nor with politicians, as they are seen as a tax on new development (*Final Report*, 2004). So while some researchers may advocate the implementation of an IHO (Wheaton), this solution contains a multi-year gap between an in-lieu fee receipt, fund accrual, and low-income housing construction (i.e., Housing Heritage Partners).

3.4 SUMMARY

In summary, compliant municipal housing elements may demonstrate planning for future housing developments, but the technical implementation of compliance does not ensure equitable development in all income categories. When municipalities also consider the political (e.g., NIMBYism), fiscal (e.g., unfunded mandates, revenue offsets), and administrative (e.g., reduction in autonomy) technical costs of compliance, more often than not, municipalities will opt for market-rate residential housing, not subsidized housing. Furthermore, when municipalities must commit to low-income housing due to redevelopment laws, they first opt to rehabilitate and preserve housing units (as evidenced by the City of Pasadena) and place boundary constraints on new units (e.g., seniors only). Municipalities perceive seniors as constituting desirable low-income households because (a) they do not usually have

schoolchildren but they do support education (Berkman & Plutzer, 2004); (b) they usually require professional services that increase local employment (Mattson, 1990); and, (c) if their income is related to Social Security, they tend to be politically active voters (A. L. Campbell, 2002).

Lastly, the 2-acre residential placeholder example represents the City of Glendora's strategy for redeveloping its existing and dilapidated mobile home parks, as outlined in Glendora's 2008-2014 Housing Element, which adopted by the city council, found compliant by HCD, and created by a private consultant.[84]

[84] Veronica Tam is the former Director of Housing Services for Cotton/Bridges/Associates. C/B/A was a notable private planning firm that many municipalities in the San Gabriel Valley hired for developing housing elements, general plans, and other land-use planning services.

3.5 RESEARCH QUESTIONS AND HYPOTHESIS

In this dissertation, I evaluate California's Housing Element Law by measuring how a municipality's inventory of new construction subsidized housing has changed over time. This research examines not only California's land-use processes, but also speaks to issues of regionalism, governance, and equity within housing policy. As Geertz has noted, cultural knowledge is intrinsically incomplete; therefore, I use three questions that will triangulate the HEL phenomenon by examining its municipal, regional, and state inputs (1973).

RESEARCH QUESTION 1

The first research question is as follows:

1. How has a municipality's inventory of NCSH changed between the RHNA allocation and the subsequent Review of the Previous Housing Element?

The hypothesis for the first research question is as follows:

H_O: A municipality's inventory of NCSH has not changed between the RHNA allocation and the subsequent Review of Previous Housing Element.

H_A: A municipality's inventory of NCSH has changed between the RHNA allocation and the subsequent Review of Previous Housing Element.

In my problem statement, I asserted that due to the political, fiscal, and technical problems of housing element compliance, municipalities have not effectively increased the supply of housing targeted to low-income households. In order to illustrate this proportional dilemma, I return to data from the City of Carson. In Table 6, I include Carson's listing of "Proposed and/or Pending Projects" data to their RHNA allocation in order to illustrate this proportional dilemma. The category of "Proposed/Pending in 2001" illustrates the quantity of housing units that have received approval for construction—but no permit has been issued, or Carson has received a development application for consideration. In either case, it is not 100% certain that any of these units will be built.

Table 6: RHNA Allocation for the City of Carson This table describes Carson's RHNA allocation and proposed/pending projects (1998-2005)			
Income Group	RHNA Housing Allocation (1998-2005)	Proposed/Pending in 2001	+ / -
Very-Low (<50% AMI)	117	62	Deficient -47%
Low (51-80% AMI)	104	91	Deficient -12.5%
Moderate (81-120% AMI)	143	141	Deficient -1.4%
Above Moderate (+121% AMI)	259	958	Sufficient +270%
Total	**623**	**1,525**	

source: (*Carson General Plan, Housing Element, Chapter 5*, 2010, pp. H-5, Table H-1)

In this instance, the data from the City of Carson demonstrates the programmatic deficiency of the HEL's housing opportunity process. For Very-Low housing units, Carson has a 47% deficiency. Carson also has 12.5% and 1.4% deficiency for its Low income and Moderate housing units, respectively. Notice however, that the proposed total for Above Moderate housing units exceeds its allocation goal by 699 units, or 170%.

When I examined Carson's RHNA allocation, the proportion of subsidized housing units (Very-Low, Low, and Moderate) to total housing appears balanced at 58.4% (364/623). This balance demonstrates the HCD/COG effort to providing housing at all income levels. Unfortunately, when the interaction between the municipality the private sector enters into this process, the quantity of Proposed/Pending low-income housing units dramatically falls to 23.9% (364/1,525). Furthermore, when we compare the quantity of Propose/Pending low-income units to the Proposed/Pending of total units, this proportion falls perilously lower to 19.3% (294/1525). Based on this evidence, I find that the proportion issue is the heart of the low-income crisis, particularly as municipalities vigorously encourage the production of market-rate, not subsidized housing units. The effect of this municipal preference creates a housing market in which too many low-income households chase too few low-income housing units.

In addition, this proportion creates market signals for developers and low-income households. The first signal is that Carson prefers market-rate housing units. This is clear from the number of

proposed market-rate housing units. The second signal is that Carson seeks to limit and/or repel the number of in-migrating households seeking low-income housing. Carson fiscally, politically, and technically sends the second signal in the following manner.

First, the city has a redevelopment agency and receives HUD funds. The city council has directed the redevelopment agency, which manages these funds, to prioritize senior housing (*2010-2014 Implementation Plan* 2009). As I noted previously, municipalities perceive seniors as beneficial residents because seniors do not incur K-12 spending, but they do require workers for their care, and they vote. Second, the city council has directed the redevelopment agency to use the HUD funds for preservation and rehabilitation of existing single-family homes, not multi-family units. Again, Carson is limiting its fiscal exposure to low-income households.

Third, under the most recent economic stimulus[85] package, the redevelopment agency intended to acquire a 31-unit mobile home park, reduce the site's residential density, and construct 19 units of low and moderate income single-family homes (*Proposed Substantial Amendment*, 2010). While the former mobile home park residents will be allowed to purchase the new units, few households usually return due to credit requirements due to the time expended between demolition of the dilapidated units as documented by the HOPE VI projects (Popkin et al., 2004). This low-income population displacement echoes the land-use strategy employed by the City of Glendora.

In summary, the effect of Carson's implementation of state and federal policies is negatively multifaceted. A decrease in the proportion of low-income housing units may result in the following conditions: (a) a reduction in the in-migration of low-income households, (b) a constraint placed on those admitted to low-income housing programs (existing residents and/or seniors), (c) a displacement of low-income households (demolition of the mobile home park), and (d), a decline of quantity of low-income households housed in private housing (as unregulated rents increase overtime). While the construction of Low- and Moderate housing may relatively increase a municipality's supply of subsidized units, a lower

[85] In 2009, HUD established the Neighborhood Stabilization Program (NSP) for stabilizing, intended to stabilize those communities that have suffered from foreclosures and abandonment. The program intends to achieve its goal via the purchase and redevelopment of foreclosed and abandoned homes and residential properties. http://www.hud.gov/offices/cpd/communitydevelopment/programs/neighborhoodspg/

overall proportion reduces the State's goal of an adequate housing supply targeted to households' of varying sizes, ages, and incomes. Thus, where will future low-income households reside? Not in Carson.

RESEARCH QUESTION 2

My second exploratory research question comes from my discourse analysis of regionalism, housing policy, governance, and urban planning literature. This analysis suggests that the construction of subsidized housing involves the confluence of housing demand (Landis et al., 2000), growth (Mayer & Somerville, 2000), political will (Basolo, 1999; Downs, 2004; N. Levine, 1999; Rubin et al., 1990), and the existing housing supply (Lewis, 2005), as well as consistent financial support (Basolo, 1999; Basolo & Scally, 2008) to close any financial gaps (Goetz et al., 2003; Goetz & Sidney, 1994). For any municipality that collectively lacks the sum of these concepts, the construction of subsidized housing within California's regional governance approach will be constrained, reflecting subsidized housing construction as an inus condition. Therefore, I ask the second exploratory research question:

2. What is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, and its inventory of NCSH?

The hypothesis for the second research question is as follows:

H_O: Housing demand, growth, political will, existing housing supply, and subsidy have no relationship to a municipality's inventory of NCSH.

H_A: Housing demand, growth, political will, existing housing supply, and subsidy have a relationship to a municipality's inventory of NCSH

It is important to note that I did not include compliance in this model. In a previous study of California housing element compliance, Lewis found that compliance, when measured as a dichotomous variable, did not have a statistical relationship to his dependent variable of residential building permits (Lewis, 2003, 2005). Therefore, I do not include it as a predicting variable in this conceptual model, but as a control variable in the statistical analysis. I do not think that compliance will have a statistical relationship to subsidized housing within my design, but I may be proven me wrong.

RESEARCH QUESTION 3

My third exploratory research question extends Lewis's usage of housing permits as a proxy for housing production. Other studies that have used housing permits to examine the broader issues of planning and housing included Burge and Ihlanfeldt's examination of impact fees and housing production in Florida, Mayer and Somerville's examination of land-use regulation and new construction in the U.S., and Mitchell's evaluation of the "builder's remedy" strategy on housing unit outcomes in Pennsylvania and New Jersey (Meck et al., 2003). Furthermore, if the true purpose of the HEL is to provide "housing opportunities," and if this process streamlines housing production for the private housing market (as evidenced by the City of Carson), then the usage of building permits aid in the examination of the relationship between HEL and a municipality's total housing production.

In addition, using building permits expands the methodological scope. If I measure the annual issuance of housing permits, I can examine the effects of my amended conceptual model (i.e., inclusion of each municipality's annual compliance status as a control variable) on housing permits; whereas the analysis of NCSH is limited only to a proportional representation of compliance (e.g., number of years compliant / number treatment period years). Therefore, the third research question is as follows:

3. What is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, compliance, and its annual housing production?

The hypothesis for the third research question is as follows:

H_O: Housing demand, growth, political will, existing housing supply, subsidy, and compliance have no relationship to a municipality's annual housing production.

H_A: Housing demand, growth, political will, existing housing supply, subsidy and compliance have a relationship to a municipality's annual housing production.

In the next section, I shall explain the conceptual model that grounds these research questions and frames this investigation.

3.6 CONCEPTUAL MODEL

I conceptualize that housing demand, growth, political will, and the municipality's existing housing supply influence a municipality's supply of NCSH. Furthermore, I propose that political will is correlated to the presence of a consistent subsidy—local, state, and/or federal. In the next sub-sections, I shall explain my epistemological worldview and the origins of my conceptual model. Following that discussion, I shall also explain why the a priori application of theory is not appropriate to this dissertation, and then in the next section, tie the conceptual model to the HEL/RHNA process and research questions. And finally, I shall define the concepts and describe their hypothesized relationship to NCSH.

3.6.1 THE PRAGMATIC VIEW

In my analysis of housing literature, it appears that many researchers based their investigation on a pragmatic worldview. As defined by Creswell, pragmatists are "concerned with application—what works and solutions to problems" (Creswell, 2009, p. 10). This is different from constructivists, who, as researchers, derive meaning from their engagement "with the world that they are interpreting.... based on their historical and social perspectives.... [as] shaped by the researcher's own experiences and background" (Bromley, 1998; Creswell, pp. 8-9; Healey, 2003; Heasly & Guries, 1998; Jacobs, 1998; Last, 1998; Peck & Tickell, 1995; Rittel & Webber, 1973), or advocates, who "follow an action agenda to help marginalized peoples.... from the constraints of irrational and unjust structures that limit self-development and self-determination" (Creswell, pp. 8-10; Cross & Morales, 2007; Hoch, 1984, 1993; Krumholz, 1982; Milroy, 1991; Ritzdorf, 1992; Sandercock, 1998; Sandercock & Forsythe, 1992; Tosics, 2005; Yip & Keenan, 2004).

In this dissertation, I investigate subsidized housing in California, situating the research within a pragmatic worldview. Examples of the pragmatist worldview include the recent investigations *Affordable Housing and New Urbanism* and *Regional Structure on Affordable Housing*. What is held in common by these studies is that they are "problem centered... [and investigate the] consequence of actions" (Creswell, p. 10), as opposed to constructing meaning or advocating positions. What follows is a review that illustrates the pragmatic aspects of these studies.

When municipalities are amenable to subsidized housing, the means of production may be contingent upon other actors gathering resources, and such contingencies may filter incoming households by income level. As one of their founding tenets, New Urbanists, at one time, advocated that their urban typology of building types, pedestrian activity, and dense locations would provide housing utility for households earning below, at, and above median income levels (*Charter of the New Urbanism*, 1996). Using primary data from a national survey (n=220, 38% response rate), Johnson and Talen asked (a) to what degree is subsidized housing included within New Urbanist developments, and (b) by what means (e.g., voluntary or mandatory requirements, financial incentives, administrative tools) developers have included subsidized housing within their projects (2008). Specifically, the authors identified 304 New Urbanist projects and found the highest concentration of projects in North Carolina, Florida, and California, respectively. In addition, when such projects contained subsidized and market-rate housing units, the authors identified those projects as "mixed-income" due to differing sources of household incomes.

Regarding the degree of subsidized housing inclusion, Johnson and Talen found that 55.6% of developers included subsidized housing in their projects. Of those mixed-income projects, 50% reported that producing subsidized housing was mandatory. Alternatively, of the developers that did not include subsidized housing, 58% of them said subsidized housing would not be appropriate for that particular residential mix, while the remaining 42% cited financial reasons. Furthermore, 52.6% of non mixed-income developers stated that no incentive could entice them to include subsidized housing in their New Urbanist project. Regarding the means for building subsidized housing, the developers identified federal funds as the most frequent means (LIHTC 52.4%,[86] CDBG 35.7%, Hope VI 28%—percentages exceed 100% because some projects utilized multiple federal funding sources).

When the mixed-income developers did produce subsidized housing units, Johnson and Talen noted that they targeted Moderate, Low-, and then Very-Low income households, respectively. The

[86] Congress enacted the Low Income Housing Tax Credit (LIHTC) Program, which is based on Section 42 of the Internal Revenue Code, in 1986 in order to provide the private market with an incentive to invest in affordable rental housing. Federal housing tax credits are awarded to developers of qualified projects and these tax credits are sold on Wall Street.
http://www.hud.gov/offices/cpd/affordablehousing/training/web/lihtc/basics/

resident's household income can explain this ordered stratification because that income is required to repay the LIHTC bonds. While the LIHTC method provides low-income housing, this financial tool has been criticized for skimming the cream of low-income households and locking out the very poor and hardest to house because of those household's persistent unemployment (Goetz, 2003). Johnson and Talen also found that developers identified state funds and/or actions that provided infrastructure as the second most frequent means for providing subsidized housing.

What was also notable about Johnson and Talen's research was the high frequency of New Urbanism located within greenfields. They wrote that 42% of projects are located on greenfields, 33% on urban infill, 21% on suburban infill, and 5% on TOD.[87] Greenfields, as opposed to urban areas, seem to be a contradictory location for an urban-informed architectural typology, but it also explained why North Carolina figured so prominently in the ranking. This finding regarding the use of greenfields could signal that California's urban municipalities may have difficulty (i.e., assembling land, land costs, NIMBYism) implementing high-density mixed-income projects in order to fulfill their RHNA allocations for low-income housing (i.e., The Route 66 Specific Plan in the City of Glendora, The Boulevards of South Bay Specific Plan in the City of Carson).

In addition, the authors also included timely discussion on tenure (e.g., deed restrictions, non-profit agencies or states maintaining the first right of purchase, scaled appreciation for households) and those discussions helped to explain why many of the developers allowed non-profits to manage the subsidized portion of their mixed-income projects. However, the most important finding in the article was the role of the federal government in funding subsidized housing. Clearly, federal—and not state or local—money closed the fiscal gap. And lastly, this study conducted a dialogue with the private developers as opposed to other studies that have left out their voices.

Continuing the pragmatic investigation of low-income housing production is Aurand, who examined regional government structure and subsidized housing. Aurand tested whether or not fragmentation decreased the supply of affordable housing and increased its spatial concentration in

[87] Transit-oriented developments (TODs) are usually defined as areas within a quarter-mile or half-mile of rail stops or bus transit hubs, with fairly high development density, good availability of shops and services, good pedestrian amenities, and pleasant and safe walking access to the transit center. http://policy.rutgers.edu/faculty/chatman/documents/TODs_and_travel_in_CA.pdf

metropolitan areas (2007). Fragmentation is defined as the "abundance of cities and other political entities" (Basolo, 2003, p. 449) and can be measured by counting "the number of government bodies or governments per capita in a geographic region" (Aurand, p. 403). Aurand found that fragmentation is associated with a greater relative supply of subsidized housing, but not its spatial location. Aurand's finding confirms Ottensmann's work on subsidized housing construction in Hartford, CT where Ottensmann found that "fragmented metropolitan government structures create the environment in which suburban municipalities can exercise…[restrictive] influence over the housing market" (1992, p. 96). However, in Aurand's metropolitan investigation, he aggregated HUD housing data to regions in the United States (e.g., North, Midwest, and South); and therefore, the actions of municipalities on subsidized housing construction were unobserved and unrevealed.

3.6.2 NOT QUITE POST-POSITIVIST

While it is possible to argue my research may fall under a post-positive worldview given the first research question lends itself to an evaluation of HEL and the subsequent research questions test a relationships amongst concepts, this dissertation does not completely fit with this label. With post-positivism, also referred to as the "scientific method," a researcher "begins with a theory, collects data that either supports or refutes the theory, and then makes necessary revisions before additional tests are made" (Creswell, 2009, p. 7). In my case, I have not identified a theory that is endogenous to subsidized housing, but I do recognize the recursive examination of concepts and I place these oft-investigated concepts within my conceptual model.

I assert that my presented investigation is not quite post-positivist for three reasons. First, I have yet to identify a grand theory pertaining to subsidized housing that I am able to link to or test; rather, my investigation explores the HEL phenomenon and seeks to establish statistically significant relationships among concepts. Depending on the outcome of this research project, a future researcher may replicate, amend, or improve the model—shifting my pragmatic approach into a post-positivist examination.

Second, this investigation will employ a mixed methods approach (Content Analysis and Regression) in order to triangulate HEL as implemented by the RHNA allocation. If I chose only one of these methodological tools, such as the associative Regression, then in my view, I would only know and

understand a small portion of the HEL phenomenon—that which can be explained by quantitative statistical analysis. A similar intellectual deficit would occur if I relied solely on the descriptive method of Content Analysis.

Third, as a former planner, I view Planning as pragmatic in nature, due to its origins as a civil service profession and not a scientific discipline. To support this position, I include two views on the place of Planning in scientific research vis-à-vis academia. Castells, who opined the following, provides the first view:

> Planning is a profession, not an academic discipline. A tradition of professional work, not a meta-ideology of rationality. It has always drawn from a variety of academic disciplines: geography, history, economics, architecture, design, sociology, anthropology, engineering, biology, psychology, mathematics, philosophy, and even literature. Its strength was, and is, in its interdisciplinary character that allows for breathing space in dealing with new issues, that makes it possible to build tools from whichever materials are available, without having to surrender to the normative approach on which academic disciplines are bound. Planning moves freely across borders to think, design, and act (1998).

In my second view, Brooks, a leading planning scholar and former co-editor of the *Journal of Planning Education and Research*, identified four critical areas (e.g., efficiency, government support, academic respectability, private sector validation) that have defined and pivoted planning theory and practice. He then chastised his academic colleagues because, in their quest for academic legitimacy, planning academicians have reduced their connection to the practitioner and hence, the pragmatic side of the profession (Brooks, 1988, p. 242). Based on these scholarly views that affirm planning's pragmatic worldview, as well as my preceding points on constructivism, advocacy, and post-positivism, I assert that the presented investigation may be a-theoretical, but it is certainly conceptually driven.

In the next section, I discuss why the a priori application of theory to this research is not appropriate and furthermore, I question if there is such a thing as "Planning Theory."

3.7 PLANNING AS META-THEORY, NOT THEORY

Based on my experiences as a planner and as a researcher, I find that the a priori application of theory is not appropriate to the phenomenon examined in this dissertation for two reasons: the untenable application of the scientific method and the fungibility of planning theory.

The social sciences in general and urban planning in particular, do not support the application of the scientific method. The scientific method relies on three basic actions: description, prediction, and explanation of the phenomena. In order to rule out any rival hypothesis, an investigation should employ random samples and random assignment in order to isolate treatment effects. In addition, replication allows researchers the ability to strengthen the investigation's explanatory components. In the relationship between investigations and theory, the collective use of the three Rs permit the refinement of conceptual models into meta-theory, and meta-theory into theory. Yet replication of planning studies is not always possible for three important reasons.

First, land is unique. Agents, agencies, and their collective and individual intent are unique. And most importantly, the legislative framework of planning is unique—via the State, region, or municipality. Therefore, land-use prescriptions that are successfully implemented in Portland, OR may go astray in Portland, ME, Seattle WA, Burlington VT, or even Eugene, OR. In planning, the context matters greatly and I find that this "unique" context does not support replication. With urban planning research, much of what is implemented and examined are "one shot operations," and any causal explanation is limited to the context of the location, the conditions of the experiment, and the values of the researcher (Rittel & Webber, 1973, p. 173).

This "unique" context leads to my second point: planning theory has limited explanatory power because it is not theory, but meta-theory, and such views are fungible. I would argue that tenable theory begins as a model, formulates to meta-theory, and once repeatedly proven, becomes theory. Bates positions models as a "tentative ideational structure[s] used as a testing device" (Bates, 2005, p. 2), and further advances that "models are most useful at the description and prediction stages of understanding a phenomenon" (Bates, p. 3). For example, both Johnson and Talen's descriptive research on New Urbanism and low-income housing and Aurand's descriptive and associative research on fragmentation

and low-income housing support planning models, not meta-theory or even theory because these studies represent the initial steps to understanding the phenomena that they respectively describe.

Third, Babbie defined theory as "a systematic explanation for the observations that relate to a particular aspect of life" (2007, p. G11). Pettigrew advanced a more robust explanation, noting that theory "becomes useful by helping… to classify, predict, explain, understand, and guide research" (1996, p. 23). In the low-income housing phenomena examined by this dissertation, I have yet to identify an agreed-upon systematic view that explains how low-income housing operates within California and the recursive steps required to understand low-income housing within the United States. Using Babbie's lens, I find that the low-income housing research that I have reviewed thus far has provided partial explanations (e.g., nomothetic) that have been limited by data, concepts, testing, or the values of the research/er. I also argue that such investigations support meta-theory.

Meta-theory is "the philosophy behind the theory, the fundamental set of ideas about *how* phenomena of interest in a particular field *should be thought about and researched*" (Bates, p. 2, Italics mine). Bates described meta-theory as a connective tissue linking models to theory, with meta-theory as less robust than Kuhn's paradigms (Galloway & Mahrayni, 1977, p. 64). Alternatively, Pettigrew placed meta-theory and paradigms on equal footing because meta-theory provides "a wider perspective within which a large set of interrelated theories and research studies develop" (Pettigrew, 1996, p. 29). In summary, this competing discourse on theory's agency and have deepened my perspective, and have caused deeper questioning of planning theory.

Hence, I suggest that planning scholars shift their understanding of planning theory to planning meta-theory because this *accepted discourse guides*, but does not explain or fully understand, urban morphology. My evidence of meta-theory as the appropriate theoretical position for urban planning is the ample amount of academic disaffection that is based on researcher *ideology*, not experiment. Since the late 1960s, the implementation of rational and comprehensive planning has given rise to incremental (Lindblom, 1973), transactive (Friedmann, 1973), advocacy (Davidoff, 1965), radical (Grabow & Heskin, 1973), equity (S. Campbell, 1996; Krumholz, 1982), post-modernist (Allmendinger, 2001), feminist (Milroy, 1991; Ritzdorf, 1992), public interest (Klosterman, 1980), syncretic (e.g., technical, intersubjective and critico-ethical competencies) (Lim, 1986), mediation (Susskind & Ozawa, 1984),

political (Altshuler, 1965), collaborative (Innes & Booher, 1999), strategic (Kaufman & Jacobs, 1987), progressive (Kraushaar, 1988), justice (Fainstein, 2000), capitalist (Molotch, 1976), and communicative (Forester, 1980) critiques.

As withering to urban planning as this critical ideology has been, this body of work should be classified as meta-theory because none of the above-mentioned views have eliminated the paradigm of rational comprehensive planning in practice (Dalton, 1986), or as a method taught in planning schools (Friedmann, 1996, pp. 92-93, 99). Agents, agencies, and municipalities continue to plan for one simple reason—to reduce risk and uncertainty (Christensen, 1985). In my view, these ideologies have advanced an individual view of what planning *should be*, but not what planning is. Moreover, this critical ideology has sustained the trope in which "many scholars saw the social sciences as cast very much in the same mold as the natural sciences, and believed that if the social sciences did not yet actually fit that mold [i.e., theoretical grounding], then they certainly *ought* to fit it" (Bryant & Charmaz, 2010, p. 35, italics in the original).

It is crucial to note that I do not dismiss or discount the contributions that this discourse has made to the discipline. I value how these competing views allow planners to reflect upon their intents, actions, and effects (Howe, 1980; Howe & Kaufman, 1979, 1981). However, we should acknowledge that collectively this discourse neither fully predicts nor fully explains planning; most importantly, this discourse has yet to identify an intrinsic universal law of planning. Therefore, I advocate *planning meta-theory*, as opposed to planning theory (with a capital P and T) because academicians have failed to heed Dyckman's 1969 call in the Journal of the American Planning Association: "if there is to be a theory of effective planning, it ought to be testable in the manner of other theories" (1969, p. 299).

Based on the above discussion, I can execute this dissertation under a conceptual model[88] for the following reasons. As exploratory research, no one has evaluated California's Housing Element law in this manner. I acknowledge that my description, predictions, and explanations are limited to the unique conditions of the phenomena. These limits are due to the fact that HEL implementation does not allow a

[88] I conceptualize that (a) the change in NCSH inventory is a function of a municipality's housing demand, growth, political will, existing housing supply, and subsidy, and (b) the change in a municipality's annual Housing Production is a function of its housing demand, growth, political will, existing housing supply, subsidy, and HCD compliance.

random sampling and random assignment. Furthermore, as a statewide treatment (e.g., RHNA allocation), no control group is available. It is also true that when Lewis examined compliance, neither inquiry provided a theoretic perspective or reference (Lewis, 2003, 2005), yet both were influential and groundbreaking in describing and predicting his predictions; and furthermore, he limited his explanation to the effect of compliance—not the entire phenomena. I readily admit to referencing Tiebout, but those specific references characterize municipal action and residents, and not the complete interaction between HCD, the COGs, municipalities, and the private sector.

And while Graddy and Bostic's "state of agents" discourse may have drawn parallels to the HEL phenomenon—"the desires and goals of principals [e.g., California state] become subjugated to those of agents [e.g., municipalities], with the result being poorer service provision" to low-income households, their investigation contained only a descriptive analysis and no predictive tests to support their arguments. (p. 81). As such, I find their conclusion – that "a blanket concern regarding a 'state of agents' does not appear to be warranted in the case of affordable housing" in New Jersey and Massachusetts—suspect (p. 97).

For those critics who opine that empirical research not guided by theory may not advance knowledge, I offer that the discipline's leading journal, *The Journal of the American Planning Association*, produced a special issue dedicated to housing (year 2008, volume 74, issue #1). Of the nine peer-reviewed articles in that issue, all articles were guided inquiry (Immergluck, 2008; Kleit & Page, 2008; Koebel, 2008; McClure, 2008; Mueller & Schwartz, 2008; Myers & Ryu, 2008), yet only one employed a theoretical foundation (Bratt, 2008), and two employed a conceptual model (Culhane & Metraux, 2008; Miles & Jacobs, 2008).

For those critics who would argue that I could adapt a non-planning theoretical view for this dissertation, I respond as follows. From which discipline do I choose my grounding (i.e., Sociology, Economics, Geography, Education, or Political Science)? And from which view do I choose my lens (i.e., critical theory, rational choice theory, central place theory, environment and/or cultural determinism, cognitive mapping, etc.)? From my pragmatic view, none of these disciplines or views completely encapsulates the phenomena of low-income housing production in California.

And lastly, even if I did apply a distant theory to this investigation, I must transform the distant theory to suit the HEL phenomena and that action would require that I violate the intrinsic law of the computer punch card: do not fold, bend, spindle, or mutilate.

3.8 CONCEPTUAL DEFINITIONS AND OPERATIONS

In my analysis of regionalism, housing policy, governance, housing policy, and urban planning literature, I found that many authors appended their research to economic, sociological, public administration, and geography paradigms in order to frame their understanding of their phenomenon, as per Castells. While this strategy is common, I find it untethered to the HEL phenomena. Consequently, I take a grounded approach by framing this examination with a conceptual model that is germane to housing and includes concepts that are endogenous to the low-income housing debate, as opposed to layering a distant theory containing "fuzzy language," concepts, or connections (Markusen, 1999). In totality, I conceptualize that the creation of housing (subsidized and market-rate) vis-à-vis the Housing Element Law is effected by a municipality's housing demand, growth, political will, existing housing supply, subsidy, and compliance status. Figure 7 illustrates this conceptual model.

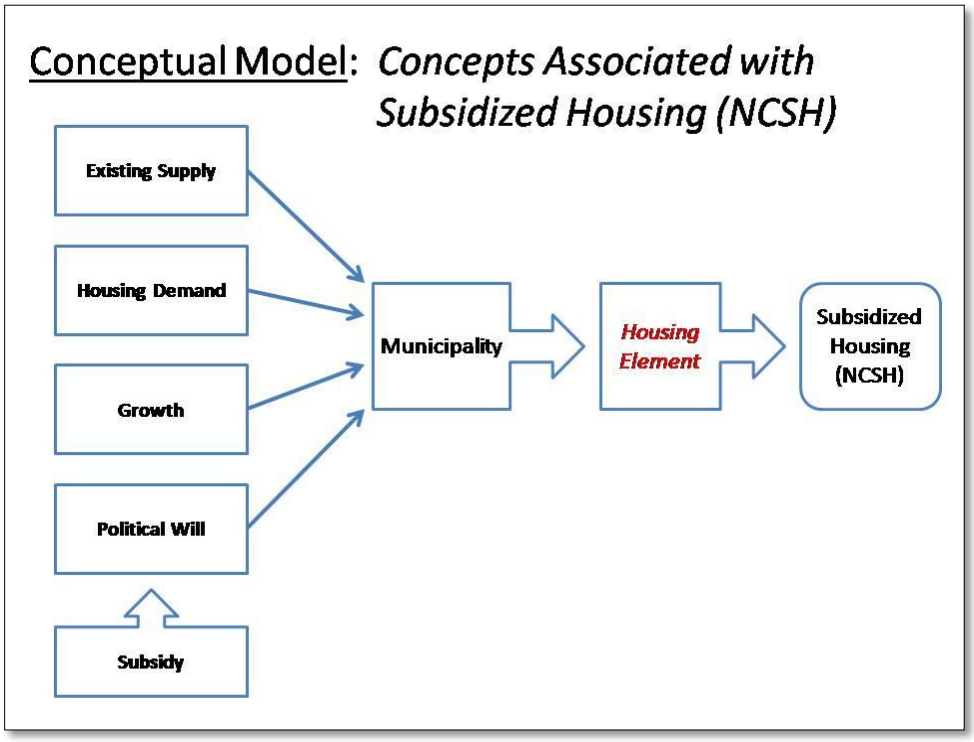

Figure 7: Conceptual Model's influence on "new construction" subsidized housing (NCSH)

What follows is a discussion of the conceptual definitions, expected influences, and units of analysis of this model. In addition, I also include a discussion of the response variables (e.g., NCSH, Housing Production) examined in this dissertation.

3.8.1 HOUSING DEMAND

Definition: Housing Demand is defined as the number of households or individuals that seek residential shelter (Liu, Wu, Lee, & Lee, 1996, p. 2). The Housing Element Law requires that municipalities provide data (i.e., US Bureau of Census, CA Department of Finance) that describes the current population of households and individuals located within their jurisdiction.

Influence: Because the Housing Element Law requires a municipality to provide housing opportunities (i.e., residential placeholders), and since the law stratifies housing opportunities by income level, I expect that housing demand should have a positive influence on the production of subsidized and market-rate housing. Literature that has examined housing demand and its influence on housing includes the following (Basolo, 1999; Burge & Ihlanfeldt, 2005; Freeman & Botein, 2002; Goetz, 2004; Ihlanfeldt, 2001; N. Levine, 1999; Mayer & Somerville, 2000; Mitchell, 1999; Myers & Ryu, 2008; Pendall, 2000; Steele, 2001; Vogel & Nezelkewicz, 2002).

Units of Analysis: Municipal Population. California's Department of Finance provides annual data for this concept and separates the municipal data into two categories: Total Annual Population and Total Population within Households (*E-4 Population Estimates for California Cities and Counties, January 1, 1981 to January 1, 1990* 2003; *E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2010, with 2000 Benchmark*, 2010; *E-8 Historical Population and Housing Estimates for Cities, Counties, and the State, 1990-2000*, 2007).

3.8.2 GROWTH

Definition: Growth is defined as the level of commercial activity (i.e., jobs, residential construction, or sales taxes) within a municipality (Cervero, 1989, p. 137; Landis, 1992, p. 490; von Borries, 1964, p. 35). To illustrate how growth is embedded within Californian municipal processes, I provide the policy goals from the City of Pasadena's Economic Development Element. Like the housing

element, an economic development element is a component of a general plan; this particular one serves as Pasadena's guide for encouraging commercial activity. As such, all commercial general plan designations, zoning code descriptions, and permitted land-uses must be consistent with the goals of the general plan, and especially this element. These goals, especially #1 and #3, receive city council endorsement and are as follows:

> GOAL 1: A sound local economy which attracts investment, increases the tax base, creates employment opportunities for Pasadena residents and generates public revenues.
>
> GOAL 2: An economic strategy which balances the need for development with other City goals and objectives.
>
> GOAL 3: An increased flow of public revenues accruing from economic development.
>
> GOAL 4: Increased opportunities for personal growth through productive and satisfying employment.
>
> GOAL 5: Sustained reduction in the City's unemployment rate, particularly among minorities and the disadvantaged (*Comprehensive General Plan*, 2006).

Influence: Growth should function as a negative influence on the municipal supply of subsidized housing and as a positive one on the supply of market-rate housing. As noted by Vicari and Molotch: "special business interests, based in real estate, finance and other growth-related enterprise, use campaign contributions and media access to dominate planning bureaucracies, political parties and elected officials" in order to influence municipal land-use because any increase in low-income households may not translate into increased profits (1990, p. 602).

Furthermore, since 1978, Prop. 13 has constrained municipal taxation of land. Many cities have shifted to promoting fiscally beneficial zoning and land use that either increases land value or generates sales tax revenues. This shift is evident in the proliferation of commercial retail (i.e., big box stores, auto-malls) and office parks and has spawned a research agenda that examines the fiscalization of land use (Cervero & Duncan, 2004; James & Windsor, 1976; K. M. Johnson & Schmidt, 2009; Lenon, Chattopadhyay, & Heffley, 1996; Lewis, 2001; J. Schwartz, 1997; Wassmer, 2002). For literature that

examines growth and its influence on housing, see (Basolo, 2003; Brown, Phillips, & Roberts, 1981; Burge & Ihlanfeldt, 2005; Courchesne, 2004; Goetz, 2000; J. N. Levine, 2001; N. Levine, 1999; Lindstrom, 1998; Mayer & Somerville, 2000; Mitchell, 1999; Molotch, 1976; Pendall, 1999, 2000; Steinacker, 2003).

Units of Analysis: Annual Returned Sales Taxes. In this dissertation, I measure Annual Returned Sales Taxes as a proportion of total municipal revenues. California's Department of Equalization provides data that indicates the annual amount of sales taxes returned to each municipality as per the Bradley-Burns Act (*Cities Annual Report*, 1991-2008; *Tax Information for City and County Officials*, 2011).

3.8.3 POLITICAL WILL

Definition: Political Will is defined as the commitment of politicians or policy-makers to the statement and/or implementation of a goal (Kosack, 2009, pp. 495-496). This commitment can be characterized as strong or weak due to (a) the politician's calculation on whether the goal (i.e., low-income housing, public finance of sports stadiums, increased funding for buses vs. light-rail) will help him/her retain power, or (b) the observer's relationship to the goal (i.e., pro or con) and whether the observer agrees with the politician (ibid). Under the Housing Element law, political will also interacts with the status of the municipality's legal standing since California classifies municipalities as either General Law (governed "under standardized state law provisions"), or Charter (governed "under a charter of their own devising") and that classification allows institutional deviation from state goals (Baer, 1988, p. 270; *General Plan Guidelines*, 2003, p. 7).

Influence: Political Will may positively or negatively influence the municipal supply of subsidized and market-rate housing. For example, the City of Arcadia proposed to implement a First Time Home Buyers, Mortgage Assistance, and Home Rehabilitation programs during the effective period of its 1990-1997 Housing Element. These programs were to be funded by Tax Increment Financing. In the subsequent 2000 evaluation, none of program occurred (*City of Arcadia 2000-2005 Housing Element*, 2001, pp. 5-2, 5-3). Depending upon one's view of government financial assistance to homeowners, that Arcadia addressed housing may be considered good policy. However, if one supported government assistance then the failure could be considered a weak political will. And yet, if one opposed government assistance, then the failure could be considered to represent strong political will.

In this dissertation, I shall extend Percival et al.'s county measurement of political will to municipalities (2009, pp. 169-170). In that study, the authors examined the effects of county political structures (e.g., General Law, Charter) on county policies and found that legal structure had a statistically negative effect on education policies ($p < .01$) and a positive effect on health policies ($p < .05$), but no statistical relationship to public protection, facilities, or assistance policies (p. 172). Additional literature that has examined political will and its relationship to housing includes (Baldassare et al., 1996; Basolo, 1999, 2003; Burge & Ihlanfeldt, 2005; Courchesne, 2004; Goetz, 2000, 2003, 2004; Goetz et al., 2003; Ihlanfeldt, 2001; J. N. Levine, 2001; N. Levine, 1999; Lindstrom, 1998; Mayer & Somerville, 2000; Mitchell, 1999; Ottensmann, 1992; Pendall, 1999, 2000; Ross & Leigh, 2000; Steele, 2001; Vogel & Nezelkewicz, 2002; Wheeler, 1993).

Units of Analysis: General Law or Charter political designation. California's State Comptroller's Office provides the static data for this concept (*Cities Annual Report*, 1991-2008).

3.8.4 EXISTING HOUSING SUPPLY

Definition: Existing Housing Supply is defined as the quantity of existing residences within a municipality. These residences may be classified either as total residential units or by housing type (single-family or multi-family).

Influence: When Lewis investigated the relationship between municipal compliance and the log of annual single-family permits, he found that the change in a municipality's total housing units between the 1980 and 1990 decennial census held a positive statistical relationship ($p<.05$) (Lewis, 2003, Ch. 3). Therefore, I tentatively expect that this variable will maintain a positive relationship to housing.

Units of Analysis: Total housing units within a municipality per year. California's Department of Finance provides the annual data for this concept.

3.8.5 SUBSIDY

Definition: In this housing phenomenon, a subsidy is defined as a cash transfer that allows a low-income household to reside in a quality-housing unit in which the household pays no more than 30% of their total household income (Steele, 2001). Subsidies may take the form of a housing voucher for

households, a second trust deed for first-time home buyers, a below-market interest rate mortgage for owners of residential complexes, or the provision of infrastructure, land-purchase write downs, or fee-waivers for developers of low-income housing (A. Schwartz, 2006). The subsidy may originate with or pass through a non-profit agency such as Heritage Housing Partners, a public housing authority, or a municipal, county, state, or federal agency. The subsidy may be endogenous: residential impact fees, inclusionary zoning in-lieu fees, or mandated tax-increment spending.[89] Alternatively, the subsidy may be exogenous from state (e.g., HCD grants) and/or federal (e.g., HUD funds, LIHTC) agencies.

Influence: Because a permanent subsidy is required for the effective life of the low-income housing unit, I expect that a subsidy should have a positive relationship to subsidized housing. In addition, I argue that a consistent subsidy will positively correlate to political will. In the case of federal sources, the phenomenon of the HUD-required Consolidated Plan emerges. Municipalities that contain +50,000 persons and receive HUD funds must complete a consolidated plan to document these expenditures. The consolidated plan outlines a municipality's strategy for providing subsidized housing by preserving, rehabilitating, or constructing subsidized housing.

The fundamental difference between the Consolidated Plan and the Housing Element is twofold. First, HUD allocates a variety of federal categorically monies (CDBG, HOPWA,[90] HOME,[91] and Section 8

[89] According to California Redevelopment Law, "not less than 20 percent of the gross tax increment generated from the project area" must be used to increase and improve a community's supply of low-income housing (Curtin & Talbert, 2006, p. 485). However, redevelopment in California is over. In 2010, Governor Brown sought and won legislative approval to dissolve California's 400 redevelopment agencies in order to direct the tax -increment to general fund uses, as opposed to restricted redevelopment. For a synopsis of this process, please see http://www.lao.ca.gov/analysis/2011/realignment/redevelopment_020911.aspx

While redevelopment did support low-income housing (e.g., 20%), the balance of TIF funds subsidized private development (e.g., 80%). For more discussion on the foibles of redevelopment practices, see Kotin and Pesier's research, where they found that inter-city competition has led to situations in which "the developer and the tenant [were] more likely to receive a large percentage of the benefits"(1997, p. 1985).

[90] Housing Opportunities for Persons with AIDS. HOPWA provides housing assistance and supportive services to low-income people with HIV/AIDS and their families. HOPWA funds may also be used for health care and mental health services, chemical dependency treatment, nutritional services, case management, assistance with daily living, and other supportive services (Department of Housing and Urban Development, 2009).

[91] Home Investment Partnership Program. HOME provides formula grants to states and localities that communities use — often in partnership with local nonprofit groups — to fund a wide range of activities

Rental Assistance[92]) that are required to be expended on low-income households. Second, participation is mandatory if the municipality accepts these categorical grants. I assert that if a municipality receives these exogenous funds for low-income households, then that funding effects political will, as the provision of services to low-income households is part of the municipality's fiscal and social character. At the same time, this interaction may not have any effect on the new construction of subsidized housing.

A review of the City of Alhambra's 2009-2010 HUD expenditures reveals that only 18 % (or $250K of $1.4M) of CDBG funds were expended on low-income housing.[93] In addition, of that total, the municipality allocated 100% toward the rehabilitation of existing units. As such, the redevelopment agency addressed the housing and services needs of low-income households, but this interaction between political will and a subsidy did not translate to an increase in the proportion of low-income housing to total housing inventory. Therefore, I expect a positive correlation between the two concepts and a positive influence on the subsidized housing and market-rate housing. Literature that has examined subsidies and their relationship to housing includes (Basolo, 1999, pp. 665-666; Connerly & Muller, 1993, p. 194; *Final Report*, 2004, p. 12; Mueller & Schwartz, 2008; Rubin et al., 1990, p. 328; Schuetz et al., 2009; A. Schwartz, 2006; Wheaton, 2008).

Units of Analysis: Rather than use an exogenous agency (e.g., HUD, HCD), I shall measure the presence of a Redevelopment Agency since the agency is required to expend 20% of TIF funds on low-income housing within the municipality and the agency is often directed by the city council (Curtin & Talbert, 2006, pp. 485-486). In the implementation plans for housing elements, municipalities are required to indicate the potential funding sources for low-income housing, but not the amount required for construction. In addition, implementation plans may span from 3 to 5 effective years; therefore, an annual measurement of subsidized funds is not available as the documents look forward and backward—

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that build, buy, and/or rehabilitate affordable housing for rent or homeownership, or to provide direct rental assistance to low-income people (Department of Housing and Urban Development, 2009).

[92] Section 8 Rental Assistance. Section 8 provides rental assistance to low-income families who are unable to afford market rents. The Housing and Community Development Act of 1974 created this program. Assistance may take the form of vouchers or certificates. As of 2009, the Section 8 was consolidated under HUD's Housing Choice Voucher program (Department of Housing and Urban Development, 2009).

[93] http://www.cityofalhambra.org/government/city_clerk/downloads/ActionPlanDraft09.pdf

meaning a document approved in 1992 may serve for a period effective from 1989-1994. Yet, the agency will exist throughout the element effective period.

Regarding the conceptual model, I did not include subsidy as a primary driver in it because the literature is clear on its positive influence on subsidized housing. By measuring subsidy as the establishment of a redevelopment agency, I have linked an endogenous source of municipal funds that can be applied toward subsidized housing. Whether or not the redevelopment agency expends these TIF funds on rehabilitation, preservation, and/or new construction strategies is a political decision. California's State Comptroller's Office provides the static data for this concept (*Redevelopment Agencies Annual Report*, 1991-2008) .

3.8.6 COMPLIANCE

Definition: Compliance means that the Department of Housing and Community Development found that a municipal housing element was "substantially compliant" to the Housing Element Law. In this dissertation, compliance is a dichotomous status granted to a municipal housing element—either the document is compliant, or it is not.

Influence: As previously mentioned, Lewis found that compliance, when measured as a dichotomous variable, did not have a statistical relationship to his dependent variables of residential building permits (Lewis, 2003, 2005). Therefore, I do not include it as a predicting variable in this conceptual model, but as a control variable in my statistical analysis. Furthermore, since I have not identified any studies that have used this concept on an annual basis, I do not have a view of its influence.

Units of Analysis: The Annual Status of Housing Elements in California. As per section 50459 of the California's Health and Safety Code, by April 1 of every calendar year, HCD "shall report to the Legislature on the status of housing elements and the extent to which they comply with the requirements" of the Housing Element Law.[94]

[94] I have secured the reports from 1990 to 2007; however, the specific years of 1994, 1997, 2002, 2003, and 2005 are interpolated. Those years could not be located in either the HCD's archive or the California State Library's Government Publications "wayback" machine.
http://wayback.archive.org/web/*/http://www.hcd.ca.gov/hpd/hrc/plan/he/

3.8.7 NEW CONSTRUCTION SUBSIDIZED HOUSING (NCSH)

Definition: NCSH is defined as "new construction" subsidized housing that was created during the effective period of a housing element. New construction is different from "rehabilitated" housing units, which usually are existing privately owned single-family residential units and are funded by redevelopment agencies as part of their 20% spending requirements. NCSH is also different from existing "preserved" housing units, which enjoy a federal subsidy and the process of preservation involves a public housing authority and the multi-family residential project owner. California's Housing Element Law stratifies household incomes into four categories: Very-Low, Low, Moderate, Above-Moderate. In this dissertation, NCSH encompasses housing units targeted to Very-Low, Low, and/or Moderate household incomes.

Influence: None. In this dissertation, NCSH units serve as the response variable for the second research question.

Units of Analysis: The quantified number of low-income housing units constructed within a housing element's effective period. Housing Elements provide the data for this concept. In the event that an element does not provide a number, then the municipality's value of NCSH is zero.

3.8.8 HOUSING PRODUCTION

Definition: Housing Production means the total amount of residences constructed during the effective period of a housing element. In this dissertation, this concept includes housing units targeted to all household incomes categories (e.g., Very-Low, Low, Moderate, and Above-Moderate) and includes single-family and multi-family housing units.

Influence: None. In this dissertation, housing production serves as the response variable for the third research question.

In the following discussion, I demonstrate why the usage of a building permit is a suitable proxy for a municipality's housing production. First, the municipalities do not adequately track housing production. Quite often the building department (who issues permits) and the planning department (who monitors land-use) function separately and are driven by different processes and values. For a housing

developer, either non-profit or private sector, the political, administrative, and technical steps to secure a building permit in California are as follows. The developer must:

Step 1. Locate a parcel of land that is suitable for his/her development expertise

Step 2. Determine if the community amenities will support the target price and target households of the housing project.

Step 3. Apply to the Planning Department for "permission" to develop the property.

a. The planning department has 30 days to determine if the project is consistent with the General Plan and Zoning Code.

i. Applications are always found incomplete.

b. If the project requires a discretionary decision by the Planning Director, Planning Commission, or City Council, then an environmental initial study (EIS) is undertaken.

i. For the EIS, the Planning department must review the project's impact in 17 environmental areas.

1. If the Planning department finds that the project has no impact, or an impact that can be easily mitigated, then

a. Mitigations are noted,

b. Neighboring jurisdictions are notified,

c. Concerned agencies are notified,

2. If the Planning department finds that the project has a significant impact, then the department hires a private planning firm to complete an Environmental Impact Report (EIR) or a Mitigated Negative Declaration (MND).

a. This process may take up to a year,

b. This process is paid by the developer,

c. *The developer has no control in this process.*

i. After this process has concluded, then the private planning firm delivers the EIR or MND to the Planning Department for incorporation into the housing project entitlement.

Step 4. The Planning department schedules a workshop for the project to gauge public reaction.

a. This feedback is incorporated into Planning staff report.

Step 5. The Planning department receives comments from all affected and important agencies.

a. This feedback is incorporated into the Planning staff report.

Step 6. The Planning department schedules the first public hearing.

a. Depending on the project, approval may be granted or the project is continued until the next hearing.

i. Note that that this maybe nearly 6-18 months after the application was initially filed—depending on the scope of the project

Step 7. The Planning Department schedules the second public hearing.

a. Depending on the project, approval may be granted or the project is continued until the next hearing.

Step 8. If the project is approved, the developer must complete a set of conditions before he/she can “apply” for a building permit.

Step 9. Once the conditions are met, the developer applies for two permits:

a. A "building permit" and a "demolition/grading permit" with the Building Department,

b. For the building permit,

    i. The Building department has 30 days to determine if the project is consistent with the General Plan and Zoning Code.

        1. Applications are always found incomplete.

        2. It may take up to 3 to 12 months for plan check to complete, as the plans are routed to Planning, Engineer, Building, Streets, Fire, and Police—depending on the scope of the project.

            a. During an approval for a new hotel in which I was the principal planner, the Police department requested a review of the plans to determine if this location could be used for future prostitution endeavors.

        3. Once plan check is completed, a building permit is issued.

c. For the demolition/grading permit,

    i. The Building department has 30 days to determine if the project is consistent with the General Plan and Zoning Code.

        1. Permits are granted readily,

    ii. The developer pays the requisite fees and obtains the permit

Step 10. The developer immediately grades the property in order to secure "vested development rights."[95]

[95] For a more information on vested development rights in California, please see (Curtin & Talbert, p. 257)

a. Having this right means that the Planning Department permission cannot be modified by political changes in the City Council, staffing changes in the Planning Department, or legislative changes in the zoning code, housing element, or general plan.

Step 11. Now, with both permits secured, construction begins nearly 6-18 months after application.

Units of Analysis: The quantified number of housing units constructed within a housing element's effective period. The quantity includes both single- family and multi-family residences. In many housing elements, no data for this concept is provided. Therefore, the U.S. Bureau of Census provides the annual data for this concept (*State of the Cities Data Systems (SOCDS), Building Permit Data*, 1980-2010).

3.9 SUMMARY

In summary, I assert that it is neither clear nor proven that municipal compliance to HEL leads to an increase in the production of subsidized housing units and/or housing production. I support this claim with my central argument and preliminary evidence from the City of Carson.

I argue that politically, municipal compliance relies on a regional governance scheme that identifies no clear umpire and abets political dissent. Fiscally, municipal compliance inflames political will by requiring that municipalities not only identify a permanent funding source for low-income housing, but also forgo potential revenue. Technically, municipal compliance functions as a trope in which (a) the primary outcome of the law is a government document—not a housing unit, (b) the process relies on market solutions to fix a market failure, and (c) the causal relationship between housing "opportunities" and the increased inventory of subsidized units is unproven. I use Carson's data on Proposed/Pending housing units (e.g. Table 6) as evidence.

From my survey of the literature, I have advanced a conceptual model that hypothesizes that Housing Demand, Growth, Political Will, Existing Housing Supply, Subsidy, and Compliance influence municipal decision-making when they create and mandate their housing element. In turn, the documented housing opportunities identified within the housing element, compliant or not, should have an effect on the outcome of housing production, and in particular my response variable of NCSH. Figure 7 provides an illustration of the hypothesized influence of the conceptual model on municipalities, the housing element, and the subsequent subsidized housing (NCSH).

And lastly, I argue that the a priori application of theory is not appropriate to the phenomenon examined in this dissertation for two reasons: the untenable application of the scientific method and the fungibility of planning theory. In the case of California's Housing Element Law, random sampling, random assignment, and replication are not available due to conditions of the law's implementation. In addition, I suggest that planning scholars shift their understanding of planning theory to planning meta-theory because this accepted discourse guides, but does not explain or fully understand, urban morphology.

I acknowledge that has been a rather lengthy and detailed Problem Statement. These details and examples are necessary for the understanding of the law, the issues of its implementation, and the methods that municipalities subvert the State's intent. In the next chapter, I discuss the mixed-method methodology of this dissertation.

4.0 METHODOLOGY

In this dissertation, I examine and evaluate California's Housing Element Law with the repeated measurement of housing and municipal data. My investigative goals are to determine the following. If a municipality's inventory of low-income housing has changed during the effective period of each housing element? if there is a relationship between a municipality's housing demand, growth, political will, existing housing supply, and its low-income housing inventory? And finally, if there is a relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, HCD compliance, and its annual production of housing? In the next paragraphs, I shall discuss my research design, period of study, sampling frame, and units of analysis. Then, I shall separately discuss each analytical tool (e.g., Content Analysis, Multivariate Regression Analysis) and its limitations. These separate discussions will describe the procedures, their threats to validity/reliability, and closes with a discussion on generalization of the findings.

The specificity of the procedures described in this section is for two reasons. First, the specificity will fill methodological gaps I identified within my literature review of housing element analysis. Second, they procedures will serve technical document that increase replication of housing element analysis. My decisions regarding research design have been informed by the discussions of the validity and reliability of quasi-experiments using non-equivalent groups by Campbell and Stanley (1969, pp. 37, 55, Table 33), and by the discussions of interrupted time series designs by Shadish, Cook, & Campbell (2002, Chapter 6).

4.1 RESEARCH DESIGN

This dissertation employs a quasi-experimental longitudinal design that uses annual waves of data that began in 1990, and ended in 2007. This 18-year period of study contains a 16-year treatment period (1990-2005). The period began with the 1989 legislative revision of HEL and ended with the 2005 enactment of SB 375, which increased a RHNA allocation's effective period from 5- to 8-years.

The treatments will be the RHNA allocations that the COGs delivered to all municipalities in the state (*1990 RHNP allocation tables*, 1991; Luo, 2004; *Revised Future Housing Needs by Income Category, Table 7*, 1991; *RHNA Tables 2000-2007*, 2001; SCAG, 2007). In theory, the treatments should have been issued in 1990, 1995, and 2000 and the corresponding effective periods for each treatment should have been 1989-1994, 1995-2000, and 2000-2005. However, this did not occur for two reasons. First, HCD staggered the cycles housing element updates throughout the state so that the agency is not overwhelmed. Therefore, different municipalities in different regions have different cycles.

Second, during California's fiscal downturn in the mid 1990s, the State suspended all HCD housing element activity between the years of 1995-1997 (Lewis, 2005). This suspension eliminated the 1995 treatment, and gave municipalities more than 5-years to attain housing element compliance and implement their housing programs (Baer, 2008; Lewis, 2003). Consequently, HCD allowed the municipalities to credit any housing activity that occurred in their "bonus" years toward their initial or pending RHNA allocation.

Because of these departures, I have designated that the 16-year treatment period will contain the administration of two treatments. Treatment 1 is the 1990 RHNA allocation and it affected housing elements from 1989 to 1997. Treatment 2 is the 2000 RHNA allocation and it affected housing elements from 1998-2005. To illustrate the treatment period and treatments in question, Figure 4 illustrates treatment delivery, and Figure 5, illustrate the shifting treatment periods, and data collection.

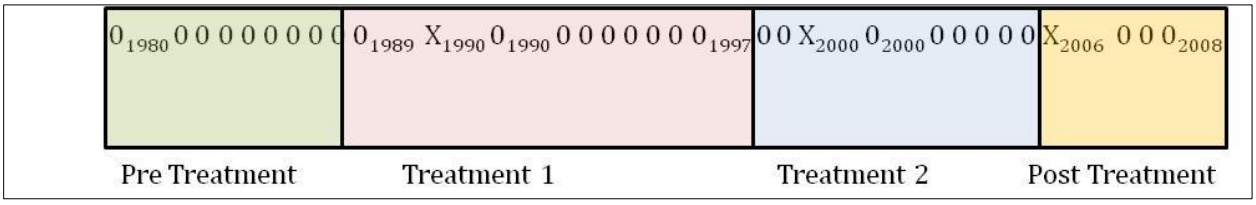

Figure 4: Illustration of Treatment Periods

In this graphic, COGS delivered the treatments (e.g., RHNA Housing allocations) in the years of 1990 and 2000.

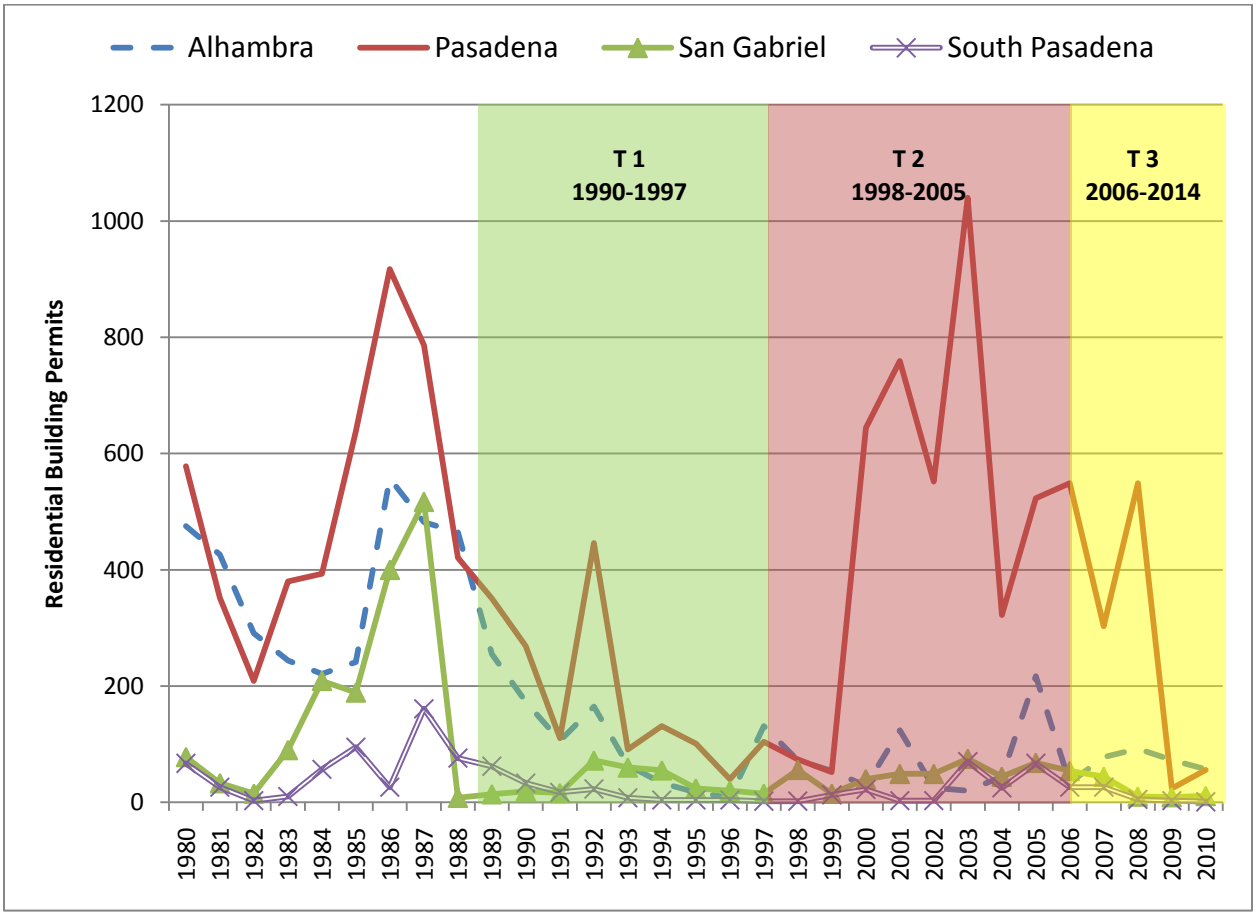

Figure 5: Treatment Periods, Years, and Building Permits

This graphic displays the annual number of residential building permits for the cities of Alhambra, Pasadena, San Gabriel and South Pasadena. These cities located in the San Gabriel Valley in Los Angeles County. Also in this graphic are shaded boxes that illustrates the three Treatment Periods examined in the dissertation (*State of the Cities Data Systems (SOCDS), Building Permit Data*, 1980-2010).

In summary, my dissertation will evaluate the third stage of Treatment implementation—treatment "adherence" (Shadish et al., pp. 316-317). In the stage one, the HCD and COGs crafted and "delivered" the treatment (e.g., RHNA allocation) to all municipalities. In stage two, the municipalities "received" the treatments as they incorporated the treatment in their housing element. For stage three, my research will determine if treatment "adherence" occurred with the subsequent production of NCSH and/or housing production.

4.1.1 POPULATION AND SAMPLING FRAME

In this investigation, the population is all California municipalities that are required to produce a Housing Element as part of a General Plan. That figure is roughly every city in California and numbers more than 475 cities.[96] As a sole researcher, I shall a use a purposive sampling frame since (a) I must locate and examine up-to three documents per municipality, and (b) no control group is permissible. In support of my purposive rationale, I provide three prescient citations to backstop this decision.

The first citation, Tobler's First Law of Geography, involves the physical aspect of the HEL phenomena. In a paper on population forecasting as related to urban growth models, Tobler premised that "everything is related to everything else, but near things are more related than distant things" (Sui, 2004, p. 271; Tobler, 1970). I find that this premise is situated within the dissertation because land-use, residential pattern, and density among the neighboring municipalities interact. Quite simply, will the housing policies of the City of San Marino have an effect on the housing policies of the cities of Alhambra, San Gabriel, or South Pasadena? If one informally surveyed the surrounding municipalities' residential areas, then the answer is yes.[97]

The second citation, Foucault's thoughts on disorder and discipline, involves not only the municipality's perception of the Housing Element Law, but also invokes a tenet of comprehensive planning—clear rules. In the chapter titled Panopticism, Foucault opens with a 17th century procedures that towns must implement "when when the plague appeared in a town" (1977, pp. 194-197). I shall provide a citation that illustrates the "comprehensive" edict that notes physical space, authority, limitations of freedom, roles, and rules:

> First, a strict spatial partitioning: the closing of the town and its outlying districts, a prohibition to leave the town on pain of death, the killing of all stray animals; the division of the town into

[96] According to the latest HCD Housing Element status report, 535 jurisdictions participate in the HEL/RHNA process. Of that figure, 58 are counties, leaving at least 477 cities. http://www.hcd.ca.gov/hpd/hrc/plan/he/status.pdf

[97] In the following link from Redfin, I have limited the criteria to single family residences and have focused the location on San Marino, San Gabriel, and Temple City. By clicking on a green symbol, one can note price, architectural style, planning density, and location. http://www.redfin.com/homes-for-sale#!lat=34.11738485953847&long=-118.09278878687792&market=socal&uipt=1&v=8&zoomLevel=14

> distinct quarters, each governed by an intendant. Each street is placed under the authority of a syndic, who keeps it under surveillance; if he leaves the street, he will be condemned to death. On the appointed day, everyone is ordered to stay indoors: it is forbidden to leave on pain of death. The syndic himself comes to lock the door of each house from the outside; he takes the key with him and hands it over to the intendant of the quarter; the intendant keeps it until the end of the quarantine. Each family will have made its own provisions; but, for bread and wine, small wooden canals are set up between the street and the interior of the houses, thus allowing each person to receive his ration without communicating with the suppliers and other residents; meat, fish and herbs will be hoisted up into the houses with pulleys and baskets. If it is absolutely necessary to leave the house, it will be done in turn, avoiding any meeting (ibid).

While I can understand that readers of this dissertation may find the collating of low-income housing and the plague disturbing, I assure you that many municipalities liken low-income housing, its attendant households, and the RHNA allocation with such averred disdain. As Foucault summarizes, "inspection functions ceaselessly. The gaze is alert everywhere." In HEL, a parallel process is the cyclical housing element update process with municipalities continually responding to HCD and the COGs (1977, p. 195). In the next paragraphs, I shall explicate this negative conflation with three positions.

In the edict, one will find that the fear, confusion, endurance, and termination of the plague are "[mitigated] by order" –where to lay the bodies, how to distribute food to survivors, what is the chain of command, what is the punishment for not following the edict, etc. (ibid). In essence, this implementation of "order" evokes comprehensive planning while under a siege. For a contemporary corollary, please see the following quote regarding a high-income municipality's receipt of a RHNA allocation. This quote notes the community's fear, passion, and resistance to the low-income housing "plague:"

> Divided residents and a fractured city council took passionate stances at Monday night's study session over whether [Palo Alto] can build 2,860 more affordable homes by 2015… Resident Bob Moss estimated that building the recommended number of units would require an additional 70 acres of land. 'Let's get real,' said and openly frustrated Vice Mayor Larry Klein. 'Has anybody from ABAG tried to identify where those 70 areas are?' Council Member Bern Beecham said the

debate over the allocation is pointless. 'It doesn't matter because this won't happen,' he said. 'This community will never support these numbers.' " (Peterson, 2007).

Second, I connect edict's use of planning to the micromanaging procedures of California's Housing Element Law.[98] As noted by Baer, HEL was Representative Pete Wilson's attempt, supported by the construction industry, to force suburban municipalities to address housing issues with a simple planning document (Baer, pp. 54-55).[99] However, when the "relevant legal code is downloaded from the Internet and printed, it stretches out over 27 pages" (Lewis, 2003, p. 89). Lewis further notes "highly detailed statutes are often evidence of widespread disagreement on a given policy" (ibid).

And in the final position, private planning firms that prepare housing elements also "template" document themes and discourse. "Templating" has the effect of standardizing texts and municipal policy, but not municipal effort or results. And lastly, the procedural edict is comprehensive rational planning, as Panopticism is the ability to see and foresee everything.

The third and final citation comes from Veazey and involves the regional aspects of the HEL phenomenon. Veazey noted that "housing for all economic levels of society is a regional issue which all jurisdictions should be involved in addressing," as regional benefits do not stop at municipal borders (2008, p. 73). As noted in my Introduction, the implementation of the Housing Element Law requires intergovernmental cooperation (e.g., HCD, COGs, municipalities) in order to encourage regional housing markets to provide housing for households of various incomes.

In summary, a purposive sampling frame will allow me to investigate the HEL phenomenon in a manageable dataset since California has four major metropolitan areas (e.g., Los Angeles, Sacramento, San Diego, and San Francisco). By selecting one region from northern and southern California, I can analyze two spatially clustered samples of municipalities with north/south, urban/suburban/rural, central city/sub urban city, and general law/charter distinctions. In the north, the sample comes from the

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[98] http://www.leginfo.ca.gov/cgi-bin/displaycode?section=gov&group=65001-66000&file=65580-65589.8

[99] During the years of 1968 – 1970, Pete Wilson was an elected member of California's Assembly from San Diego. Later, he became Governor of California (1990-1998) and was associated with California propositions 140 (term limits for state assemblymen, senators, and governor), 187 (denial of state benefits to undocumented workers), and 36 (three strikes law).

Sacramento region. In the south, the sample comes from the San Gabriel Valley area of the Los Angeles region. Map 1 illustrates the state of California with the selected regions of Sacramento and Los Angeles.

Map 1: State of California and Study Regions

This map illustrates the State of California and the regions examined in this dissertation. The Study Regions are the six-county Sacramento region (SACOG) in the north and the six-county Los Angeles region (SCAG) in the south.

4.1.2 NORTHERN CALIFORNIA SAMPLE

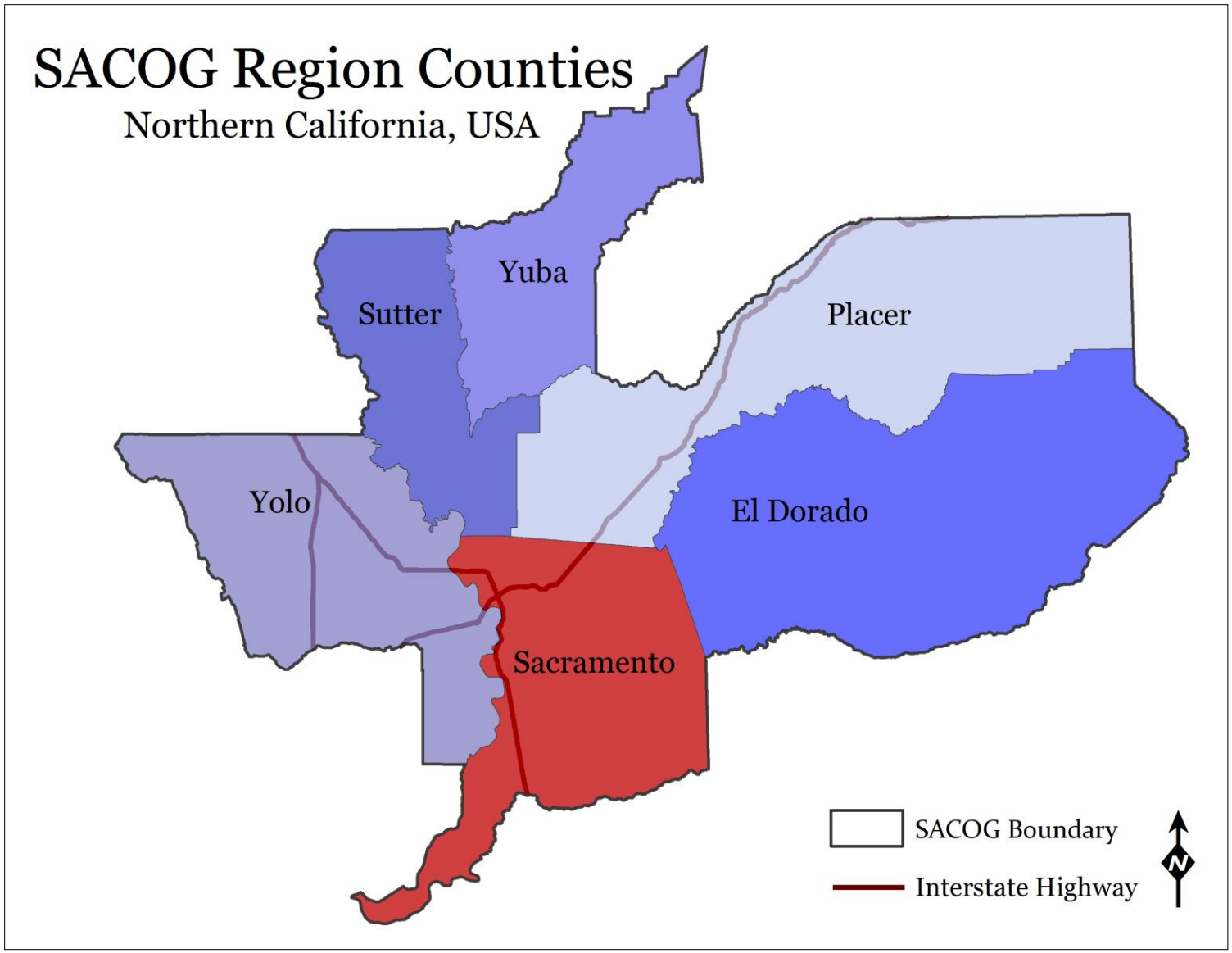
In northern California, I chose the Sacramento region over the San Francisco region for the following reasons. The City of Sacramento is contiguous, urban, and the surrounding municipalities are both adjacent and non-adjacent, whereas the City of San Francisco is surrounded by water and the income generated by Silicon Valley has an extreme effect of raising housing prices. Furthermore, the San Francisco Bay and/or Coast ranges (i.e., San Andreas Fault, Santa Cruz Mountains) confound Tobler's Law.

In Sacramento, the Sacramento Association of Governments (SACOG) oversees six counties and 22 municipalities. These municipalities are urban, suburban, and rural in character. They are also adjacent and non-adjacent to the dominant city within the region. The northern California suburban group will consist of 20 municipalities and are as follows:

1. Auburn
2. Citrus Heights
3. Colfax
4. Davis
5. Elk Grove
6. Folsom
7. Galt
8. Isleton
9. Lincoln
10. Live Oak
11. Loomis
12. Marysville
13. Placerville
14. Rocklin
15. Roseville
16. West Sacramento
17. Wheatland
18. Winters
19. Woodland
20. Yuba City

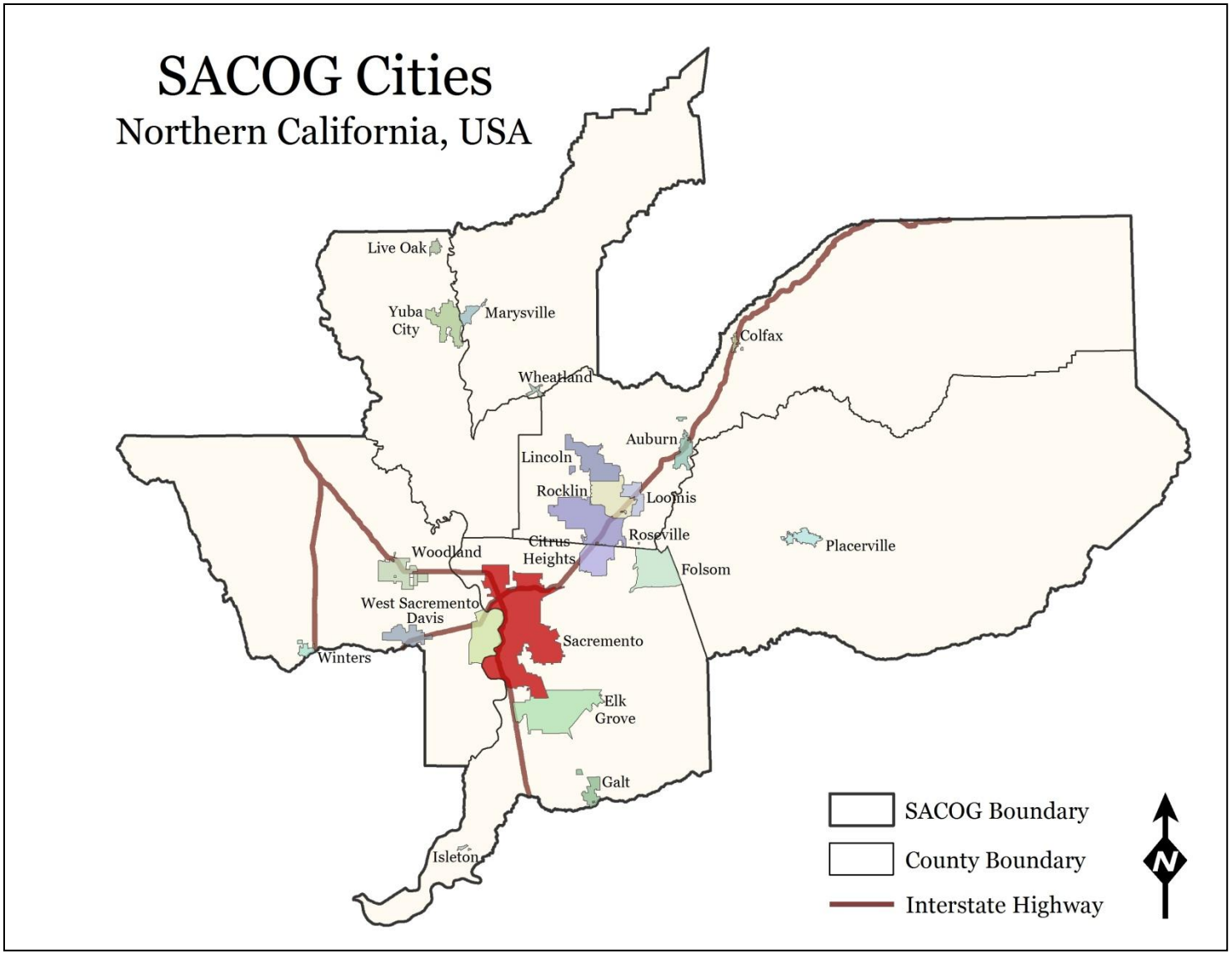
The Central City will be the City of Sacramento (e.g., #21). Map 2 illustrations the six-county SACOG region and Map 3 illustrates the City of Sacramento in relation to the Suburban municipalities.[100]

[100] I did not analyze the municipalities of South Lake Tahoe and Rancho Cordova due to distance (105 miles from Sacramento) and incorporation (2003), respectively. Also, these cities are not depicted on the maps.



Map 2: Map of six-county SACOG region.

Sacramento County is the most urbanized county within the region and the sample members are located in all counties.



Map 3: Map of the Sacramento region municipalities.

The City of Sacramento (Central City) is located in the region's center and the surrounding municipalities are Suburban group members..

4.1.3 SOUTHERN CALIFORNIA SAMPLE

In southern California, I chose the Los Angeles region over San Diego region. During the examined period of study, the State allowed San Diego municipalities to experiment with the self-certification of housing elements as opposed to remanding the documents to HCD.[101] In addition, the urbanity, density, and contiguousness of the Los Angeles region are without dispute (Abu-Lughod, 1999; Fulton, 2001). Moreover, there is no bay or mountain constraint like City of San Francisco.

In Los Angeles, the Southern California Association of Governments (SCAG) oversees six counties and 174 municipalities. Therefore, I selected the members of the San Gabriel Valley Council of Government (n=31) as the treatment group. These municipalities are urban, suburban, and rural in character and are spatially contiguous. These municipalities are also adjacent and non-adjacent to the dominant central city. The southern California Suburban group consists of the following municipalities:

[101] In 1995, SANDAG sponsored state legislation (AB 1715) commencing a pilot study that allowed San Diego municipalities to self-certify their housing elements. In 1998 and at the tail end of Treatment 1, HCD found 84% of the region's elements compliant. By 2001 and in the midst of Treatment 2, the regional rate for compliance dropped to 37%. By 2004, the regional compliance rate increased to 94% (38% Compliant, 55% Self-Certified). In 2007 with the experiment over, compliance decreased to 42%. Whether or not this experiment has had any changes in the inventory of low-income housing, I have not explored. http://www.sandag.org/index.asp?projectid=190&fuseaction=projects.detail

1. Alhambra
2. Arcadia
3. Azusa
4. Baldwin Park
5. Bradbury
6. Claremont
7. Covina
8. Diamond Bar
9. Duarte
10. El Monte
11. Glendora
12. Industry
13. Irwindale
14. La Cañada
15. La Puente
16. La Verne
17. Monrovia
18. Montebello
19. Monterey Park
20. Pasadena
21. Pomona
22. Rosemead
23. San Dimas
24. San Gabriel
25. San Marino
26. Sierra Madre
27. South El Monte
28. South Pasadena
29. Temple City
30. Walnut
31. West Covina

The Central City will be the City of Los Angeles (e.g., #32). Please see the following maps as an illustration of this region. Map 4 illustrates the six-county SCAG region, Map 5 illustrates the City of Los Angeles in relationship to the San Gabriel Valley, and Map 6 illustrates the San Gabriel Valley municipalities.[102]

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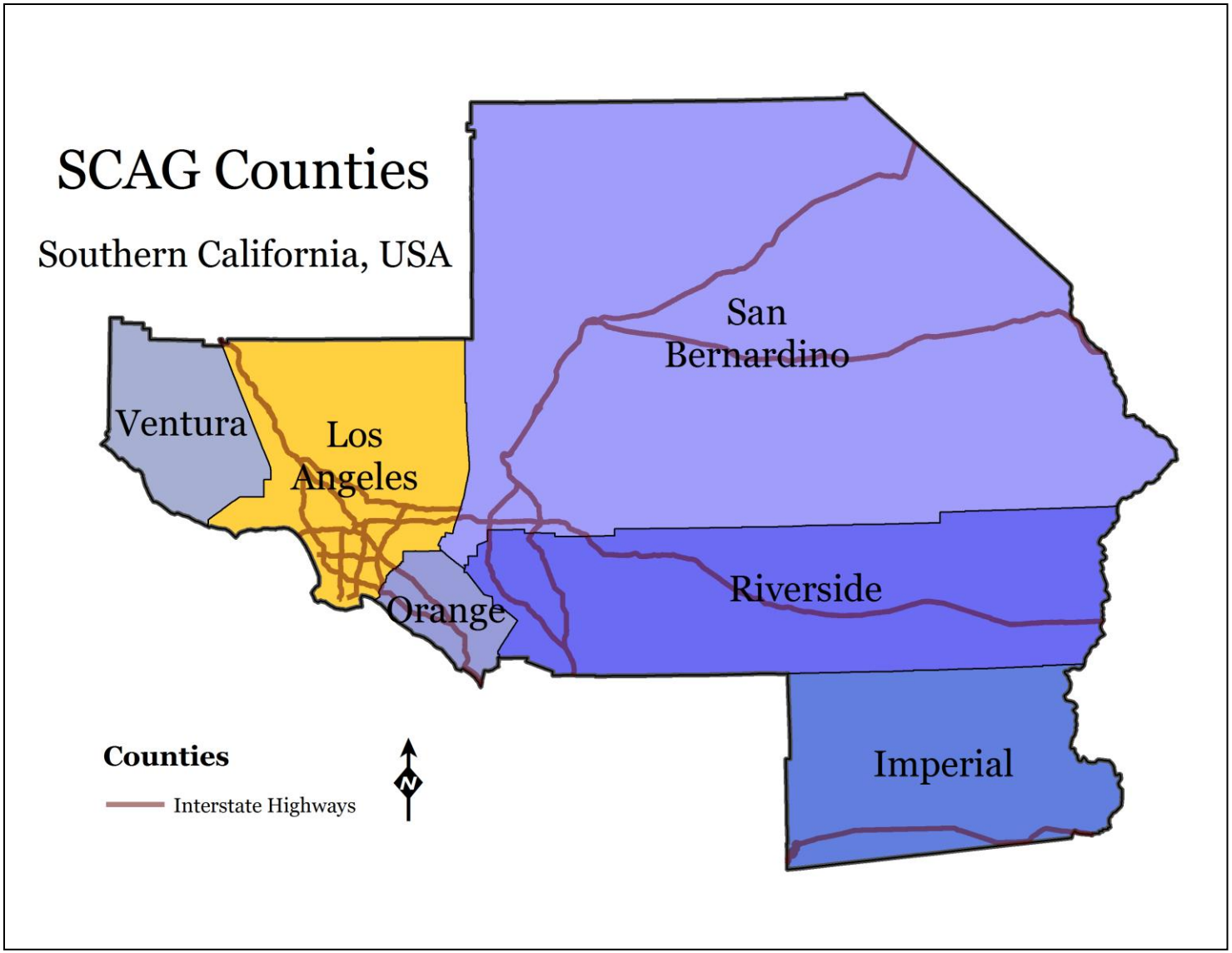
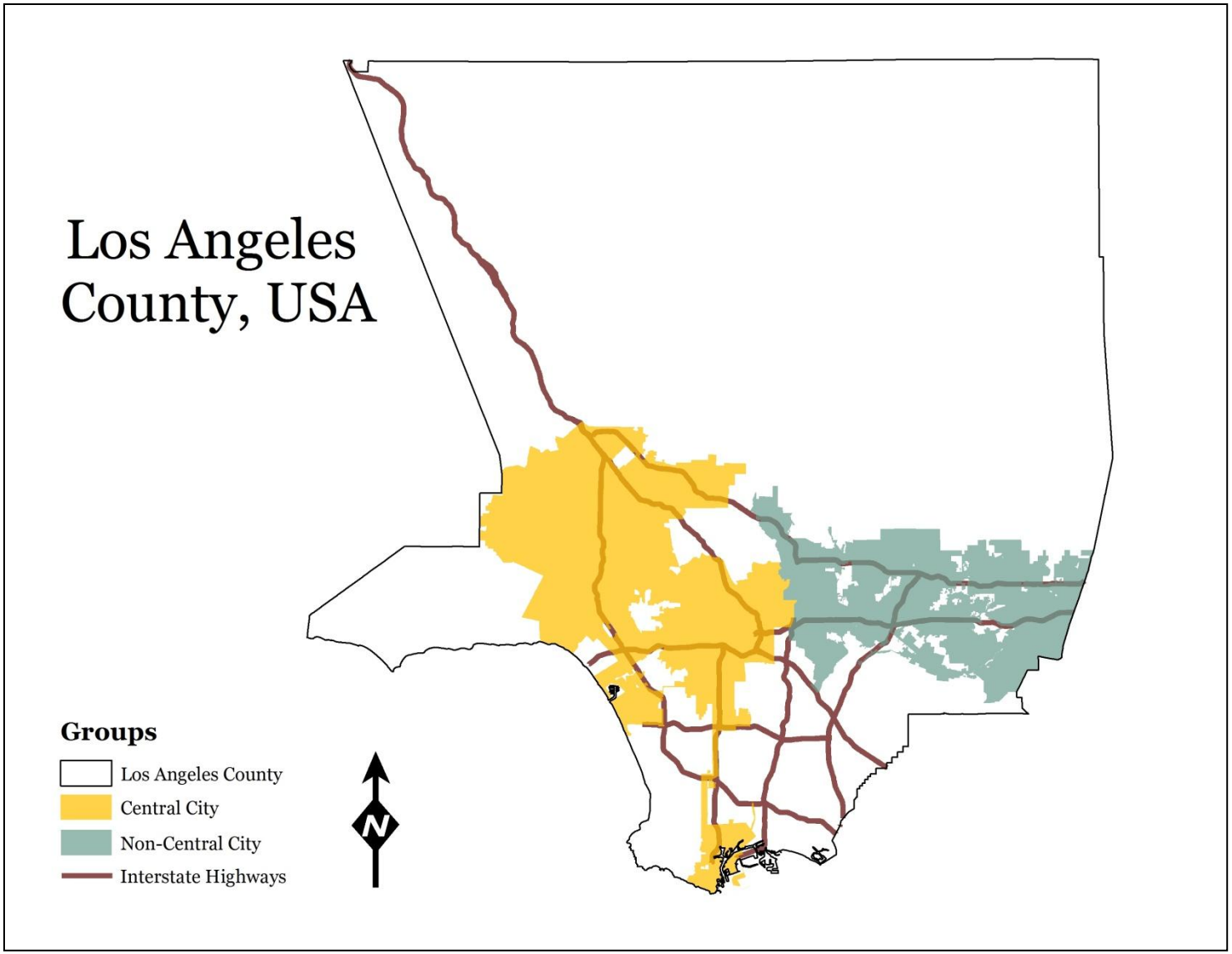
[102] http://www.sgvcog.org/index.cfm



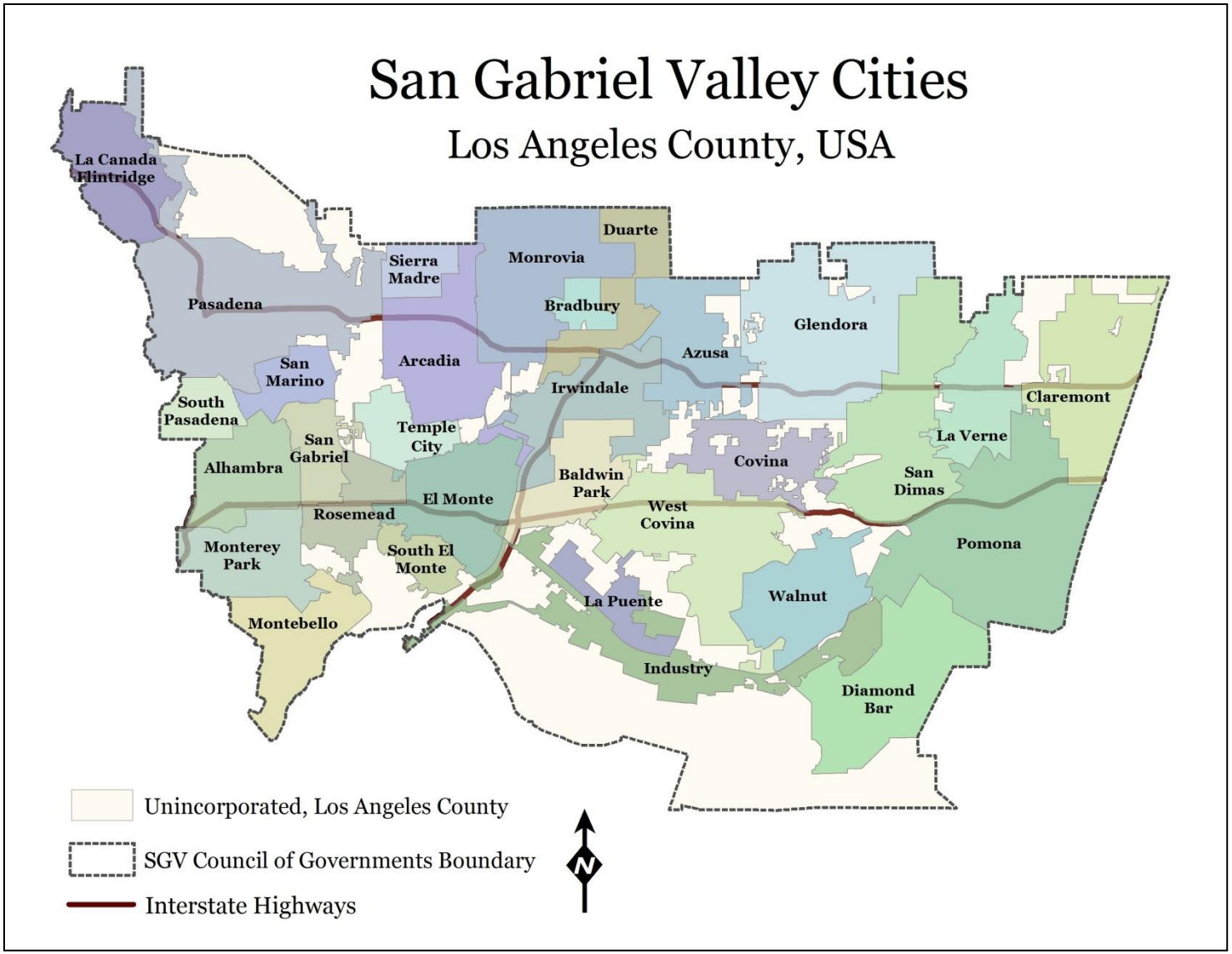
Map 4: Map of the six-county SCAG region.

The Central City and Suburban members are located entirely within Los Angeles County



Map 5: Map of the City of Los Angeles and San Gabriel Valley

This map depicts spatial relationship of the City of Los Angeles as the Central City and the San Gabriel Valley as home to the Suburban group.



Map 6: Map of the San Gabriel Valley municipalities

This map depicts the 31 members of the San Gabriel Valley Council of Governments, who constitute the Suburban group

4.1.4 GROUPS

In both regions, I chose the dominant central city (e.g., City of Sacramento, City of Los Angeles) as the Central Cities owing to Ottensmann's research on central city dominance on affordable housing production (1992). In both regions, the Central City is adjacent-to and physically distant from some members of Suburban group. However, numerous transportation connections (e.g., bus, light-rail, heavy-rail, commuter rail, and freeways) link the central business districts to the suburbs.[103] These transportation links are important as households may endure long commutes (i.e., "drive 'til you qualify")[104] in order to secure housing that is desirable and within their household income limits. In the next sections, I shall discuss the analytical methods, Content Analysis and Multivariate Regression Analysis, and each method's sampling procedure, data collection, procedures, and data analysis.

[103] Los Angeles is served by the following transportations agencies: The Los Angeles Metropolitan Transportation Authority http://www.metro.net/, Metro Link http://www.metrolinktrains.com/. Sacramento is served by a single transportation agency, The Sacramento Regional Transit district http://www.sacrt.com/. Caltrans, the state's department of transportation serves both regions http://www.dot.ca.gov/.

[104] In a recent paper on relationship between commuting distance, household income, educational attainment, race and debt/income ratio , the "drive-'til-you-qualify" condition means that a household locates as far out from the Central Business District as it must to afford the quantity of housing closest to its income and balanced against the increase costs of money and time (Hanson, Schnier, & Turnbull, 2012, p. 64).

4.1.4 MUNICIPAL TYPOLOGY

In this dissertation, I observe the municipalities (e.g., Suburban) and their typology (e.g., urban, suburban, rural) in relationship to the dominant Central City. I have previously referenced Tobler's First Law of Geography as well as Ottensmann's research on central city dominance as literature that has informed my sampling frame and group structure. In addition, while conducting field research in the Sacramento region, I was struck by the land-use variation—from rural small towns such as Isleton and Colfax, to suburban utopias such as Davis, Lincoln, and Elk Grove, to urban areas such as Sacramento and West Sacramento.

Currently, the US Census Department dichotomizes municipal typology as either Urban or Rural based on county conditions. However, after my field trip to the Sacramento region, I "recognized that any simple dichotomy hides a complex rural-urban continuum" that flows with land-use, transportation, and housing activities (Cromartie & Bucholtz, 2008, p. 29). Therefore, I delved into further research on urban areas and found the US Department of Agriculture's Rural Urban Commuting Area (RUCA) codes that examine commuting at the census tract level.

The RUCA codes use 10 primary gradations to classify census tracts from Metropolitan to Rural by determining the percentage and direction of daily commutes by residents to employment centers outside of their resident census tract. These codes have been primarily applied to medical research (Chen, Fordyce, Andes, & Hart, 2010; MacDowell, Glasser, Fitts, Nielsen, & Hunsaker, 2010), but also to poverty (Weber, 2008), land-use (Crandall & Weber, 2005), and transportation (Ehsani, Bingham, & Shope, 2011; Watts, McCammon, Compton, Rich, & Owens, 2006). These codes are appropriate to this dissertation as commuting and housing costs interact with household income and credit (i.e., "drive til you qualify"). In this dissertation, the RUCA classifications and their definitions are as follows:

1. RUCA defines "Metropolitan Core" as a settlement with a primary commuter flow within an Urbanized Area (UA).[105]

[105] An Urbanized Area (UA) consists of densely settled territory that contains 50,000 or more people. http://www.census.gov/geo/www/geo_defn.html#UR

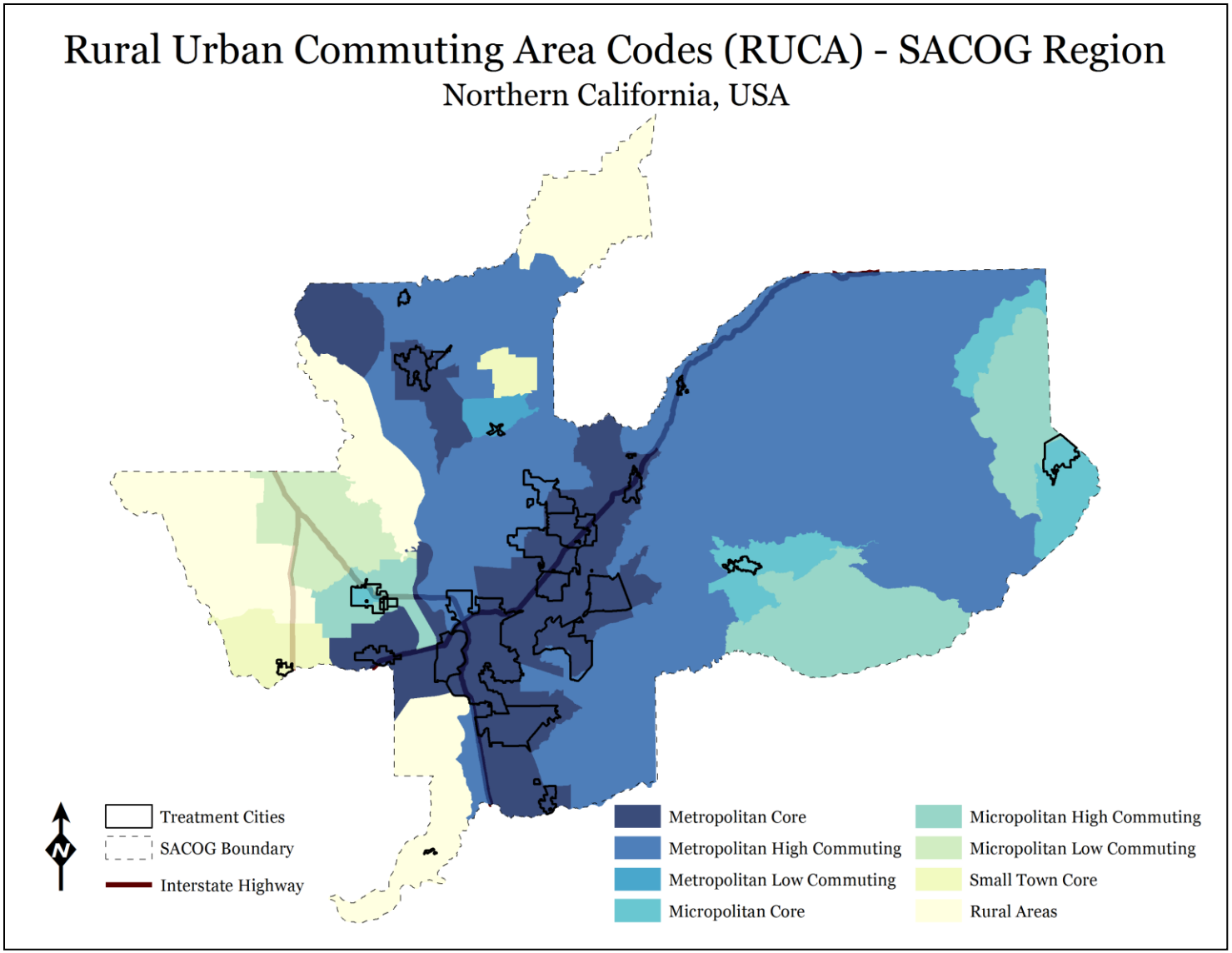
2. RUCA defines "Metropolitan High Commuting" as a settlement with a primary flow of 30% or more to a UA.
3. RUCA defines "Metropolitan Low Commuting" as a settlement with a primary flow of 10% to 30% to a UA.
4. RUCA defines "Micropolitan Core" as a settlement with a primary flow within an Urban Cluster (UC).[106]
5. RUCA defines "Small Town Core" as a settlement with a primary flow within an UC of 2,500 through 9,999 persons.
6. RUCA defines "Rural Areas" as a settlement with a primary flow to a census tract outside a UA or UC (including the Rural Area).

The University of Washington's Rural Health Research Center[107] provides RUCA data based on zip codes and the US Department of Agriculture's Economic Research Service[108] provides RUCA data based on 1990 and 2000 census tracts. In this dissertation, I employ the census tract metadata (*2000 Rural-Urban Commuting Area Codes* 2012). Maps 7 and 8 illustrate RUCA Classifications for the Sacramento and Los Angeles regions, respectively. Table 7 lists the RUCA classification of the entire sample.

[106] An Urban Cluster (UC) consists of densely settled territory that has at least 2,500 people but fewer than 50,000 people. http://www.census.gov/geo/www/geo_defn.html#UR

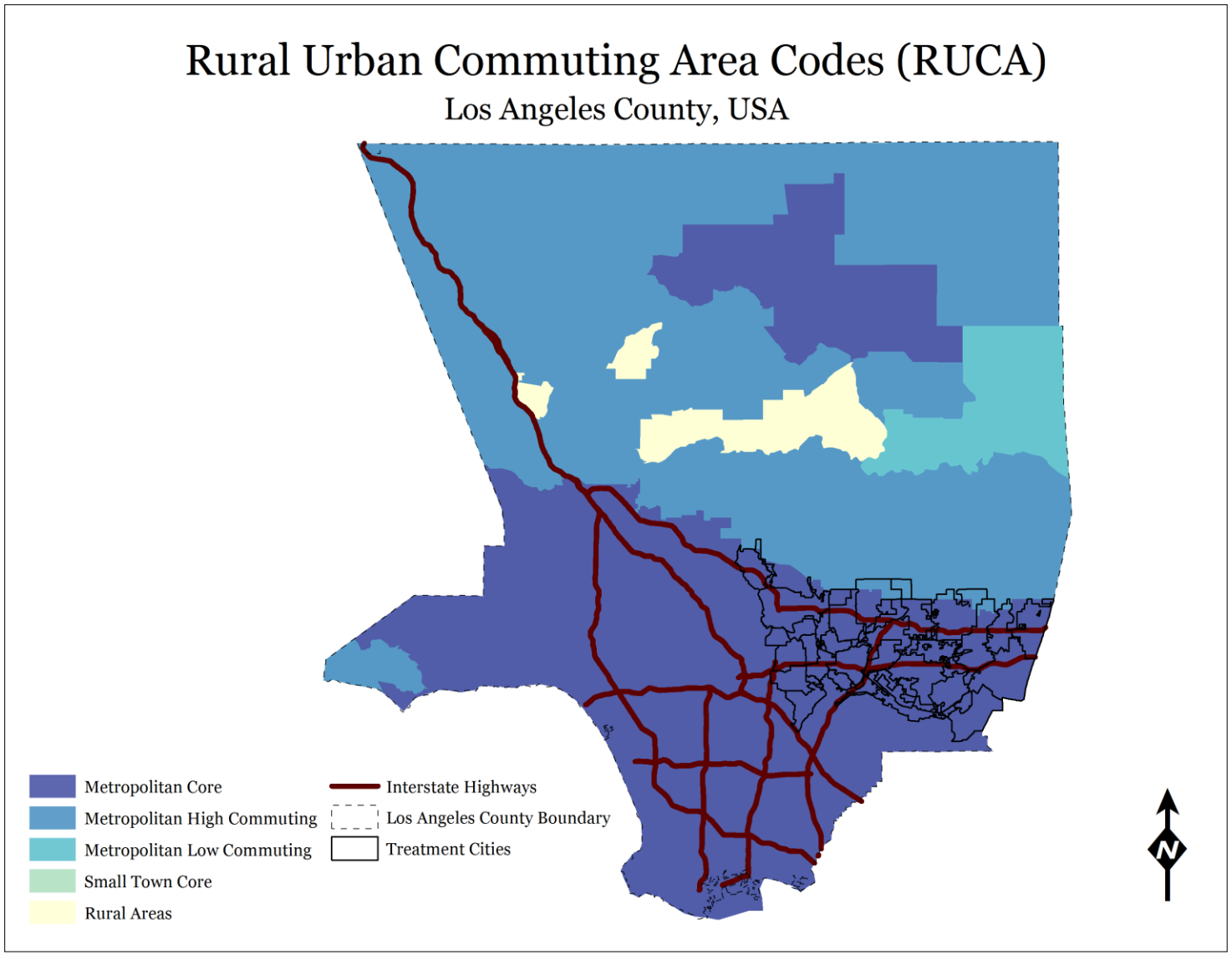
[107] http://depts.washington.edu/uwruca/index.php

[108] http://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes.aspx



Map 7: Six-county Sacramento region and the RUCA codes

This map depicts the six-county Sacramento region and its attendant Rural Urban Community Area codes as they range from the urban Metropolitan Core to the outlying Rural Areas. Visually, the urbanized and dense areas follow along the routes of the interstate highways.



Map 8: Los Angeles County and its RUCA Codes

This map depicts the Los Angeles County and its attendant Rural Urban Community Area codes as they range from the urban Metropolitan Core to the outlying Rural areas. Like the Sacramento region, Interstate Highways connected the urbanized Metropolitan Core.

Table 7: RUCA codes and Municipalities

This table alphabetically. lists the municipalities classified by their RUCA classification, County, and Council of Government.

Row	Municipality	RUCA Code	County	Council of Government
1	Alhambra	Metropolitan Core	Los Angeles	SCAG
2	Arcadia	Metropolitan Core	Los Angeles	SCAG
3	Auburn	Metropolitan Core	Placer	SACOG
4	Azusa	Metropolitan Core	Los Angeles	SCAG
5	Baldwin Park	Metropolitan Core	Los Angeles	SCAG
6	Bradbury	Metropolitan Core	Los Angeles	SCAG
7	Citrus Heights	Metropolitan Core	Sacramento	SACOG
8	Claremont	Metropolitan Core	Los Angeles	SCAG
9	Colfax	Metropolitan High Commute	Placer	SACOG
10	Covina	Metropolitan Core	Los Angeles	SCAG
11	Davis	Metropolitan Core	Yolo	SACOG
12	Diamond Bar	Metropolitan Core	Los Angeles	SCAG
13	Duarte	Metropolitan Core	Los Angeles	SCAG
14	Elk Grove	Metropolitan Core	Sacramento	SACOG
15	El Monte	Metropolitan Core	Los Angeles	SCAG
16	Folsom	Metropolitan Core	Sacramento	SACOG
17	Galt	Metropolitan Core	Sacramento	SACOG
18	Glendora	Metropolitan Core	Los Angeles	SCAG
19	Industry	Metropolitan Core	Los Angeles	SCAG
20	Irwindale	Metropolitan Core	Los Angeles	SCAG
21	Isleton	Rural Area	Sacramento	SACOG
22	La Cañada	Metropolitan Core	Los Angeles	SCAG
23	La Puente	Metropolitan Core	Los Angeles	SCAG
24	La Verne	Metropolitan Core	Los Angeles	SCAG
25	Lincoln	Metropolitan High Commute	Placer	SACOG
26	Live Oak	Metropolitan High Commute	Sutter	SACOG
27	Loomis	Metropolitan Core	Placer	SACOG
28	Los Angeles	Metropolitan Core	Los Angeles	SCAG
29	Marysville	Metropolitan Core	Yuba	SACOG
30	Monrovia	Metropolitan Core	Los Angeles	SCAG
31	Montebello	Metropolitan Core	Los Angeles	SCAG
32	Monterey Park	Metropolitan Core	Los Angeles	SCAG
33	Pasadena	Metropolitan Core	Los Angeles	SCAG
34	Placerville	Micropolitan Core	El Dorado	SACOG
35	Pomona	Metropolitan Core	Los Angeles	SCAG
36	Rocklin	Metropolitan Core	Placer	SACOG
37	Rosemead	Metropolitan Core	Los Angeles	SCAG
38	Roseville	Metropolitan Core	Placer	SACOG
39	Sacramento	Metropolitan Core	Sacramento	SACOG
40	San Dimas	Metropolitan Core	Los Angeles	SCAG
41	San Gabriel	Metropolitan Core	Los Angeles	SCAG
42	San Marino	Metropolitan Core	Los Angeles	SCAG

Table 7: RUCA codes and Municipalities

This table alphabetically. lists the municipalities classified by their RUCA classification, County, and Council of Government.

Row	Municipality	RUCA Code	County	Council of Government
43	Sierra Madre	Metropolitan Core	Los Angeles	SCAG
44	South El Monte	Metropolitan Core	Los Angeles	SCAG
45	South Pasadena	Metropolitan Core	Los Angeles	SCAG
46	Temple City	Metropolitan Core	Los Angeles	SCAG
47	Walnut	Metropolitan Core	Los Angeles	SCAG
48	West Covina	Metropolitan Core	Los Angeles	SCAG
49	West Sacramento	Metropolitan Core	Yolo	SACOG
50	Wheatland	Metropolitan Low Commute	Yuba	SACOG
51	Winters	Small Town Core	Yolo	SACOG
52	Woodland	Micropolitan Core	Yolo	SACOG
53	Yuba	Metropolitan Core	Sutter	SACOG

4.2 CONTENT ANALYSIS (MANIFEST)

In order to answer my first research question (e.g., *how has a municipality's inventory of NCSH changed between the RHNA allocation and the subsequent Review of the Previous Housing Element?*), I employed Content Analysis. In general, Content Analysis is "a research method that uses a set of procedures to make valid inferences from text" (Webber (1990), p 9 as quoted in Neuendorf, 2002, p. 10). Historically, Content Analysis "was first used as a method for analyzing hymns, newspapers and magazine articles, advertisements and political speeches in the 19th century" (Harwood & Garry (2003) in Elo & Kyngas, 2008, pp. 107-108). This method has been used in Planning (Bassett, 2009; Berke & French, 1994), Landscape Ecology (Antrop, 2001), Library and Information Studies (Dellmann-Jenkins & Yang, 1997; Hakanson, 2005), Sociology (Altheide, 1987; Carley, 1993), and the federal government (*"Content Analysis: A Methodology for Structuring and Analyzing Written Material"*, 1996). This method is suitable to this investigation because I analyze the housing elements, which are documents, in order to determine the change in a municipality's inventory of low-income housing.

Content Analysis may take either a quantitative approach (e.g., Manifest) or qualitative approach (e.g., Latent). In this investigation, I employed the Manifest approach. I shall provide an example demonstrating the operation and the differences between the Manifest and Latent approaches. In this paraphrased example, the word 'bang' is the primary unit of analysis.

> Yesterday, my wife woke me up by banging on the pots and pans.
> While in the shower, I banged my head on the door because I was half awake.
> When I got home from work, because I forget her cigarettes, my wife banged me on the head.
> We got to fighting, and the cops came.
> They left, and my wife and I banged all night (Wolfer, p. 387).

Under a Manifest approach, the word "bang" or its derivative appeared four times within this text. As a researcher, I would note its frequency and base my analysis on its frequency within this example, but also within the larger text, from which it originated. Under a Latent approach, I would be interested in the contextual usage of the word bang. Who used it? What was the object? Was it a present or past tense verb, and so on.

In this dissertation, I employed a Manifest approach to not only document the housing units forecasted in the RHNA allocation, but also to document the housing units constructed in the ensuing years (e.g., the subsequent Review of Previous Housing Element). In short, this Manifest Content Analysis provides a replicable method for identifying quantitative evidence that answers if a municipality's low-income inventory has increased over time.

4.2.1 DATA COLLECTION AND ANALYSIS

To obtain the necessary housing elements for the period of study, I enacted the following strategy. First, I perused the municipal websites to determine if I can download the housing elements from the internet. Second, I contacted the planning department for photocopying and/or scanning. Third, I contacted the city clerk for photocopying and/or scanning. Since the planning departments may have introduced housing elements to both the Planning Commission and the City Council for public comment and/or adoption, city clerks are required to keep legal records as per the Brown Act.[109] Fourth, I searched the municipal library websites to determine if the document is available through inter-library loan. And lastly, I visited the selected municipality.

For housing elements created prior to 1995, I relied on strategies two and three, since Adobe software was not in high usage in most municipalities. In June 2010, I conducted a pilot search and obtained all of the housing elements for cities of Pasadena and Alhambra in a combination of municipal website, contacting the appropriate planner, and visiting the municipal library. In addition, I obtained the HCD compliance reports for the treatment period. This key document verified the existence and status of a housing element as well as the municipality's annual compliance.

The result of the Manifest Content Analysis is a quantitative number that illustrates the "addition" of new construction subsidized housing at the end of the RHNA allocation period. With this number, I documented (a) how well or how poorly municipality did in terms of the RHNA allocation, and (b) how well or how poorly the municipalities did by region, treatment period, typology, and group. This data

[109] In California, the Brown Act (Government Code § 54950) governs open meetings for legislative bodies. Please see the City of Los Angeles' Ethics Commission webpage on the Brown Act http://ethics.lacity.org/PDF/ncouncil_brownAct.pdf. In addition, please see the California Attorney General's analysis of the Brown Act http://caag.state.ca.us/publications/2003_Intro_BrownAct.pdf

became the building block of the Multivariate Regression Analysis used to answer the subsequent research questions.

4.2.2 PROCEDURES

To improve the reliability of my findings, I created a data research protocol, as discussed by Yin and Neuendorf, to provide a step-by-step methodology of the analysis. This detailed protocol will allow subsequent researchers to replicate my study within my location, or other locations within California as RHNA is a statewide phenomenon (Yin, 2009, Ch 3). In addition, this analysis will be guided by the Content Analysis principles outlined by Neuendorf (2002).

The Manifest Content Analysis procedures are as follows:

4.2.3 FIRST PHASE

Step 1. Obtain a municipality's housing elements for the 16-year treatment period

a. First, I perused the municipal websites to determine if they can be downloaded.

b. Second, I contacted the planning department for photocopying.

c. Third, I contacted the city clerk for photocopying.

d. Fourth, I searched the municipal library websites to determine if the document is available via inter-library loan.

e. Fifth, I visited the selected municipality.

i. Fieldwork: Los Angeles

1. In summer 2011, I obtained nearly 70% of this region's housing elements in combination of perusing websites, contacting the planner, and visiting the appropriate municipality.

2. In summer 2012, I collected the remaining documents.

ii. HUD: Doctoral Dissertation Research Grant

1. In September 2011, HUD awarded to me a Doctoral Dissertation Research Grant. This two-year grant pays for training, travel, data, and stipend in support of completion of the dissertation.

iii. Fieldwork: Sacramento

1. Prior to this dissertation, I had not spent any meaningful time in the Sacramento region. As such, the HUD grant allowed me to familiarize myself with the character of each municipality and to discover region's land-use variability.

2. In spring 2011, I collected nearly 60% of this region's housing elements in combination of perusing websites, contacting the planner, and city clerk.

3. In October 2011, I visited nearly all of the treatment cities to collect housing elements and to conduct a windshield survey of low-income housing and the conditions of the municipal city halls.

4. In summer 2012, I returned to the region in order to visit and collect the missing housing elements from the cities of Galt and Isleton.

iv. HCD Compliance Reports: I shall use these documents to verify a housing element's existence.

1. In spring 2010, I made a public information request from HCD to obtain the HCD Compliance reports for the years of 1990-2005, but there was a gap (1992, 1998-2003) in the released data.

2. During my Sacramento field visit in October 2011, I visited HCD the archive and retrieved the compliance reports for years 2000 and 2001. I also spent time at the California State Library collecting additional reports for the years of 1992, 1998, and 1999.

Step 2. Locate the RHNA allocation for the municipality.

a. In April 2010, I contacted SCAG and collected the RHNA allocations for the period of study.

b. In Septembers 2010, I contacted SACOG and collected the RHNA allocations for the period of study.

Step 3. Scan all documents into text searchable Adobe PDFs.

a. Prior to any work with a document, I scanned the original in order to preserve the information in an unaltered form.

b. All documents and data will archived in University of Wisconsin Library's Digital Collections.

Step 4. Code each Housing Element.

In order to replicate this study as well as increase the validity of the methodology, I documented each Housing Element using NVivo. NVivo is software that allows a research to code documents, images, and music into different themes. In October 2011 and March 2012, I obtained training in NVivo for coding documents

For each housing element, I coded seven different pieces of information or "themes" that not only reference the current research questions, but also will allow for future examination of this data.

The themes, which can be exported to other researchers, are as follows:

a. Title/Cover Page: This theme identifies the document / treatment period.

b. Table of Contents: This theme identifies how the document is constructed.

c. Context: This theme notes the "image" of the municipality in its own words.

d. RHNA:* This theme notes the location of the RHNA allocation within the document for cross validation of the "delivered" RHNA allocation.

e. Quantified Objectives: This theme notes if the municipality had increased, decreased, or modified its RHNA allocation. Quite often, municipalities reduce the quantity for "new construction" and shift the remaining units to rehabilitation or preservation strategies.

f. Evaluation:* This theme identifies the "Review of the Previous Housing Element" section.

g. Implementation: this theme identifies the implementation actions that a municipality pursues as part of its housing element program.

*In this dissertation's investigation, the themes of RHNA and Evaluation directly answer the research questions. The additional themes will serve future analysis of this data. From the codes / themes, I can send the PDF copy of the Housing Element and this protocol to any analyst to validate my findings. Please note that these codes only indentify the "location" of the theme within the document and do not provide any analysis.

Step 5. Locate the *Review of Previous Housing Element* section for the municipality.

a. If document was missing or not produced, the observation of low-income housing is coded as zero. The terms T1 (e.g., 1989-1997), T2 (e.g., 1998-2005), and T3 (e.g., 2006-2014) refer to the treatment periods. For example, the City of La Cañada

produced a T1 housing element, skipped T2, and then produced a T3 housing element. The T3 document evaluates the T1 period, not T2. Thus, La Cañada produced 12 NCSH units in T1 and 0 NCSH units in T2.

Step 6. Analyze the inventory change of NCSH in proportion to forecast RHNA allocation.

Step 7. This is a simple index in which the quantity of NCSH units is devidied by the quantity of NCSH units allocated. Continuing with the City of La Cañada, for T1 the proportion is 14.11% (or 12/85) and for T2 the proportion is 0.

Step 8. Repeat steps 1-7 for each housing element in pertaining to treatment periods 1 (e.g., 1990-1997) and 2 (e.g., 1998-2005) of each municipality. For the post-treatment housing elements (e.g., 2006-2014), I only executed steps 1, 3, 4a, 4b, 4f, 5 and 6.

Please see the following figure and table for the City of Alhambra's NCSH results from the First Phase of the Manifest Content Analysis. Figure 6 synthesizes the relationship between Treatment Period, Total Construction, and RHNA in a bar plot that illustrates the percentage achieved. Table 8 provides the collective data supporting these findings.

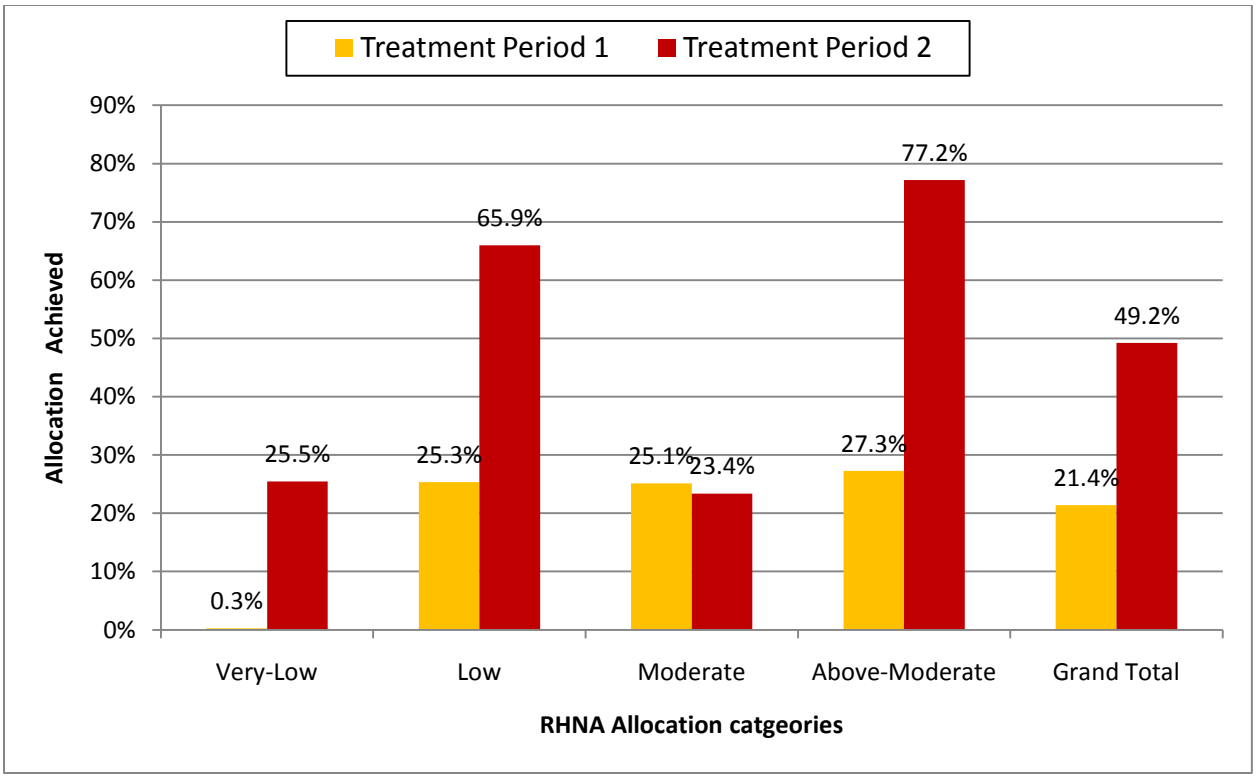


Figure 6: Example of Treatment Period, Total Construction, and RHNA

This figure depicts the City of Alhambra's percentage of the RHNA allocation achieved by Household income category by treatment period.

Table 8: Example of RHNA Allocation and NCSH

This table identifies the New Construction Subsidized Housing at the end of a treatment period. This information is from the City of Alhambra Housing Elements (1989-1994, 1998-2005, 2008-2014).

Document	RHNA Household Income	Units allocation	Units constructed	% Achieved	NCSH Total*
1989-1994 Housing Element	*Very-Low*	*298*	*1*	*0.34%*	*234 units (or 23.2% of the low-income allocation*)
	Low	*391*	*129*	*32.99%*	
	Moderate	*319*	*104*	*32.60%*	
	Market-Rate	606	215	35.48%	
	Totals	**1614**	**449**	**27.82%**	
2000-2005 Housing Element	*Very-Low*	*263*	*67*	*25.48%*	*239 units (or 36.1% of the low-income allocation)*
	Low	*185*	*122*	*65.95%*	
	Moderate	*214*	*50*	*23.36%*	
	Market-Rate	311	240	77.17%	
	Grand Totals	**973**	**479**	**49.23%**	

*Please note that this total for NCSH also includes the years 1995-97. **Please note that this total for NCSH includes the years 1998-1999. Both inclusions were due to HCD suspension in the mid 1990s. (*Alhambra General Plan, Housing Elment*, 1989; *City of Alhambra, 2000-2005 Housing Element*, 2001; *City of Alhambra, 2008-2014 Housing Element*, 2009)

The above data is imported into an MS Access database in order to reshape the data by time, region, treatment period, municipality, RHNA allocation category, etc. for the subsequent descriptive and statistical analysis.

4.2.4 SECOND PHASE

After I have analyzed housing elements, I provided a descriptive analysis on the following time invariant conditions.

Step 9. Determine the Compliance achievement rate for the Overall sample and by Region,

Step 10. Determine the achievement rate by RHNA allocation and Total Construction,

Step 11. Determine the achievement rate by Group and Total Construction / RHNA,

Step 12. Determine the achievement rate by Treatment Period and Total Construction / RHNA,

Step 13. Determine the achievement rate by Region and Total Construction / RHNA,

Step 14. Determine the achievement rate by Municipal Typology and Total Construction / RHNA, and

Step 15. Determine the achievement rate by Treatment Adherence and Total Construction / RHNA.

Step 16. Write up findings based on the descriptive data analysis of Phase 2.

4.2.5 SUMMARY

At the conclusion of Phase 2, the product of the Manifest Content Analysis will indicate a change in NCSH inventory by treatment period for the entire sample. The NCSH inventory then becomes the response variable for the Multivariate Regression Analysis in research question 2.

4.2.6 THREATS TO INTERNAL VALIDITY

In this phenomenon, randomization between treatment groups and control groups is not permissible since the COGs simultaneously administered the RHNA allocations to the population of California municipalities. In a discussion of the threats to research conclusions for quasi-experiments using non-equivalent groups, Campbell and Stanley identified the conditions that would credit a rival hypothesis as the source for any changes in the response variable. Therefore, I have written this section as a checklist/discussion of how each threat may potentially reduce the internal validity of the Manifest Content Analysis.

HISTORY:

This dissertation examines the historic implementation of the Housing Element Law and RHNA allocation process. Events such as suspension of HCD during the 1990s, 9/11, changes in the Housing Element Law, and the real estate crashes of 1987, 1992, and 2007 will have affected both Central City and Suburban groups. Under these conditions, I find that the conditions of History will have no threat.

MATURATION:

All municipalities experienced the same passage of time during the implementation of the HEL/RHNA process. No municipality was able to "grow-out" or "opt-out" of the implementation of Housing Element Law. While political conditions (e.g., General Law, Charter City) allow a municipality to contradict its RHNA allocation, contradiction did not exempt them from the process. Under these conditions, I find that the conditions of Maturation will have no threat.

TESTING:

I have conducted a Manifest Content Analysis on publically available secondary data. The effects of testing may occur when I analyze documents that were created from different versions of the Housing Element Law (Baer, 2008) as the law is subject to updates as per the California legislature. Therefore, a comparative examination of housing elements across time (e.g., 1990-2005) may require toggling between two different HCD criteria for compliance. Furthermore, the researcher does not manage the quality and precision of the housing element or RHNA allocation data.

In addition, since there is neither a sampling frame of NCSH, nor a regional-level or state-level database, the initial quantitative inventory of NCSH is unknown (*Final Report*, 2004). This examination can only measure changes (e.g., additions) to the inventory. Furthermore, I am limiting my scope to subsidized housing unit classified as "new construction," and not rehabilitated or preserved.

If a municipality is uncooperative, the pertinent Review of Previous Housing Element does not contain a quantified number for NCSH, or a municipality did not produce a housing element, then I may remove that municipality from the analysis, or I may assign zero for the municipality's quantity of NCSH. Furthermore, this omission and/or substitution would not only limit the Content Analysis, but it would also hinder the Multivariate Regression Analysis.

In sum, toggling, precision, lack of sampling frame, missing documents/sections, and/or omission may constrain or prevent analysis. Under these conditions, I suspected that Testing would be a potential threat to this dissertation. During the execution of this dissertation, toggling and missing sections did not occur. However, missing documents did occur and that reflects the impotence of HCD's implementation of HEL. For example, Covina, Loomis, San Marino, South Pasadena maintained zero compliance with HEL during the period of study, Covina and South Pasadena did not produce housing elements, and Loomis produced un-compliant housing elements. For these missing documents, I assigned NCSH = 0 and this did not constrain the analysis, but deepened my understanding compliance's folly.

INSTRUMENTATION:

In this analysis, I identified housing opportunities (proposed housing units) in document A, and then determine if they were constructed in the consequential period of study as per the discourse in document B. The Housing Element Law allows both municipalities and private planning firms to complete these documents. Furthermore, HCD analysis of submitted documents is discretionary. Therefore, the interaction between the municipalities, private planning firms, and HCD may produce housing elements in which no two documents from a single municipality or within the region are similar.

In Manifest Content Analysis, a threat may occur from the analysis of documents that may contain the same data, but not in the same identified manner and requires that I make decisions regarding comparison of documents created under different regimes. However, all documents are

required to contain the Review of the Previous Housing Element section—no matter who created the document. Under these conditions, I find that Instrumentation may be a potential threat.

STATISTICAL REGRESSION:

In this analysis, my sample was determined by purposive sampling methods and I supported that decision with relevant and important research based on aspects of the phenomenon, not extreme statistical scores (Foucault, 1977; Tobler, 1970; Veazey, 2008). Under these conditions, I find that Statistical Regression is not a threat.

SELECTION BIAS:

In this analysis, I chose two spatial clusters of municipalities. In northern California, the examined groups contain 90% (e.g., 20 of 22) of the region's municipalities during the examined period of study. In southern California, the examined groups consist of 18% (e.g., 32 out of 174) of the region's municipalities. In my global analysis of the phenomena, I acknowledge that these samples may not representative of California's population of municipalities. As such, I shall limit my inferences and generalizations to the sample and not the population of municipalities in each region. Under these conditions, I find that Selection Bias will have no threat.

HAWTHORNE EFFECT:

In this analysis, the units of analysis are municipalities and the units of observation are contemporary and archived housing elements. Municipalities and/or private planning firms produced these documents under the administration of HCD, and not the researcher. Under these conditions, I find that the Hawthorne Effect will have no threat.

DIFFERENTIAL SUBJECT LOSS

In this analysis, I chose two spatial clusters of municipalities (e.g., northern California, southern California). If a municipality does not have successive housing elements within the treatment, or the pertinent Review of Previous Housing Element does not contain a quantified number for NCSH, then this omission may nullify the individual analysis and constrain the regional analysis. Furthermore, it would hinder the Multivariate Analysis. Under these conditions, I suspected that Differential Subject Loss would be a potential threat. During the execution of this dissertation, there were municipalities that did not produce housing elements. However, because of the sample size, I was able to obtain enough documents

in order to make findings based on the research focus. The one exception is municipalities classified as Rural Areas. In this sample, only Isleton holds that RUCA classification and unfortunately, Isleton produced only one housing element.

In summary, I have identified that Testing, Instrumentation, and Differential Subject Loss as threats to the dissertation and I have documented how those threats did not severely hinder the analysis. In addition, I have not set out to prove causality between the HEL/RHNA process and the creation of NSCH, but to take the first step in understanding this process from a holistic view—accounting for regional, political, and structural municipal differences.

As a statewide program with multiple treatments, HEL/RHNA does not allow randomization of the units of analysis and this limits the scope of my descriptive statistics. In the end, Manifest Content Analysis allowed me to examine and evaluate how NCSH has changed overtime in small purposive regional samples. Even under these potential threats, I completed research that has not been attempted before, was not available for analysis, and contributes to the wider discourse of housing policy.

4.2.7 THREATS TO EXTERNAL VALIDITY

Without randomization of the subjects (to reduce sampling error), my generalizations from the results of the study are limited to the controls of the sample (e.g., regions: municipalities in northern and southern California; period of study: 1990-2007; municipal status: charter/general law; typology: urban, suburban, rural; etc.). This sample is purposive and may suffer from the interaction of the treatment (RHNA allocation) and the subject municipality. However, there is little evidence that identifies any interaction.[110] Without a test of pre-equivalence or random assignment, a critical concern is that perhaps there is rival hypothesis that is responsible for the changes in NCSH inventory. To reduce that potential alternative, I employ Multivariate Regression Analysis (i.e., municipal financial and location data) to triangulate the HEL/RHNA process. In addition, I limit my conclusions to my sample, not the population.

4.2.8 ISSUES WITH RELIABILITY

[110] In this case, the letters from HCD to the attendant municipality is the only publically available document that indicates if there are issues that may prevent a housing element from being certified as compliant. This data is located on HCD's website: http://www.hcd.ca.gov/hpd/hrc/plan/he/status.pdf

This dissertation is exploratory in nature and my epistemological world view is pragmatic, not constructivist, post-positivist, or advocacy. Quite simply, I am trying to determine if the HEL/RHNA process has had any effect on housing production. Therefore, has anyone done this type of housing element analysis before? Previously, I discussed the Goetz et al.'s study on housing elements.

In that examination, Goetz et al. used 1976 data from the comprehensive plans of 25 municipalities, and contemporary land-use maps and windshield surveys to determine if the subsequent subsidized housing was constructed. This study served as the basis for my longitudinal design. However, I found that their analysis suffered from unaccounted-for history effects as their methodology entertains a 25-year gap between treatment administration and response measurement. In this dissertation, I examine not only sequential documents and structured annual data, but I also include the dominant central cities to reduce history effects.

In my literature review, I also mentioned Hoch's analysis of housing elements in Illinois. In that examination, Hoch conducted a cross-sectional document analysis[111] on forty-nine municipal housing elements without providing conceptual or operational definitions for "consistent, coherent, relevant, and committed" analysis (2007, pp. 89, 95). Like Hoch, I share a purposive sample of cities, but this examination moves beyond culling of non-compliant municipalities, but examines a subset of municipalities differentiated not only by regional, political, and location conditions, but also by compliance status. In this examination, I fully define subsidized housing as well as the meaning and measurement of NCSH.

And lastly, are my procedures reliable? With Manifest Content Analysis, I have written the steps needed to determine the quantitative changes in NCSH inventory. These steps will not indicate the exact quantity or initial status of NCSH at the beginning of the treatment period, but will allow a researcher to monitor how the inventory changes (e.g., additions) over time. As I conducted this dissertation, I identified the constraint, documented any amendment to the process. Upon the release of my results, other researchers interested in this phenomenon may critique, amend, and/or improve my procedures.

[111] I hesitate to call his methodology a Content Analysis since his paper did not specify replicable procedures.

Could other researchers use these procedures and arrive at the same conclusion? That depends on whether they are examining the same municipalities or different municipalities. If a researcher evaluated identical samples with the same interval of treatments, then I am confident that the conclusions would be the same because we would be evaluating the same units of analysis and observation. However, for researchers that intend to replicate this study in other California locations, their conclusions may be completely different since the municipalities and their attendant housing elements would be different.

In close, the Manifest Content Analysis procedures outlined above to allowed me to answer the first research question (*how has a municipality's inventory of NCSH changed between the RHNA allocation and the subsequent Review of the Previous Housing Element?*), and allow replication of this study, and allow additional researchers to evaluate the HEL/RHNA phenomenon within a longitudinal view. For researchers outside of California, the procedures may not be reliable because I based the analysis on California's Housing Element Law. Replication outside of California will require that the researcher understand the relevant technical criteria that guides their housing process and not attempt to layer a foreign legislative framework (Connerly & Muller, 1993; Graddy & Bostic, 2010). I would expect that those researchers would amend my procedures with appropriate thought and documentation.

4.3 MULTIVARIATE REGRESSION ANALYSIS

In order to answer this investigation's second and third research questions (e.g., the respective relationships between the conceptual model and subsidized housing, and the conceptual model and housing production), I employed a Multivariate Regression Analysis that is based on Ordinary Least Squares. As with the Manifest Content Analysis methodology, I shall specify the following procedures as a technical manual to not only increase replication of annual housing data, but also to include the necessary sensitivity testing required of any statistical test. The procedures described herein are a culmination of my readings from Meier, Brudney and Bohte (2009), Chatterjee and Hadi (2006), Draper and Smith (1966), and my coursework in Statistics 333: Linear Regression, and Urban Regional Planning 721: Methods of Planning Analysis.

In this endeavor, I do not think that it is sufficient to produce a statistical model and assume that satisfaction of the statistical technical conditions yields a model that is correct, relevant, and informative. Within this pragmatic investigation, I assert that the model must be steeped in the particulars of the HEL phenomenon (e.g., municipal level data, housing data). Second, the model must advance the metatheory of the HEL phenomenon (e.g., relationships between concepts). And lastly, the model, or rather researcher discretion, must provide statistical information to the State for regulatory reform, agencies for procedural reform, municipalities for deeper understanding of urban morphology, housing advocates for opportunity scanning, and the public for a reduction of fear associated subsidized housing.

Therefore, my regression models will require executing eleven-steps in order to determine the conceptual model has any associative explanatory power on the response variables. The Multivariate Regression Analysis procedures are as follows.

4.3.1 PROCEDURES (OLS)

Step 1. Statement of the Research Questions.

Step 2. Statement of the Conceptual Model.

Step 3. Operationalization of Conceptual Model.

i. Response Variable:

ii. Predictor Variables:

iii. Control Variables:

Step 4. Statement of the Hypothesized Model.

Step 5. Discuss Data.

Step 6. Identify the Estimating Equation.

Step 7. Check predictor and control variables for Multicollinearity.

i. Variance Inflation Factor less than 10

Step 8. Conduct Goodness of Fit Tests.

i. R^2

ii. F-Test, (|p<.05|)

iii. T-Test,(|p<.05|)

Step 9. Interpret the Partial Regression Slope Coefficients.

Step 10. Check Model Assumptions.

i. Correct Model

ii. Equal Variance

iii. Error Independence

iv. Distribution of Errors

Step 11. Summary

4.3.2 THREATS TO INTERNAL VALIDITY

Similar to my discussion of the internal threats for Manifest Content Analysis, the proceeding section analyzes the conditions identified by Campbell and Stanley that would credit a rival hypothesis as the source for any changes within the dependent variable. However, I find that some of the indentified threat conditions are not dissimilar to those listed in Content Analysis. Therefore, I shall not repeat Maturation, Statistical Regression, Selection Bias, and Hawthorne Effects, as I find that they did not bias

the presented statistical analysis. This then leads to a discussion of History, Testing, Instrumentation, and Differential Subject Loss and how those conditions may potentially reduce the internal validity of the Multivariate Regression Analysis.

HISTORY:

This dissertation examines the historic implementation of the Housing Element Law and RHNA allocation process. Events such as suspension of HCD during the 1990s, 9/11, changes in the Housing Element Law, and the real estate crashes of 1987, 1992, and 2007 will have affected both treatment and comparison groups. In addition, the State Comptroller's Office maintains the Cities Annual Reports from 1980 to present. However, between the years of 1980-1990, this data is located in books and not electronic. Therefore, the Regression analysis omits 1989-1990 data and this omission affects all examined municipalities. Under these conditions, I suspected that the History will have a moderate threat.

During the execution of the dissertation, the omission of 1990 data reduced the T1 treatment period from 8-years to 7-years and impacted the autocorrelation analysis of NCSH. For Housing Production, the omission eliminated 1-year of data. In the former, I my time-oriented transformation of predicting data (e.g., mean values) may have mitigated the omission, and for the latter, I modified the Durbin-Watson test to include a 7-year lag. In both cases, I still obtained statistical conclusion

TESTING:

I conducted a regression analysis on secondary data. The effects of Testing may occur during Step 6 when I configure the estimating equation or in Step 7 when I analyze the predictor and control variables for the presence of collinear relationships that may bias the accuracy of standard errors. Under these conditions, I employed sub-setting (e.g., Akaike Information Criteria, "exhaustive" LEAPS) to reduce the parameters in the model. However, that choice may dilute the model's explanatory power as collinear relationships are difficult to disentangle. In addition, this threat may signify that additional data must be collected. As such, both conditions (e.g., collinear relationships, seeking additional data), will ground the validity of using SCO datasets. Under these conditions, I suspected that Testing would be a potential threat because the determination of statistical relationships may be compromised; yet this threat would aide this and future research using municipal and financial data.

During the execution of the dissertation, Multicollinearity did disqualify the Akaike models from selection as the best estimating equation. In addition, I attempted to seek additional data (i.e., weighting) as I found curvilinear relationships in the Q-Q plots, and was stymied for three reasons. Variables suitable for weighting were endogenous to the models (e.g., city area, populations, existing housing units). Due to sub-setting, exclusion of quadratic and cubic terms violated hierarchy. Lastly, I have yet to discover housing literature that has implemented a weighting that is pertinent to the HEL phenomenon. Yet, I still obtained statistical conclusion.

INSTRUMENTATION:

For a regression analysis, the more parameters contained in the model, the higher the likelihood of achieving an inflated R^2. Using the adjusted $\bar{R}^2$ can serve as a decision statistic by comparing the proportion of between of adjusted $\bar{R}^2$ to R^2. In addition, I used Akaike Information Criterion and LEAPS methods of subset selection to remove non-significant variables and introduce parsimony in the estimating equation. I used R[112] as the software program to operate the statistical tests as this program contains the necessary packages (e.g., MASS, LEAPS) and commands (e.g., stepAIC regsubsets).

Unlike SPSS or SAS, R is an open source program subject to the precision, accuracy, and "constant" values of the contributing and unpaid programmers. For that matter, the same arguments can be made about SPSS and SAS as these programs employ a graphic-user-interface to facilitate usage and academic acceptance. In this investigation, my programming decisions have been guided by my coursework (e.g., Stats 333: Linear Regression employed R), the book R in Action (Kabacoff, 2011) and the support of UW-Madison's Social Science Computer Cooperative. In addition, I can export the data into "csv" files and import the data into SPSS or SAS for analytical comparisons. Under these conditions, I found that Instrumentation will have no threat.

DIFFERENTIAL SUBJECT LOSS:

In this analysis, I am examining a purposive sample of municipalities from Northern and Southern California. If a municipality did not produce a housing element, or a predictor or control variable is not available for the entire period (1990-2008), then I may remove that municipality and/or

[112] R version 2.15.0 (2012-03-30) , http://www.r-project.org/

variable from the model. As such, the sample includes 21 municipalities in Northern California and 32 municipalities in Southern California and this sample takes into account such loss. Under these conditions, I suspected that Differential Subject Loss will be a moderate threat.

During the execution of the dissertation, I omitted six municipalities from the statistical analysis. For Citrus Heights and Elk Grove, I omitted their data due to the incorporation date as neither municipal existed during the full period of study. For Isleton, Loomis, Placerville, Sierra Madre, I omitted them because of their continued non-submission of financial data. Even with these municipal omissions, I obtained a statistical conclusion.

4.3.3 THREATS TO EXTERNAL VALIDITY

In this analysis, I am limited to generalizations pertaining to my sample, and I am limited to generalizations to association between the response, predictor, and control variables. I do not intend declaim causality in this process for two reasons. Without randomization of the subjects (to reduce sample error), my generalization from the results of the study are limited to the controls of the sample (location: municipalities in northern and southern California; period of study: 1990-2007; municipal status: charter/general law, etc.). This sample is purposive and may suffer from the interaction of the treatment (RHNA allocation) and the subject municipality. Without a test pre-equivalence or random assignment, a rival hypothesis suggests that something else that is responsible for the changes in NCSH inventory or housing production. Therefore, the biggest challenge to this statistical analysis will be obtaining 18 years of municipal-level data (e.g., 1990-2007), and that the examined data is not only accurate, but also free of Multicollinearity.

Due to issues of time and budget, the bulk of the existing secondary municipal data will come from two California state agencies: the State Comptroller's Office and the Department of Finance. The issues of History, Differential Subject Loss, and Multicollinearity arose, but did not prevent conclusion. And lastly, this analysis used secondary data that was subject to the accuracy tests of the agency, not the researcher. In short, the dissertation's results will serve as a template for the analysis housing with annual data, or any other phenomenon in which municipalities and their financial may serve as a statistical background from which to probe and test the research of other disciplines.

4.3.4 ISSUES WITH RELIABILITY (OLS / GLM)

During my proposal defense, I proposed to test the data using an OLS model; yet this analysis of HEL employs a longitudinal research design using annual data. As such, there may be issues of positive auto-correlation and heteroscedasticity within the residuals. Subsequently, in summer 2012, I began reading Singer and Willett's work describing the application of linear regression to modeling change (Singer & Willett, 2003). These authors would advise employing a multi-level approach where Level 1 models include variables that change over time (e.g., population, sales taxes, existing housing supply, HCD compliance, time and time lags, etc.) and that Level 2 models include variables that are time

invariant (e.g., treatment status: treatment/comparison, location: northern/ southern California, municipal status: charter/general law, etc.).

The Singer Willett method allows the full usage of the data contained within the California State Controller's office. However, their methodology subsumes part of the conceptual model (e.g., Demand, Growth, and Existing Housing Supply) within the Level 1 model. Therefore, the specific effects of these concepts would not be easily identified. And furthermore, this method does not advocate or propose "sub-setting" of variables as the presented dataset may contain up to 47 predictor and control variables.

Operationally, the procedures would be similar to the OLS model, but their statistical test, Generalized Least Squares–using residuals as weights, (as opposed to Maximum Likelihood—which requires normality) would require joining the Level 1 and Level 2 models into one composite estimating equation containing two components: structural (e.g., predictors) and stochastic (e.g., error terms) (pp. 90-92). The composite GLS estimating equation would yield an Unconditional Means Model, Unconditional Growth Model, and various Fitted Models. Using this statistical tool, I would speak not only of the statistical relationships between the partial slope coefficients, but also the Pseudo R^2 / Goodness of Fit, the stochastic terms (e.g., $\sigma_e^2, \sigma 0_0^2 2, \sigma_1^2$), and the covariance between the intercept and the rate of change (e.g., σ_{01}).

Their approach also allows for the analysis between municipalities (as inter-individuals) and within municipalities (i.e., individual years). However, this is under the assumption that the data fits a growth model and most importantly, that there is a variable suitable-for weighting that is situated (i.e., regional, political, location, financial) in the HEL phenomenon.

My analysis of the annual permits for a group of San Gabriel Valley (e.g., Figure 5 in Chapter 4) indicates a downward trajectory from 1980 to 2008, but the individual years yield a random pattern, not a persistent trend. Therefore, my designated response variables (e.g., NCSH, Housing Production) nullified the usage of the Singer Willett method. In addition, in my review of housing policy literature that examines municipalities, I have yet to find a model with suitably situated weights that are exogenous to my identified datasets as I include the concepts/variables of municipal area, population, and distance from the central city within the full model.

I include this discussion of Singer & Willett not to invalidate OLS, GLS, GLM, or Multi-Level modeling, but to demonstrate that OLS may be the first necessary step to statistically inferring understanding of the HEL phenomenon. With the OLS findings, I as well as other researcher can create additional research questions suitable for different regression methods (i.e., Zero Inflated Population counts) based on the available data. Nevertheless, I present OLS models.

4.4 SUMMARY

In summary, I conduct this dissertation under a robust definition of mixed-methods, and not mixed-models. Robust research that embraces mixed-methods, as defined by Greene and Caracelli, requires that the researcher acknowledge the political, philosophical and technical aspects inherent in the examined phenomenon (1997). Whereas, mixed models represent simple combinations of two different methods in a study. As a corollary, Yin makes a similar argument with "case study" research in which such research requires researcher clarification (e.g., question type, investigator control, period of study) as opposed to merely linking a set of studies and calling the investigation a "case-study" (Yin, 2009, p. 4). In either case, good research requires clear intent.

In regards to the Greene & Caracelli view, in the introduction and problem statement of this dissertation, I discuss not only the municipal manifestation of HEL's political issues, but also note how HCD, COGs and the California legislature has contributed to California's housing morass. Philosophically, I present both Content Analysis and Multivariate Regression analysis as a means of understanding the HEL phenomenon within the view established by their research paradigm (e.g., qualitative, quantitative). I do not hold either method as better or as worse than its counterpart. I employ these tools to dynamically investigate and interpret the municipal production of low-income housing within my sample. Lastly, this dissertation not only serves as a technical manual for other pragmatists, but also as a framework for dialectic investigations of contextual contemporary phenomena.

I understand that there may be purists who believe that neither paradigm/method should mixed. Yet, using one method only answers the questions with validity/reliability inherent to that method. Johnson, Onwuegbuzie & Turner contend that researchers can avoid falling into the paradigmatic divide by adopting a mixed-method approach that allows the researcher to effectively answer their inquiry by implementing the most appropriate method from each paradigm (2007). The authors note that mixed-methods embed pragmatic thought because this middle ground is less concerned with orthodoxy, but seeks multiple views. The authors also note that researchers must "elect" to conduct their research as mixed-methods after the considerable recognition that conducting an investigation on the phenomena

using on one paradigm may be incomplete. With those considerations, they specify the mixed-methods research adopt the following conditions.

First, the research should be completed in phases as concurrent analysis may weaken the investigative implementation and require the employment of a team, as opposed to a sole-researcher. Second, a sound mixed-methods model incorporates the following seven steps:

1. Data reduction,
2. Data display,
3. Data transformation,
4. Data correlation,
5. Data consolidation,
6. Data comparison,
7. Data integration

Lastly, even though the findings from each phase are initially separate, at some point the researcher must consolidate the analysis into a legitimatized answer that expands the understanding of the investigation. In close, the intent, methodology and final analysis of this dissertation hews to not only Greene & Caracelli's defensible strategies, but also to Johnson et al.'s model process. Quite simply, at the close of this dissertation, I state, with clarity, how California's Housing Element has affected low-income housing inventory and housing production for a purposive sample of municipalities.

5.0 DESCRIPTIVE FINDINGS

For research question 1 (e.g., *how has a municipality's inventory of NCSH changed between the RHNA allocation and the subsequent Review of the Previous Housing Element?*), I focused on the changes to a municipality's inventory of low-income housing. I limited this focus to "additions" to this inventory, not the quantity of housing units rehabilitated or preserved. I also took a collective approach (e.g., overall RHNA categories, groups, regions, urban typology, etc.) as opposed to conducting a microanalysis on individual municipalities. In addition, I based my analysis on each municipality's RHNA allocation and each housing element's "Review of Previous Housing Element," since the former was required by HEL, and the latter was part of HCD's discretionary review. I understand these boundaries may produce findings that may mask the successes and failures of some municipalities; yet, I assert that a collective understanding of the HEL phenomenon is essential before one undertakes an expansive micro-level analysis. Furthermore, my analysis on municipal effort and low-income housing inventory will provide clear quantitative answers to HEL's fuzzy and complicated housing prescription (Lewis, 2003; Markusen, 1999; Rittel & Webber, 1973).

In this dissertation, I made three claims. First, the quantity of housing priced at Above-Moderate will be double or triple its RHNA allocation. I based this claim on municipal preferences for market-rate homes with small nuclear families (Beitel, 2007, p. 744; Pendall, 2000). Second, when a municipality's commercial growth increases, its inventory of low-income housing decreases. I based this claim on the municipal preference for taxable income (i.e., big box stores, office parks) and disdain for redistributive policies (Basolo, 1999; Kotin & Peiser, 1997; Tiebout, 1956). And lastly, if low-income housing inventory did not increase in proportion to total housing inventory, then over time, the housing opportunities for low-income households would be constrained or eliminated. I based this claim on Landis et al.'s update of California's statewide housing plan calling for the annual production 220,000 housing units (2000). In this chapter, I provide descriptive evidence supporting the first and third claims and I address the second claim in Chapter 6.

For readers disinclined to sift through descriptive statistical analysis, I shall provide a tight, focused, and robust answer so that such readers can comprehend the big picture and continue to this chapter's summary. For research question 1, I asked, *how has municipality's inventory of low-income*

housing changed during the effective period of each housing element? The short answer is, in the sample of examined municipalities, the collective totals for low-income housing (e.g., Very-Low, Low, or Moderate) achieved between 30-42% of their respective goals. A more robust answer requires the inclusion of compliance, time, and market-rate housing in order to acknowledge the State's evaluation metric, the housing element's effective period, and the municipal preference for high-income households. With the inclusion of those concepts, the more complete and definitive statement is as follows.

I asked, *how has municipality's inventory of low-income housing changed during the effective period of each housing element?* Despite increasing annual compliance during the period of study (e.g., 1990-2007), the sample's collective construction rates and percentage achieved for low-income housing were low, flat, or negligible, while the sample's collective construction rates and percentage achieved for Above-Moderate housing were positive and exceeded its categorical goal. Thus in this sample, compliance negatively affected low-income housing production and positively affected market-rate housing production. This robust answer explicates the residential strategies of Carson and Glendora.

In the following sections, I shall provide a descriptive analysis that supports the robust answer and I present this information in the following manner: a statement of the collective finding, a graphic that illustrates the data, a table that provides the evidence, a short analysis, and when appropriate, a commentary on the leaders and laggards of the finding. It is in the commentary that I provide some individual municipal information. In addition, I separated this data by Treatment Period as the RHNA allocations were non-equivalent and to aggregate both periods may mask differences in municipal effort and/or market conditions.[113]

Due to the focus of the first research question, the data structure, and the aims of this research, I analyzed the time-invariant conditions (as underlined) of the research design and placed the key findings under each condition. In the next paragraphs, I provide this information in this manner (i.e., semi-executive summary) so that readers can connect my definitive and robust answer to specific evidence, and

[113] In this dissertation, I examine 53 municipalities; however, Citrus Heights and Elk Grove did not exist in Treatment Period 1. Therefore, Treatment Period 1 contains 51 municipalities and Treatment Period 2 contains 53 municipalities. Thus, there were 104 municipal treatments in total as the COGs should have uniquely tailored each treatment to a municipality's conditions of population, land-use and topography.

readers not interested in descriptive statistical minutia can then move to the chapter's summary. The descriptive statistical findings are as follows:

1. Compliance: Overall and Regional,
    a. In this sample, the overall rate of Compliance increased over time (e.g., 13.7% in 1990 to 75.3% in 2005).
    b. During the period of study, the Sacramento region municipalities averaged higher rates of Compliance than those of the Los Angeles region municipalities (e.g., 58.7% vs. 35.66%, 16-year regional average, respectively).

2. RHNA allocation and Total Construction,
    a. In this sample, the collective categories of low-income housing did not exceed 42% of their overall RHNA allocations, yet the collective category of Above-Moderate achieved 112% of its overall RHNA allocation.
    b. The overall sample achieved only 67% of its overall RHNA allocation.

3. Group and Total Construction / RHNA,
    a. The Suburban group constructed more units than the Central City group (e.g., 122,077 units vs. 120,752 units), yet the Suburban group allocation was 40% less.
    b. The overall Suburban group achieved 154.7% of its Above-Moderate allocation, as compared to 85.7% for the Central City group.
    c. The Central City group constructed more housing targeted to low-income households (e.g., 42,791 housing units or 35.4% of overall comparison group construction) as compared to the Suburban group (e.g., 35,298 housing units or 29.2 % of overall Suburban group construction).

4. Treatment Period and Total Construction / RHNA,

   In this section, please note that T1 = 1990-1997, T2 = 1998-2005, and T3 = 2006-2014.

   a. In this sample, the overall percentage achieved in Treatment Period 1 (50.98%) was lower than the overall percentage achieved in Treatment Period 2 (88.62%).

   b. In this sample, the overall construction of Very-Low housing units decreased over time whereas the overall construction of Low, Moderate, and Above-Moderate housing units increased over time.

5. Region and Total Construction / RHNA,

   a. In this sample, both regions constructed similar amounts of housing units (e.g., Los Angeles region 114k, Sacramento region 128k), despite the fact that the Sacramento allocation was 40% less.

   b. The Sacramento region achieved 166% of its overall allocation of Above-Moderate housing, whereas the Los Angeles region achieved only 78.3% of its overall Above-Moderate allocation.

6. Municipal Typology and Total Construction / RHNA, and

   a. In this sample, municipalities classified as Metropolitan High Commuting, Metropolitan Low Commuting, Micropolitan Core exceeded their collective allocation for Above-Moderate housing units—with Metropolitan High Commuting achieving by 167% of their allocation.

   b. In this sample, municipalities classified as Metropolitan High Commuting achieved 149% their collective allocation for Moderate housing units.

   c. In this sample, municipalities classified as Micropolitan Core achieved the highest percentages for Very-Low and Low income housing units (e.g., 59% and 88% of the allocation, respectively).

7. Treatment Adherence and Total Construction / RHNA.
    a. In this sample, nearly 56% (or 58 of 104) of housing elements achieved a low-income housing efficacy rate of 25% or less.
    b. In this sample, approximately 14% (or 15 of 104) of housing elements achieved a low-income housing efficacy rate of 100% or more.

Regarding the descriptive data analyzed, I shall place the full dataset in a permanent digital archive at the University of Wisconsin Digital Collections Center.[114]

[114] As required by my HUD Doctoral Dissertation Research Grant, the data used in this research project will be permanently available and archived so that other researchers or interested parties may have access. I intend to place a copy of each housing element and a table of the analyzed descriptive data in the University of Wisconsin Digital Collections Center. http://uwdc.library.wisc.edu/about

5.1 ANNUAL COMPLIANCE: OVERALL AND REGIONAL

Finding 1. In this sample, the overall rate of Compliance increased over time (e.g., 13.7% in 1990 to 75.3% in 2005).

Finding 2. During the period of study, the Sacramento region municipalities averaged higher rates of Compliance than those of the Los Angeles region municipalities (e.g., 58.7% vs. 35.66%, 16-year regional average, respectively).

In this section, Figure 7 synthesizes the relationship between Compliance and time in a line plot that illustrates the percentage achieved. Table 9 provides the evidence supporting these findings. And lastly, Table 10 provides commentary on the leaders and laggards of Compliance.

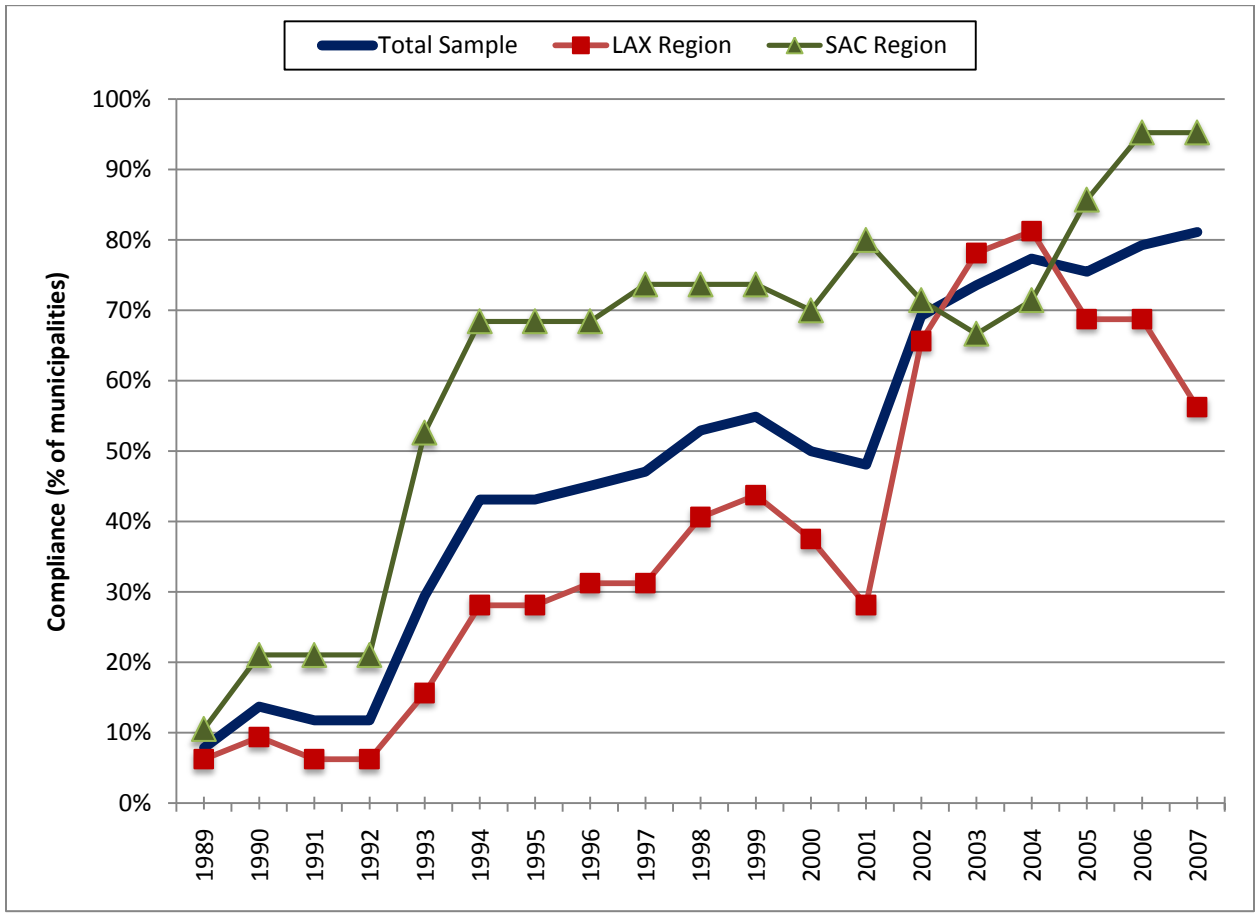


Figure 7: Annual Municipal Compliance

Overall sample, Los Angeles region, Sacramento region, (1990 – 2007, n=53)

Table 9: Compliance by municipality

The municipalities are sorted from least compliant to most compliant (1990-2005, n=53). For space considerations, I measure Compliance as an index (e.g., #of years compliant / #of period of study). In the Appendix, I shall place a table that illustrates Compliance by municipality and by year.

Rank	Region	Municipality	Overall Compliance (1990-2005)	County
1	LAX	Covina	0.00%	Los Angeles
2	LAX	San Marino	0.00%	Los Angeles
3	LAX	South Pasadena	0.00%	Los Angeles
4	SAC	Loomis	0.00%	Placer
5	SAC	Isleton	6.25%	Sacramento
6	LAX	La Cañada	18.75%	Los Angeles
7	LAX	Sierra Madre	18.75%	Los Angeles
8	LAX	Temple City	18.75%	Los Angeles
9	LAX	Glendora	25.00%	Los Angeles
10	LAX	Monterey Park	25.00%	Los Angeles
11	LAX	San Dimas	25.00%	Los Angeles
12	LAX	South El Monte	25.00%	Los Angeles
13	SAC	Rocklin	25.00%	Placer
14	SAC	Folsom	25.00%	Sacramento
15	LAX	Diamond Bar	31.25%	Los Angeles
16	LAX	El Monte	31.25%	Los Angeles
17	LAX	La Puente	31.25%	Los Angeles
18	LAX	Walnut	31.25%	Los Angeles
19	LAX	Arcadia	37.50%	Los Angeles
20	LAX	La Verne	37.50%	Los Angeles
21	LAX	Pasadena	37.50%	Los Angeles
22	SAC	Sacramento	37.50%	Sacramento
23	LAX	Alhambra	43.75%	Los Angeles
24	LAX	Azusa	43.75%	Los Angeles
25	LAX	Industry	43.75%	Los Angeles
26	LAX	Montebello	43.75%	Los Angeles
27	LAX	Bradbury	50.00%	Los Angeles
28	LAX	Irwindale	50.00%	Los Angeles
29	LAX	Rosemead	50.00%	Los Angeles
30	LAX	San Gabriel	50.00%	Los Angeles
31	LAX	West Covina	50.00%	Los Angeles
32	LAX	Los Angeles	56.25%	Los Angeles
33	SAC	Davis	56.25%	Yolo
34	SAC	Winters	56.25%	Yolo
35	SAC	Marysville	56.25%	Yuba
36	LAX	Baldwin Park	62.50%	Los Angeles
37	LAX	Duarte	62.50%	Los Angeles
38	LAX	Monrovia	62.50%	Los Angeles
39	LAX	Pomona	62.50%	Los Angeles
40	SAC	Live Oak	62.50%	Sutter
41	SAC	Wheatland	62.50%	Yuba
42	LAX	Claremont	75.00%	Los Angeles

Table 9: Compliance by municipality

The municipalities are sorted from least compliant to most compliant (1990-2005, n=53). For space considerations, I measure Compliance as an index (e.g., #of years compliant / #of period of study). In the Appendix, I shall place a table that illustrates Compliance by municipality and by year.

Rank	Region	Municipality	Overall Compliance (1990-2005)	County
43	SAC	West Sacramento	75.00%	Yolo
44	SAC	Placerville	81.25%	El Dorado
45	SAC	Roseville	81.25%	Placer
46	SAC	Galt	81.25%	Sacramento
47	SAC	Yuba City	81.25%	Sutter
48	SAC	Citrus Heights*	83.33%	Sacramento
49	SAC	Woodland	87.50%	Yolo
50	SAC	Lincoln	93.75%	Placer
51	SAC	Auburn	100.00%	Placer
52	SAC	Colfax	100.00%	Placer
53	SAC	Elk Grove**	100.00%	Sacramento

* Citrus Heights incorporated in 1997 and HCD did not require a housing element until 2000.
** Elk Grove incorporated in 2000 and HCD did not require a housing element until 2003.

From the data in Figure 7 and Table 9, I note the following. With the 1989 revision of HEL, the State required that HCD prepare an annual report listing the annual Compliance status of all municipalities and counties. What is notable about that first report (e.g., 1990) was the number of municipalities with either obsolete or no housing element on record. For example, Monrovia had produced its last housing element in 1981, for Bradbury, the last housing element received by HCD was in 1982. In addition, Sierra Madre did not produce its <u>first</u> housing element until 2003. Yet, none of the subsequent housing elements for those municipalities mentioned the receipt of any HCD directed penalty.

Regarding the regional differences, I found two reasons that explained why the Sacramento region obtained a higher Compliance rate than the Los Angeles region: (a) the interaction between the law and the municipality's spatial location, and (b) the housing element's effective period. As a state law, HEL rewards municipalities for the criteria contained within the housing element, not actual units produced. Therefore, obtaining Compliance was an easier process for suburban Sacramento municipalities that contained undeveloped land within the municipal boundary or discussed future annexation as guided by

the municipality's "sphere of influence."[115] In contrast, Compliance was more difficult for hemmed-in urban Los Angeles municipalities who must increase the density of existing neighborhoods in order to accommodate future housing construction. Of the ten least compliant municipalities listed in Table 10, seven are established communities located in the Los Angeles region. And lastly, of the three remaining least compliant municipalities located in the Sacramento region, two are distant rural towns (i.e., small planning budgets).

Regarding hemmed-in urban municipalities, I provide an illustrative example of the conflict between the RHNA allocation and an established suburban community as I return to chapter 4's discussion of Palo Alto. In 2003, Palo Alto's city council and residents decried that compliance to its RHNA allocation required an additional 70 acres for new construction. Well, if Palo Alto were to continue its *existing single-family residential pattern*, then 70 acres may be required. However, if Palo Alto *increased the density* in some single-family residential areas to duplexes, *included mixed-use* within all commercial zones with attendant height increases, and *expanded the capacity* of its existing transit-oriented development areas, then the 70 acres may not be required.[116]

Regarding the effective period, during the period of study housing elements were legally effective for 5 years but expanded up to 8 years due to HCD suspension. Therefore, the municipal receipt of Compliance may have masked any land-use activity that would conflicted with the COG's initial RHNA allocation (i.e., no construction activity, zone changes from residential districts to commercial/industrial districts, down zoning from multi-family to single-family uses, etc). What follows is a table containing commentary on the municipalities that led and lagged in Compliance. In the commentary, I have also referenced the Treatment Periods as T1 and T2.

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[115] According to the California Planning Guide, a sphere of influence "designates the physical boundaries and service area of a city or special district" (*California Planning Guide: An Introduction to Planning in California*, 2005, p. 2) Under the direction of California's Local Agency Formation Commission, a municipality may control the land-use and zoning of unincorporated land that is adjacent to municipal boundaries and may be subject to future annexation.

[116] These opinions are based on my analysis of the City of Palo Alto's General Plan map. http://www.cityofpaloalto.org/civicax/filebank/documents/8188

Table 10: Five leaders and five laggards of Municipal Compliance

Rank	Region	Municipality	Overall Compliance (1990-2005)	Commentary (Treatment Periods: T1 = 1990-1997, T2 = 1998-2005)
1	LAX	Covina	0.00%	Covina completed its last housing element in 1984. No T1 or T2 housing element has been produced.
2	SAC	Loomis	0.00%	HCD did not find the T1 or T2 housing element statutorily compliant.
3	LAX	San Marino	0.00%	HCD did not find the T1 or T2 housing element statutorily compliant.
4	LAX	South Pasadena	0.00%	South Pasadena did not produce a T1 housing element. HCD did not find the T2 housing element statutorily compliant.
5	SAC	Isleton	6.25%	Isleton's T1 Housing element was compliant for one year (e.g., 2001). Isleton has not produced a housing element since that time.
48	SAC	Citrus Heights	83.33%	Citrus Heights incorporated in 2000 and much of its land is zoned for various densities.
49	SAC	Woodland	87.50%	Collectively, these municipalities are distant from Sacramento and had access to either undeveloped land or annexed land.
50	SAC	Lincoln	93.75%	
51	SAC	Auburn	100.00%	
52	SAC	Colfax	100.00%	In T1, Low and Moderate construction of family housing. In T2, aspiration of new construction.
53	SAC	Elk Grove	100.00%	Elk Grove incorporated in 2003 and much of its land is zoned for various densities.

5.2 RHNA ALLOCATION AND TOTAL CONSTRUCTION

Finding 3. In this sample, the collective categories of low-income housing did not exceed 42% of their overall RHNA allocations, yet the collective category of Above-Moderate achieved 112% of its overall RHNA allocation.

Finding 4. The sample achieved only 67% of its collective RHNA allocation.

In this section, Figure 8 synthesizes the relationship between RHNA allocation and Total Construction in a bar plot that illustrates the percentage achieved. Table 11 provides the collective data supporting these findings. And lastly, Table 12 provides commentary on the leaders and laggards of low-income housing production.

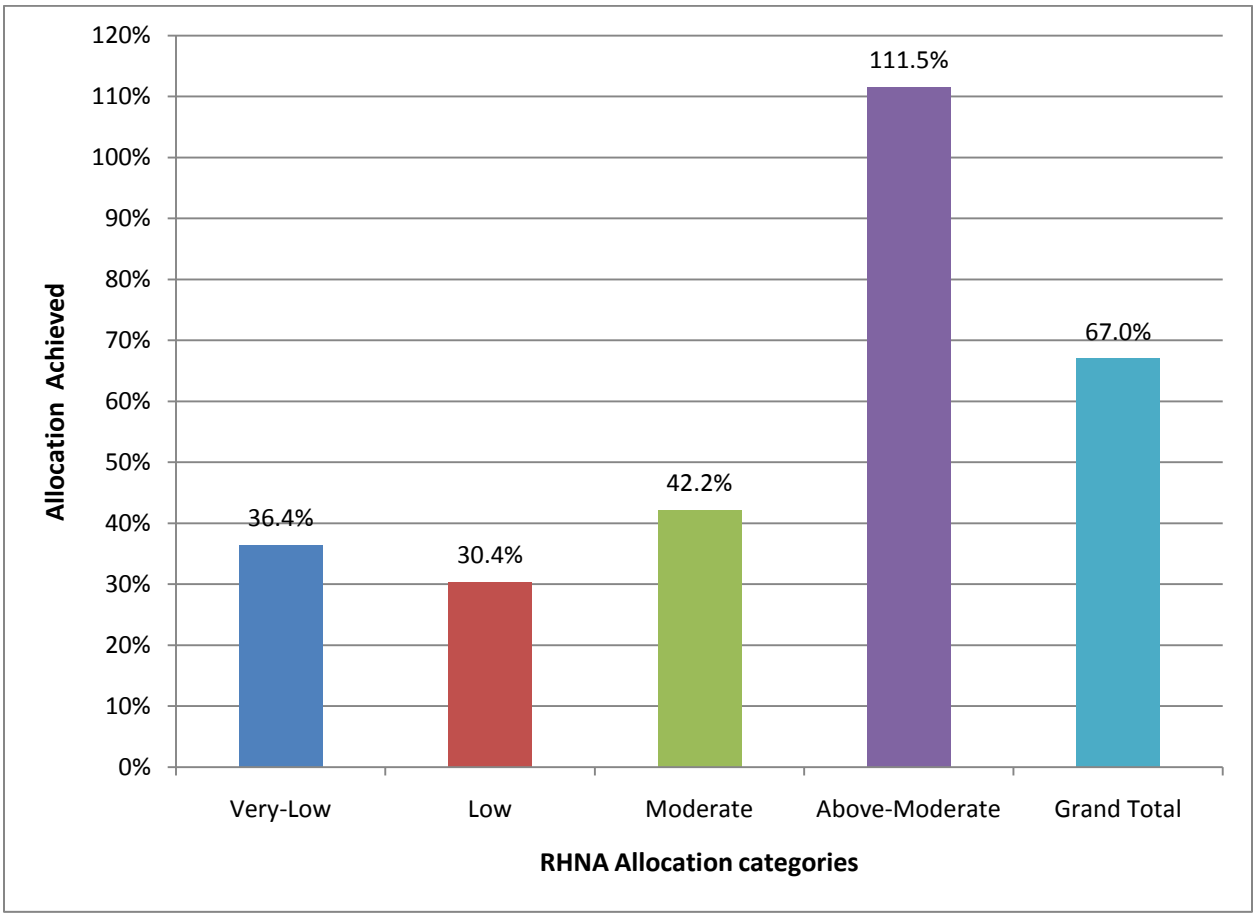

Figure 8: Overall RHNA Allocation by Total Construction

This figure display as a percentage of the sample's RHNA allocation (1990-2005, n=53)

Table 11: Overall RHNA Allocation by Total Construction (1990-2005, n=53).			
Income Category	Allocated	Constructed	% Achieved
Very-Low	70,711	25,753	36.4%
Low	71,629	21,774	30.4%
Moderate	72,422	30,562	42.2%
Above-Moderate	147,789	164,740	111.5%
Grand Total	*362,551*	*242,829*	*67.0%*

From the data in Figure 8 and Table 11, I note the following. The period of study spans 16 years and the failure of low-income housing construction speaks to the methodology and accuracy of regional forecasts that span 5-8 years, the weak link between municipal compliance and low-income housing production, and the difficulty of producing such housing without an permanent and consistent subsidy. The ability of Above-Moderate housing to exceed its collective goal (e.g., 111.5%) speaks to the interaction between the private sector and municipalities as well as the municipal preference for market-rate housing.

Finally, the overall achieved (e.g., 67%) says two things, and neither are positive. First, Landis et al.'s call for the annual construction of 220,000 housing units may not be realized for California. And second, the proportion of low-income housing to total housing inventory has exacerbated within this sample because the proportion of housing units initially allocated to low-income housing was approximately 59% (e.g., 214,762 of 362,409) of the sample's total allocation; yet, low-income housing constituted 32% (e.g., 78,059 of 164,740) of the sample's total construction. In essence, the proportion of low-income housing to market-rate housing has exacerbated over time (e.g. proof of third claim)

What follows is a table containing commentary on the municipalities that led and lagged in low-income housing construction. In addition, I have expanded the Treatment Period categories to include the post-treatment housing element (e.g., T3 – 2006-2014). In the subsequent discussion on Groups, I shall provide commentary on the ten leaders and ten laggards of Above-Moderate housing.

Table 12: Ten leaders and ten laggards of the low-income housing construction

Rank	City Name	Treatment Period (T1 = 1990-1997, T2 = 1998-2005, T3 = 2006-2014)	LIH % achieved	Commentary
1	Claremont	T2	0.00%	No NCSH reported in the T3 housing element.
2	Covina	T1	0.00%	No T2 Housing Element produced.
3	Covina	T2	0.00%	No T3 Housing Element produced as of Oct 2012.
4	Industry[117]	T1	0.00%	Industry has an active policy that discourages new residential housing construction.
5	La Cañada	T2	0.00%	No T2 Housing Element produced. The T3 Housing Element evaluates T1.
6	La Verne	T1	0.00%	No NCSH reported in the T2 Housing Element
7	Montebello	T1	0.00%	No T2 Housing Element produced.
8	Montebello	T2	0.00%	No T3 Housing Element produced.
22	Monterey Park	T1	0.00%	No NCSH reported in the T2 Housing Element
23	San Marino	T1	0.00%	No NCSH reported in the T2 Housing Element
94	Pomona	T2	143.75%	Pomona has an active Redevelopment Agency and the build out of Phillips Ranch.
95	West Covina	T1	172.39%	West Covina has an active Redevelopment Agency with low-income housing targeted to seniors (e.g., TIF and Density Bonuses).
96	Lincoln	T1	216.93%	The annexation of land for new development as guided by the Lincoln Crossings, Eastlake, and Twelve Bridges Specific Plans.
97	Bradbury	T2	225.00%	Bradbury was allocated 4 low-income units, yet 9 ADUs were constructed.
98	Auburn	T1	230.77%	MFR senior housing (60 units-Density bonus) and MFR subsidized housing (80 units).
99	La Puente	T1	241.73%	According to the T2 document, nearly 80% of the housing units constructed were "estimated" to be Low and Moderate income. A review of the T3 document indicates that La Puente's has four complexes of subsidized housing awaiting preservation. My analysis of the tax records[118] for those properties indicates that those properties were constructed prior to T1. Therefore, La Puente's units appear spurious.
100	Colfax	T1	255.56%	Colfax was allocated 27 low-income housing units. Two senior projects were completed (69

[117] As per the 2006 Housing Element, "Incorporated in 1957 for the purposes of promoting commerce, the City of Industry is unique. The City General Plan and Zoning Code designate no land for residential use; only a few units currently exist in the community and these are considered non-conforming uses" (*City of Industry 2006-2014 Housing Element*, 2007, p. 1).

[118] The County of Los Angeles Office of the Assessor, http://assessormap.co.la.ca.us/mapping/viewer.asp

Table 12: Ten leaders and ten laggards of the low-income housing construction				
Rank	City Name	Treatment Period (T1 = 1990-1997, T2 = 1998-2005, T3 = 2006-2014)	LIH % achieved	Commentary
				units).
101	La Verne	T2	255.81%	La Verne used a density bonus to create 110 Low and Moderate income MFR Senior housing.
102	Citrus Heights	T2	272.39%	As a newly incorporated municipality, low-income housing was required with new subdivisions (e.g., Stock Ranch subdivision).
103	San Marino	T2	800.00%	San Marino was allocated zero low-income housing units, yet 8 ADUs were constructed.
104	Placerville	T1	850.00%	Placerville was allocated 13 low-income housing units. A senior project of 102 housing units was constructed.

5.3 GROUP AND TOTAL CONSTRUCTION / RHNA

Finding 5. The Suburban group constructed more units than the Central City group (e.g., 122,077 units vs. 120,752 units), yet the Suburban group allocation was 40% less.

Finding 6. The overall Suburban group achieved 154.7% of its Above-Moderate allocation, as compared to 85.7% for the Central City group.

Finding 7. The Central City group constructed more housing targeted to low-income households (e.g., 42,791 housing units or 35.4% of overall comparison group construction) as compared to the Suburban group (e.g., 35,298 housing units or 29.2 % of overall Suburban group construction)..

In this section, Figures 9 and 10 synthesize the relationship between Group, Total Construction, and RHNA in bar plots that illustrates the percentage achieved and units constructed, respectively. Tables 13 and 14 provide the collective data supporting these findings. And lastly, Table 16 provides commentary on the leaders and laggards of Above-Moderate housing construction.

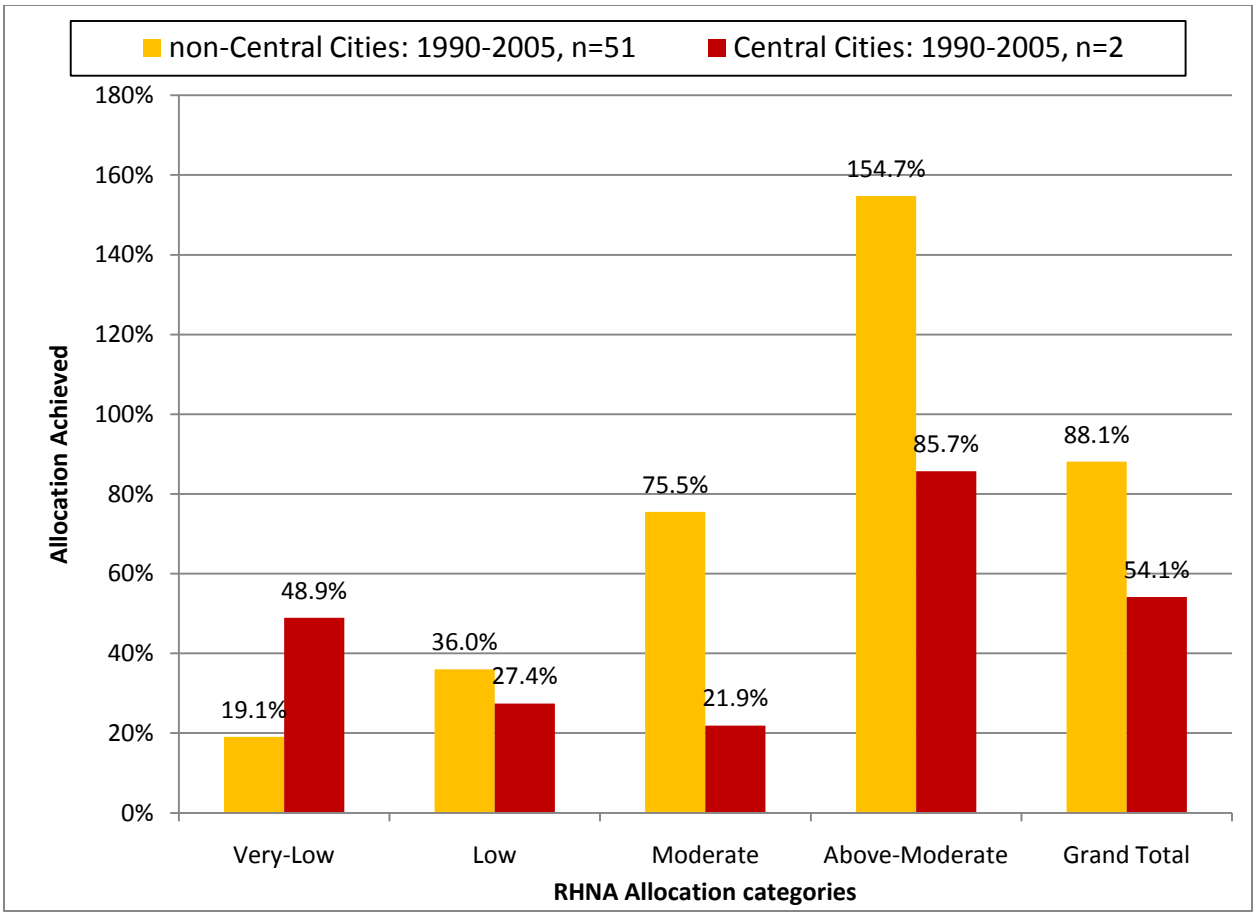

Figure 9: Total Construction (% achieved) by the non-Central and Central Cities (1990-2005, n=53).

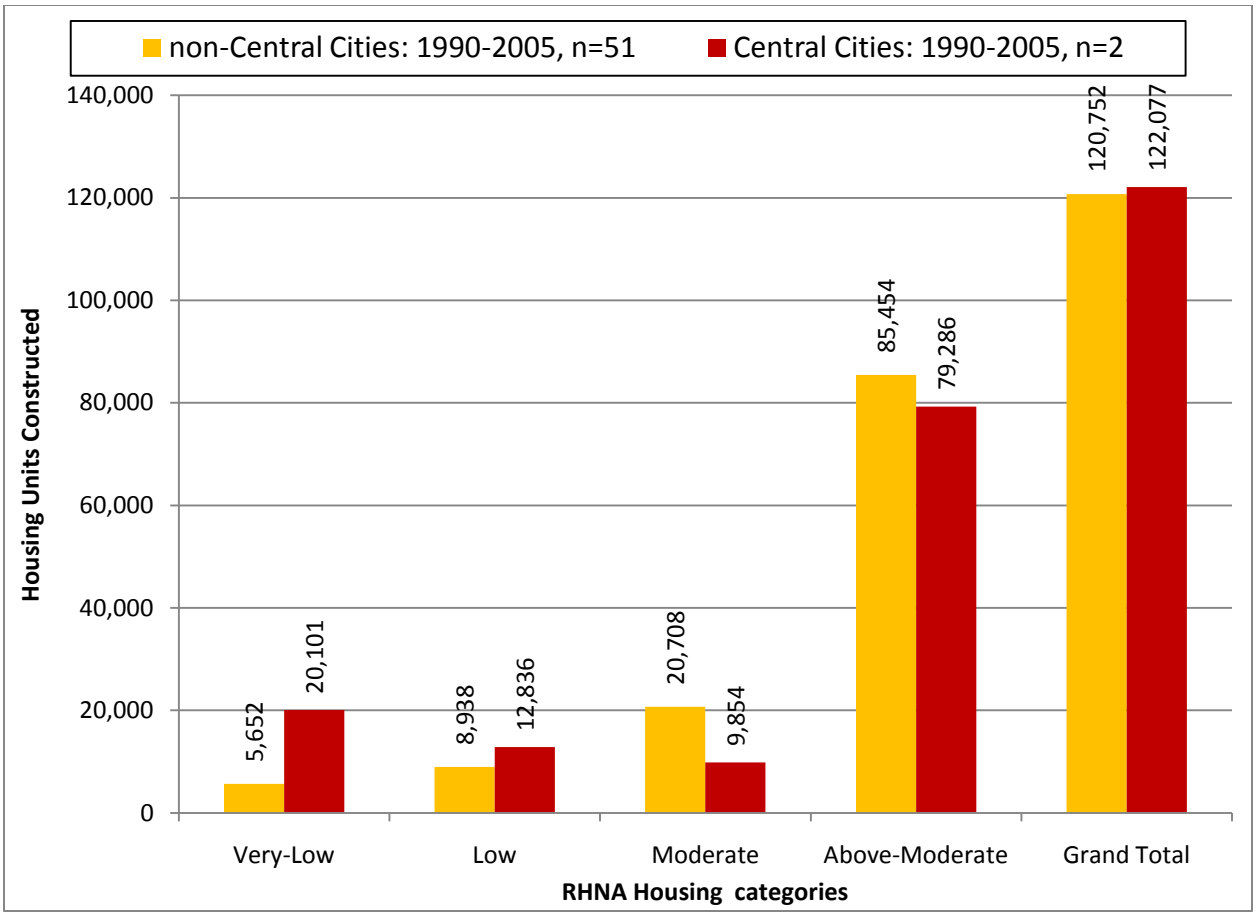

Figure 10: Total Construction (units) by the non-Central and Central Cities (1990-2005, n=53)

Table 13: Total Construction of the RHNA allocation for the Suburban Cities group (1990-2005, n=51)

Income Category	Allocated	Constructed	% Achieved
Very-Low	29,628	5,652	19.1%
Low	24,824	8,938	36.0%
Moderate	27,414	20,708	75.5%
Above-Moderate	55,241	85,454	154.7%
Grand Total	137,107	120,752	88.1%

Table 14: Total Construction of the RHNA allocation for the Central City group (1990-2005, n=2)			
Income Category	Allocated	Constructed	% Achieved
Very-Low	41,085	20,101	48.9%
Low	46,803	12,836	27.4%
Moderate	45,008	9,854	21.9%
Above-Moderate	92,548	79,286	85.7%
Grand Total	225,444	122,077	54.1%

From the data in Figures 9 & 10 and Tables 13 & 14, I note the following. Overall, the Suburban group constructed more units than the Central City group; however, the RHNA allocations for both groups were non-equivalent (e.g., methodology, units allocated), as the Suburban allocation required 40% less housing opportunities than the Central City allocation. This fact suggests two things: fair-share may be unfair and environmentally unjust if Central Cities are required to provide a higher proportion of low-income housing, and especially if that higher proportion concentrates such housing in poverty- or near poverty-level census tracts. In Table 15, I support the previous statements with the following municipal Population and Housing data for the Suburban and Central City groups and return to this in Chapter 7.

Table 15: Population and Housing statistics for 1990 and 2010 This table examines the difference between the Total Population and Total Housing Units for the Suburban and Central City Groups (n=51*).		
Category	Total Population	Total Housing Units
Suburban Group Municipalities 1990	1,954,609	578,322
Suburban Group Municipalities 2010	2,220,211	719,029
change	265,602	140,707
change as a %	***13.6%***	***24.3%***
Central City Group Municipalities 1990	3,842,500	1,453,438
Central City Group Municipalities 2010	4,580,953	1,612,757
change	738,453	159,319
change as a %	***19.2%***	***10.9%***

Source: California Department of Finance

**Citrus Heights and Elk Grove did not exist in 1990 and were excluded from this analysis.*

In Table 15, I examined the differences in Population and Housing growth between 1990 and 2010 for both the Suburban and Central City Groups. From this data, we can see that in the 21-year time span, the Central City group gained 19% in population, but only an 11% increase in housing. Whereas, the Suburban group gained only 14% increase in population, but also 24% in housing units. Furthermore, the Suburban group's percentage change in housing units was nearly 2½ times the change in housing units for the Central City group. In essence, population may have increased in the large cities, but more housing was constructed in the surrounding suburbs. Exclusionary land-use can explain this population/housing mismatch as the suburban housing constructed could only accommodate a smaller and wealthier households (e.g., see Finding # 6 – market-rate single-family residential).

On the other hand, should planners and advocates take satisfaction that low-income housing is being constructed at all, even if these units are located in the Central Cities? The data indicates that the Central City group (specifically, the City of Los Angeles) constructed a higher percentage of housing units targeted to Very-Low income households. This condition may be due to economies of scale since large cities may have better access to HUD funds, more sites for HUD/LIHTC projects, and less captive to NIMBYism—as such projects may be sited in areas of least resistance. For example, the City of Los Angeles had an active redevelopment agency and frequently tapped into the City of Industry's Housing fund (*City of Industry 2006-2014 Housing Element*, 2007 Appendix C, pgs 1-3)[119] and the Sacramento Housing and Redevelopment Agency (SHRA) executed the City of Sacramento's low-income housing efforts.[120]

Conversely, the Suburban group obtained higher achievement rates for Low and Moderate housing. I note that this achievement should be looked as a temporary measure. Most municipalities deemed such units as Low or Moderate units by "perceived" rents and sales prices rather than by

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[119] "To comply with Government Code requirements set forth in Section 65584.3 and in-lieu of constructing new housing units within the community, the City of Industry will continue to transfer 20 percent of its redevelopment tax increment funds ("housing set aside funds) to the Los Angeles County Housing Authority for construction of affordable housing within 15 miles of the City" (*City of Industry 2006-2014 Housing Element*, 2007, p. 31).

[120] Created under a Joint Powers Agency agreement on April 20, 1982 by the Sacramento City Council and Sacramento County Board of Supervisors, SHRA executes redevelopment agency and housing authority functions. http://www.shra.org/AboutUs.aspx

restrictive legal covenants. Therefore, the "perceived" Low and Moderate units may no longer remain affordable for low-income households in future years as rent and sales prices increase. Please see my commentary on La Puente's low-income housing production in Table 12 as an example of low-income housing units that may be "lost" to market-rate pricing (Yates & Wood, 2005, pp. 84-85).

And lastly, is it any surprise that the Suburban group exceeded their RHNA allocation for market rate units by 54%? This category also helps to explain how Suburban group catapulted over the Central City group in the total achievement of 88.1% to 54.1%.

What follows are two tables describing Above-Moderate housing construction. I present this analysis per housing element because summing the 16-year period of study would mask the differences in the RHNA allocations and the market conditions. In Table 16, I provide evidence for the first claim as 21% (22 out of 104) of municipal housing elements indicated that their Above-Moderate production was 2-3 times the allocation. There are two notable points supporting the first claim. First, of the 22 housing elements, 59% (or 13 of 22) are located within the Los Angeles region, but the remaining 41% (of 9 of 22) Sacramento housing elements constructed nearly 87% (or 64,444 of 74,296) of the market rate units in this subset survey. Second, this Sacramento subset constitutes nearly 40% (64,444 of 164,740) of the collective total for Above-Moderate production.

Table 16: Municipalities exceeding Above-Moderate by a factor of 2
Municipalities in which their Above-Moderate production was 2-3 times its RHNA allocation (1990-2005, Municipalities = 53, Treatments= 104).

Rank	Municipality	Treatment Period (T1 = 1990-1997, T2 = 1998-2005)	Above-Moderate RHNA allocation	Above-Moderate Units Constructed	% Achieved
1	Roseville	T1	2,643	19,300	730.23%
2	Diamond Bar	T2	76	522	686.84%
3	Pomona	T2	180	926	514.44%
4	Pasadena	T2	693	3500	505.05%
5	Monterey Park	T2	106	508	479.25%
6	Rocklin	T1	1,075	5,139	478.05%
7	San Dimas	T2	45	168	373.33%
8	Davis	T1	1,389	5,109	367.82%
9	Irwindale	T1	13	44	338.46%
10	Lincoln	T2	3,296	10,217	309.98%
11	Folsom	T1	2,853	8,735	306.17%

Table 16: Municipalities exceeding Above-Moderate by a factor of 2
Municipalities in which their Above-Moderate production was 2-3 times its RHNA allocation (1990-2005, Municipalities = 53, Treatments= 104).

Rank	Municipality	Treatment Period (T1 = 1990-1997, T2 = 1998-2005)	Above-Moderate RHNA allocation	Above-Moderate Units Constructed	% Achieved
12	Live Oak	T2	210	631	300.48%
13	El Monte	T2	415	1,200	289.16%
14	Temple City	T2	61	175	286.89%
15	Bradbury	T2	8	22	275.00%
16	Elk Grove	T2	4,568	11,987	262.41%
17	Rocklin	T2	1,227	3,136	255.58%
18	Loomis	T1	59	150	254.24%
19	Glendora	T2	119	300	252.10%
20	Azusa	T2	203	509	250.74%
21	Baldwin Park	T2	175	420	240.00%
22	Pomona	T1	792	1598	201.77%
Totals			**20,206**	**74,296**	**367.69%**

In Table 17, I comment on the municipalities that led and lagged in low-income Above-Moderate housing construction.

Table 17: Ten leaders and ten laggards of the Above-Market housing construction

Rank	City Name	Treatment Period (T1 = 1990-1997, T2 = 1998-2005, T3 = 2006-2014)	Above-Moderate % achieved	Commentary
1	Claremont	T2	0.00%	No quantified housing data reported in the T3 Housing Element evaluation.
2	Covina	T1	0.00%	No T2 Housing Element produced.
3	Covina	T2	0.00%	No T3 Housing Element produced.
4	Industry	T1	0.00%	Industry has an active policy that discourages new residential housing construction.
5	La Cañada	T2	0.00%	No T2 Housing Element produced. T3 Housing Element evaluates T1.
6	La Verne	T1	0.00%	No quantified housing data reported in the T2 Housing Element evaluation.
7	Montebello	T1	0.00%	No T2 Housing Element produced.
8	Montebello	T2	0.00%	No T3 Housing Element produced.
9	Sierra Madre	T1	0.00%	No T1 or T2 Housing Element produced.
10	South El Monte	T1	0.00%	No quantified housing data reported in the T3 Housing Element evaluation.

Table 17: Ten leaders and ten laggards of the Above-Market housing construction				
Rank	City Name	Treatment Period (T1 = 1990-1997, T2 = 1998-2005, T3 = 2006-2014)	Above-Moderate % achieved	Commentary
94	Folsom	T1	306.17%	This is not surprising as Folsom was sued in 2000 for its lack of affordable housing. As per its evaluation, Folsom "was explicit in rejecting mandatory housing programs such as inclusionary zoning land dedication… or a housing trust fund… [Folsom] saw itself as a 'facilitator of the private sector" (*City of Folsom, Housing Element Background Report*, 2002, p. 74)
95	Lincoln	T2	309.98%	The numbers are estimated as the T2 housing element indicated that Lincoln had difficulties producing MFR as developers and the municipality preferred low-density SFR.
96	Irwindale	T1	338.46%	The reason why this community had a high % Achieved is due to its low RHNA allocation—13 Market Rate units were allocated and 44 were constructed.
97	Davis	T1	367.82%	The City of Davis has a strict urban growth boundary in place and has consistently lowered its housing allocations from 1983 to present. However, Davis' actual production shows that entitlements for Moderate and Above-Moderate outpace its projections (*City of Davis Housing Element Update*, 1993, pp. 56, 59)
98	San Dimas	T2	373.33%	Like Pasadena, San Dimas has adopted a number of specific plans in order to redevelop Foothill Blvd and the foothills. As such, high production in T2 reflected active residential development in the hills adjacent to Cal Poly Pomona.
99	Rocklin	T1	478.05%	As per its 1992 Housing Element, Rocklin has 2,880 acres of land zoned for residential use and 3,000 acres within is sphere of influence. The answer is annexation (*City of Rocklin Housing Element*, 1992).
100	Monterey Park	T2	479.25%	Since the mid-1980s the community has received a high influx of Asian immigrants. As such, high production in T2 reflected the production of multi-family duplexes, townhomes, and condominiums.
101	Pasadena	T2	505.05%	The city has used the tool of specific plans to implement mixed-use and high-density housing in its downtown core.
102	Pomona	T2	514.44%	In the late 1970s, Phillip's Ranch was transformed into a master planned community

Table 17: Ten leaders and ten laggards of the Above-Market housing construction				
Rank	City Name	Treatment Period (T1 = 1990-1997, T2 = 1998-2005, T3 = 2006-2014)	Above-Moderate % achieved	Commentary
				of single-family housing. As such, high production in T2 reflected Philips Ranch build-out and an active redevelopment agency.
103	Diamond Bar	T2	686.84%	In the 1960s, the Diamond Bar Ranch was transformed into a master planned community of single-family housing. The high production in T2 reflected master plan build-out and impact of housing costs from neighboring Orange County.
104	Roseville	T1	730.23%	Roseville's T1 Housing Element was not available, however in its T2 population profile, the document acknowledged that Roseville's growth stemmed from Specific Plans as well as the following excerpt "The City's maximum number of new housing units remaining to be constructed on undeveloped residential land is projected at 8,420 with another potential 5,919 new multi-family housing units on undeveloped commercial parcels as of September 30, 2001" (*City of Roseville Housing Element 2002-2007*, 2002, p. 10 Table I on page 48)

5.4 TREATMENT PERIOD AND TOTAL CONSTRUCTION / RHNA

Finding 8. In this sample, the overall percentage achieved in Treatment Period 1 (50.98%) was lower than the overall percentage achieved in Treatment Period 2 (88.62%).

Finding 9. In this sample, the overall construction of Very-Low housing units decreased over time whereas the overall construction of Low, Moderate, and Above-Moderate housing units increased over time.

In order to understand the broader context of regional housing production, Figure 11 illustrates the national and regional annual housing construction and includes call-outs for significant events.

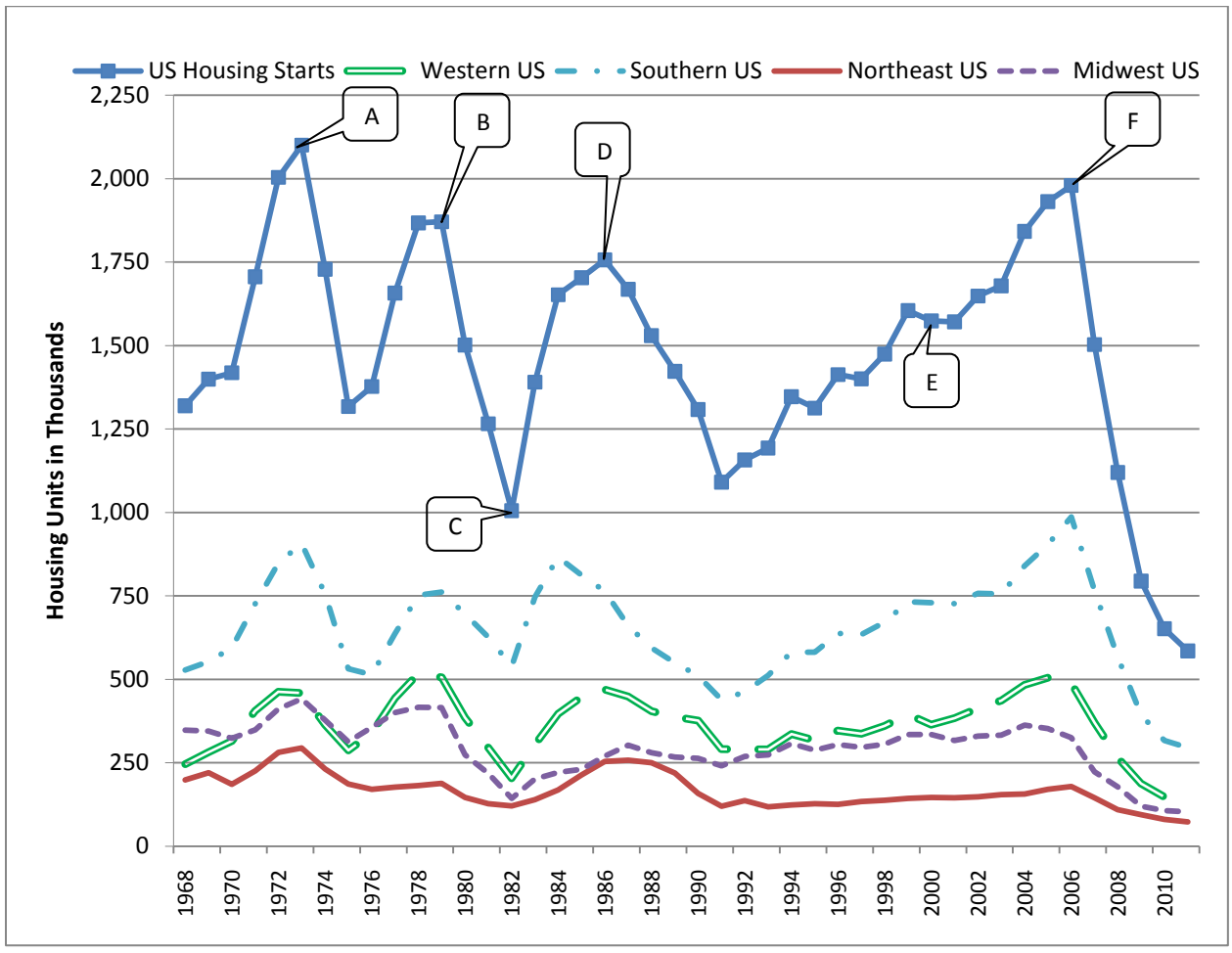

Figure 11: Housing Starts in the United States (1968-2011)

Source: US Census Bureau (*New Residential Construction, Completed*, 1968-2011).

In Table 18, I describe the world and national economic events and the subsequent shifts in national and regional annual housing starts that I identified as callouts in Figure 11.

Table 18: Significant international and national events

Call Out	Year	Commentary	Shift
A	1972	Arab Oil Embargo, Prime lending rate at 9.75% in major institutions	Down
B	1979	Iran Embassy Hostage crisis begins	Down
C	1982	Prime lending rate at its highest point, 20.5%	Upward
D	1987	Black Monday: Dow Jones Industrial average plunges 508 points, change in IRS laws regarding "passive loss" and income deductions for MFR construction	Down
E	2000	Technology stocks hit an all time high (NASDAQ hits record high of 5,048.62)	Upward
F	2007	World Economic crisis (Dow Jones industrial average down 416 points, biggest one-day point loss since 2001).	Down

Source: California Department of Finance. Chronology of Significant Economic Events http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/Chronology/chronology.htm

With the economic information presented in Figure 11 and Table 18, there were significant national reasons for the lower achievement rates in Treatment Period 1. Furthermore, the rate of housing starts for the western region (1990-2005) was less steep than the nation or southern region, but there was a continuous positive trajectory during the period of study. Under that context, I now provide Figure 12 that synthesizes the relationship between Treatment Period, Total Construction and RHNA in a bar plot that illustrates the percentage achieved. Tables 19 and 20 provide the collective data supporting these findings. In this section, I use the terms T1 (e.g., 1989-1997), T2 (e.g., 1998-2005), and T3 (e.g., 2006-2014) as reference to the Treatment Periods.

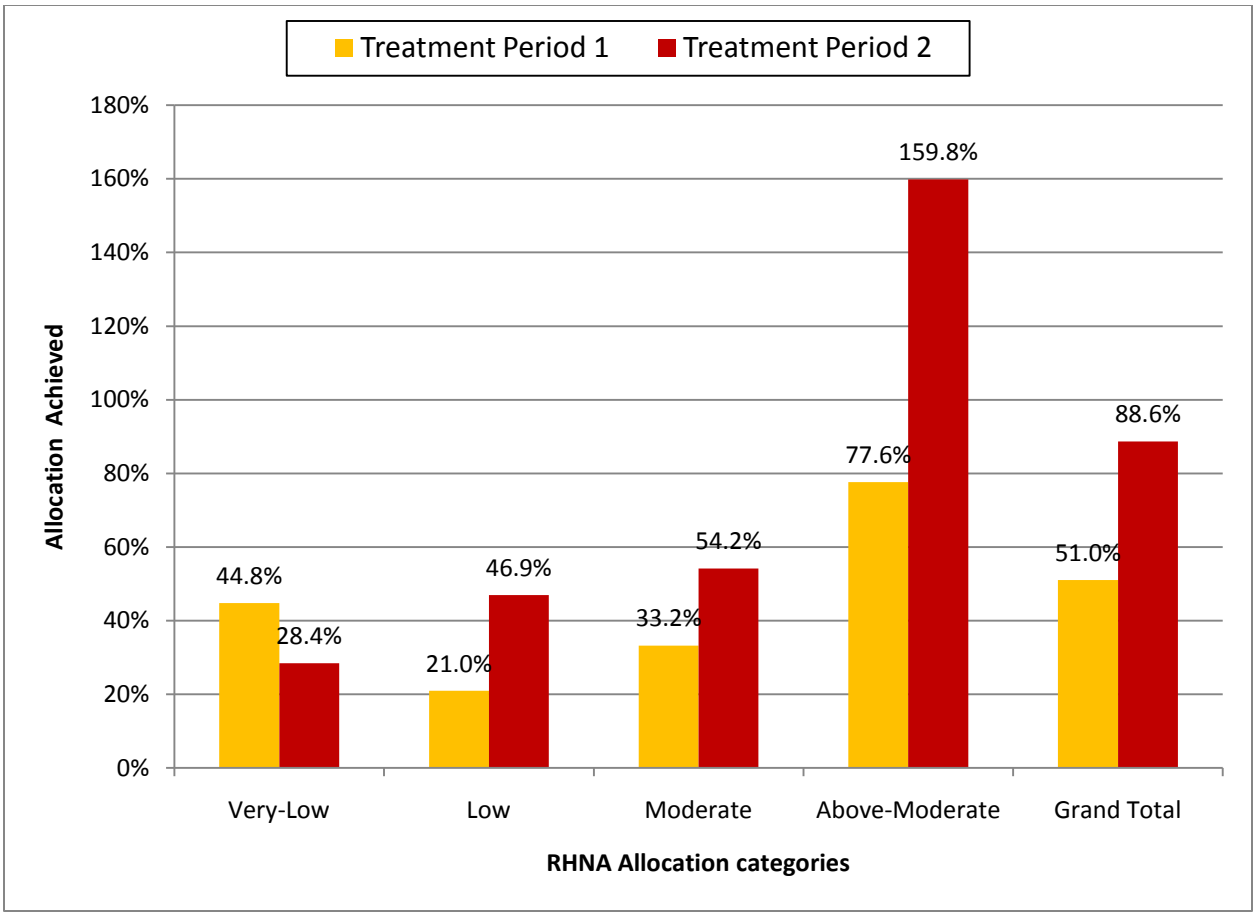

Figure 12: Total Construction (%) by Treatment Periods (T1 = 1990-1997, T2 = 1998-2005, n=53)

Table 19: Total Construction for Treatment Period 1 (1990-1997, n=51*)					
Income Category	Allocated		Constructed		% Achieved
Very-Low	34,578	58.3%	15,483	36.5%	44.8%
Low	45,615		9,567		21.0%
Moderate	41,313		13,710		33.2%
Above-Moderate	86,975	41.7%	67,532	63.5%	77.6%
Grand Total	208,481	100.0%	106,292	100.0%	51.0%

**Citrus Heights and Elk Grove did not exist in 1990 and were excluded from this analysis.*

Table 20: Total Construction for Treatment Period 2 (1998-2005, n=53)					
Income Category	Allocated		Constructed		% Achieved
Very-Low	36,133	60.5%	10,270	28.8%	28.4%
Low	26,014		12,207		46.9%
Moderate	31,109		16,852		54.2%
Above-Moderate	60,814	39.5%	97,208	71.2%	159.8%
Grand Total	154,070	100.0%	136,537	100.0%	88.6%

From the data in Figure 12 and Tables 19 & 20, I note the following. Overall, the achievement of T1 (50.98%) was much lower than T2 (88.62%). However, the higher proportion of construction of Very-Low housing units in T1, while still low, may have been due to the final years of expansive budgetary outlays by HUD and the municipal/construction industry desire for "any" housing activity. Whereas in T2, the economy has improved and therefore, low-income housing may have been harder to construct due to rising land and construction prices. In addition, with housing markets in better shape, municipalities may have exerted more discretion against non market-rate residential development.

In T1, at least 11 municipalities indicated that the low achievements were due to market failure and/or lack of subsidies. In addition, some municipalities questioned the validity of the RHNA allocations themselves. In fact, in Yuba City's T3 review of the T2 housing element, their private consultant stated (nine times) that the allocation was "too aggressive" (*Yuba City 2008 Housing Element Update*, 2009, pp. 47-54) Yet, during the period of study, Yuba City's overall compliance rate was 81.25% (e.g. Yuba City's compliance status for 13 of 15 years).

And no surprise, the achievement for housing units priced at Above-Moderate was good. In T1, the Above-Moderate category achieved 77% of its allocation, and for T2 this category achieved 159%. A quick glance back to Table 17 shows that these units were primarily concentrated in the Sacramento non-Central Cities. In fact, these tables provide evidence for the third claim as the proportion of constructed

market-rate housing to the constructed totals has increased from 63.5% in T1 to 71.2% in T2 and the proportion of low-income housing has decreased from 36.5% to 28.8%, respectively.

However, before I close this section there is one notable condition that requires commentary; the T2 RHNA allocation was nearly 50k or 26% lower than the allocation period Treatment period 1. As displayed in Table 15, the Suburban and Central City groups municipal populations experienced growth, yet the Suburban Group gained a larger gain of housing production. In addition, Figure 11 on Housing Starts demonstrates that in the western US, housing starts increased yearly from 1992 to 2007. Yet, the RHNA allocation in Treatment Period 2 shrank. In Figure 13, I illustrate the collective RHNA allocation for both periods as well as the collective Total Construction as documented by the housing elements.

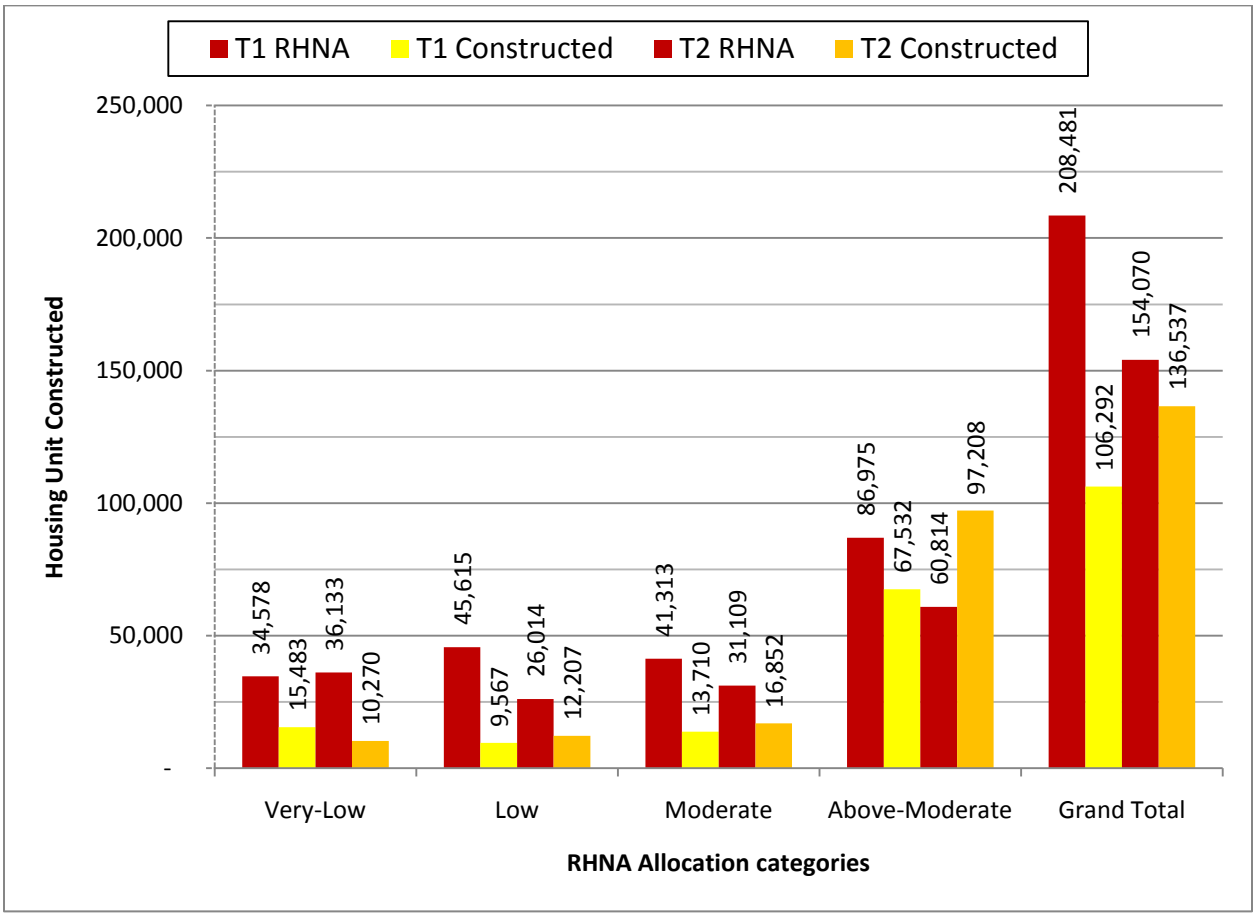

Figure 13: RHNA allocation and Total Construction (units) by Treatment Period
(T1 = 1990-1997, T2 = 1998-2005, n=53)

Figure 13 indicates that while the allocations for those regions decreased, regional housing production increased. One can note that the RHNA allocation for Very-Low did not significantly change between T1 and T2 (34K to 36K); however, the allocations of Low, Moderate and Above-Moderate decreased significantly (e.g., -43%, -24.7%, and -30.1, respectively). While I have stated that (a) COGs are free to devise the RHNA allocation under their own discretion, (b) RHNA allocations are non-equivalent, and (c) RHNA methodology is not a focus of this dissertation, the decreased change in the RHNA allocations skewed not only compliance, but also percentage achieved.

In my discussion of section 5.3's Group and Total Construction / RHNA, I hypothesized the unfairness of fair-share. As noted by Baer and Listokin, fair-share can be defined as a "redistributive policy or redirecting resources to benefit selective segments of society for equity concerns" or viewed as a means of control, where one "attempt[s] to manage growth rationally and equitably," (Baer, 2008, p. 52; Listokin, p. xvi). Therefore, one would expect that municipalities with many low-income households would receive a RHNA allocation less low-income housing than those municipalities containing few low-income household. To test this hypothesis, I plotted the 1990 RHNA allocations for Los Angeles County against Median Household Incomes for the subsequent municipalities. The results are surprising and located in the Chapter 7's conclusion.

5.5 REGION AND TOTAL CONSTRUCTION / RHNA

Finding 10. In this sample, both regions constructed similar amounts of housing units (e.g., Los Angeles region 114k, Sacramento region 128k), despite the fact that the Sacramento allocation was 40% less.

Finding 11. The Sacramento region achieved 166% of its overall allocation of Above-Moderate housing, whereas the Los Angeles region achieved only 78.3% of its overall Above-Moderate allocation.

In this section, Figures 14 and 15 synthesize the relationship between Region, Total Construction and RHNA as a percentage achieved and units constructed in bar plots, respectively. Table 21 provides the collective data supporting these findings.

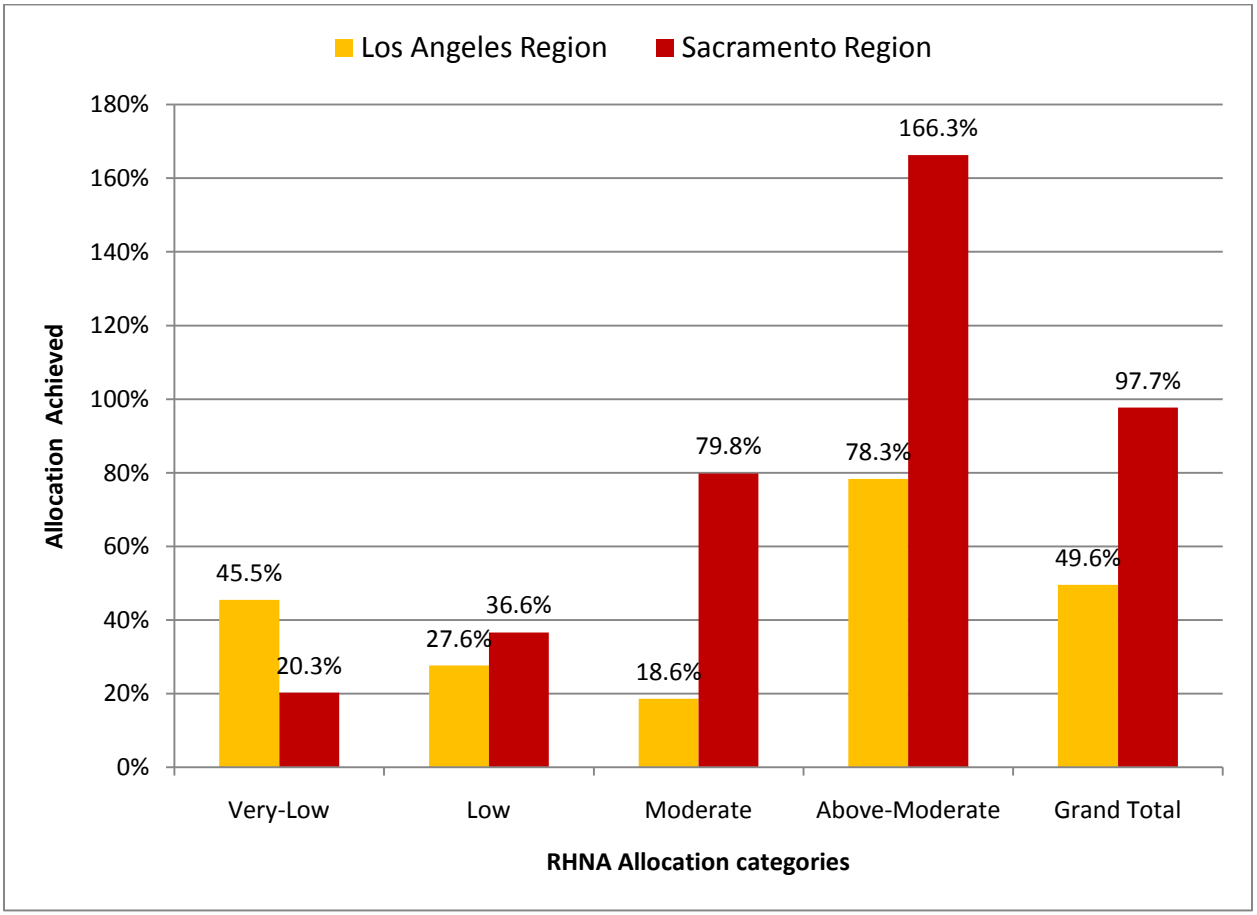

Figure 14: Total Construction (% achieved) by Region (1990-2005, n=53)

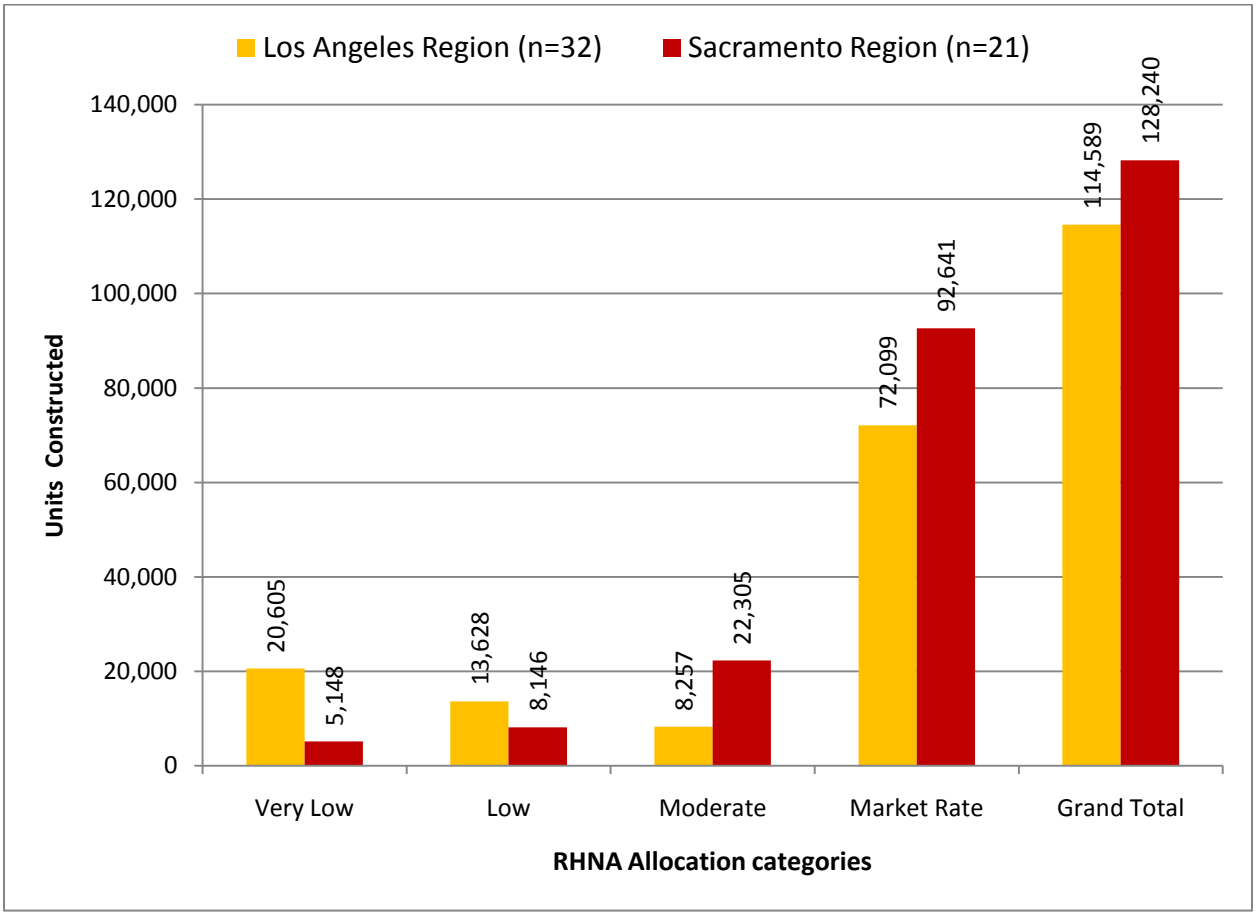

Figure 15: Total Construction (units constructed) by Region (1990-2005, n=53)

Table 21: Total Construction (units) in the Los Angeles Region (1990-2005, n=32)

Income Category	Allocated	Constructed	% Achieved
Very-Low	45,324	20,605	45.6%
Low	49,375	13,628	27.6%
Moderate	44,471	8,257	18.6%
Above-Moderate	92,086	72,099	78.3%
Grand Total	231,256	114,589	49.6%

Table 22: Total Construction (units) in the Sacramento Region (1990-2005, n=21)			
Income Category	Allocated	Constructed	% Achieved
Very-Low	25,387	5,148	20.3%
Low	22,254	8,146	36.6%
Moderate	27,951	22,305	79.8%
Above-Moderate	55,703	92,641	166.3%
Grand Total	131,295	128,240	97.7%

From the data in Figures 14 & 15 and Tables 19 & 20, I note the following. Even though both regions constructed comparable amounts of housing (114K to 128K), Sacramento achieved 98% of its collective goal while the Los Angeles region achieved only 49% of its goal. I find two reasons for this achievement differential. First, the Sacramento RHNA allocation was 43% less than the Los Angeles RHNA allocations. And second, the Sacramento municipalities have a tool that is largely unavailable to the hemmed-in urban Los Angeles municipalities, annexation. My sample has shown that it is far easier to provide new housing units via annexation of vacant land as opposed to re-zoning existing neighborhoods to a higher density.

In my initial analysis of the housing elements, I began with the Sacramento region documents and tried to track the 'available land' discussion with quantitative information. Unfortunately, this discussion within the sample of documents was not equivalent in terms of information presented *between* a municipality's T1 and T2 documents, or among documents with *within* a region, or documents *between* the regions. This slippage may be due to changes in the COGs allocation methodology, HCD's discretionary review of the housing elements, or an update of HEL. However, one objective from Lincoln's T1 housing element implementation program is memorable because it declared the municipality's aspiration for market-rate housing and it follows below:

> POLICY 7: To encourage and assist the construction of a variety of housing types with varying densities and prices, for both sales and rental, that are affordable to all income groups, particularly low income and special needs group.

Action 7d:	The City will continue to approve development that provides housing for Moderate and Above-Moderate income groups where consistent with the housing development and zoning ordinance.
Objective:	Approval of housing units for higher income groups.
Responsibility:	Community Planning Director, Planning Commission, City Council.

In plain English, I found a housing element that boldly advocated for high-income residents (*City of Lincoln Housing Element*, 1996, pp. 51-52). In chapter 3, I noted the building permit process that land developers pursued when constructing residential projects. Therefore, the key phase of "where consistent" is a bit spurious as land developers endeavor to reduce risk by proposing "consistent" housing projects in order to increase profit (Christensen; J. S. Johnson & Talen). Coincidently, Lincoln's achievement rates for low-income housing during the treatment periods were 217% and 60% (T1 and T2, respectively). In addition, Lincoln's housing elements were compliant 93.75% (15 out of 16 years).

5.6 MUNICIPAL TYPOLOGY AND TOTAL CONSTRUCTION / RHNA

Finding 12. In this sample, municipalities classified as Metropolitan High Commuting, Metropolitan Low Commuting, Micropolitan Core exceeded their collective allocation for Above-Moderate housing units—with Metropolitan High Commuting exceeding their collective allocation by 167%.

Finding 13. Municipalities classified as Metropolitan High Commuting exceeded their collective allocation for Moderate housing units by 49%.

Finding 14. Municipalities classified as Micropolitan Core achieved the highest percentages for Very-Low and Low income housing units (e.g., 59% and 88%, respectively).

In this section, Figure 16 synthesizes the relationship between RUCA classification, Total Construction and RHNA (as a percentage achieved) in a bar plot. Due to the multiple RUCA classifications and the context of municipal typology, one should not only separate municipalities by RUCA classification, but also by Region in order to observe the variation in the data. Due to space, I shall not provide multiple tables; however, the data is available in the Appendix table. In addition, I did not observe NCSH or housing production data for Rural Areas because there was only one municipality under that class (e.g., Isleton) and that municipality completed only one housing element. Therefore, I excluded Rural Areas (e.g., Isleton) from the proceeding analysis.

Let me review the six RUCA classifications used in this dissertation. In these classifications, the primary flow describes the percentage and direction of employment-related commutes.

1. Metropolitan core is defined as a primary flow within an Urbanized Area (UA).[121]
2. Metropolitan High Commuting is defined as a primary flow of 30% or more to a UA.
3. Metropolitan Low Commuting is defined as a primary flow of 10% to 30% to a UA.
4. Micropolitan core is defined as a primary flow within an Urban Cluster (UC).[122]

[121] An Urbanized Area (UA) consists of densely settled territory that contains 50,000 or more people. http://www.census.gov/geo/www/geo_defn.html#UR

5. Small Town core is defined as a primary flow within an UC of 2,500 through 9,999.

6. Rural areas are defined as a primary flow to a tract outside a UA or UC (including self).

[122] An Urban Cluster (UC) consists of densely settled territory that has at least 2,500 people but fewer than 50,000 people. http://www.census.gov/geo/www/geo_defn.html#UR

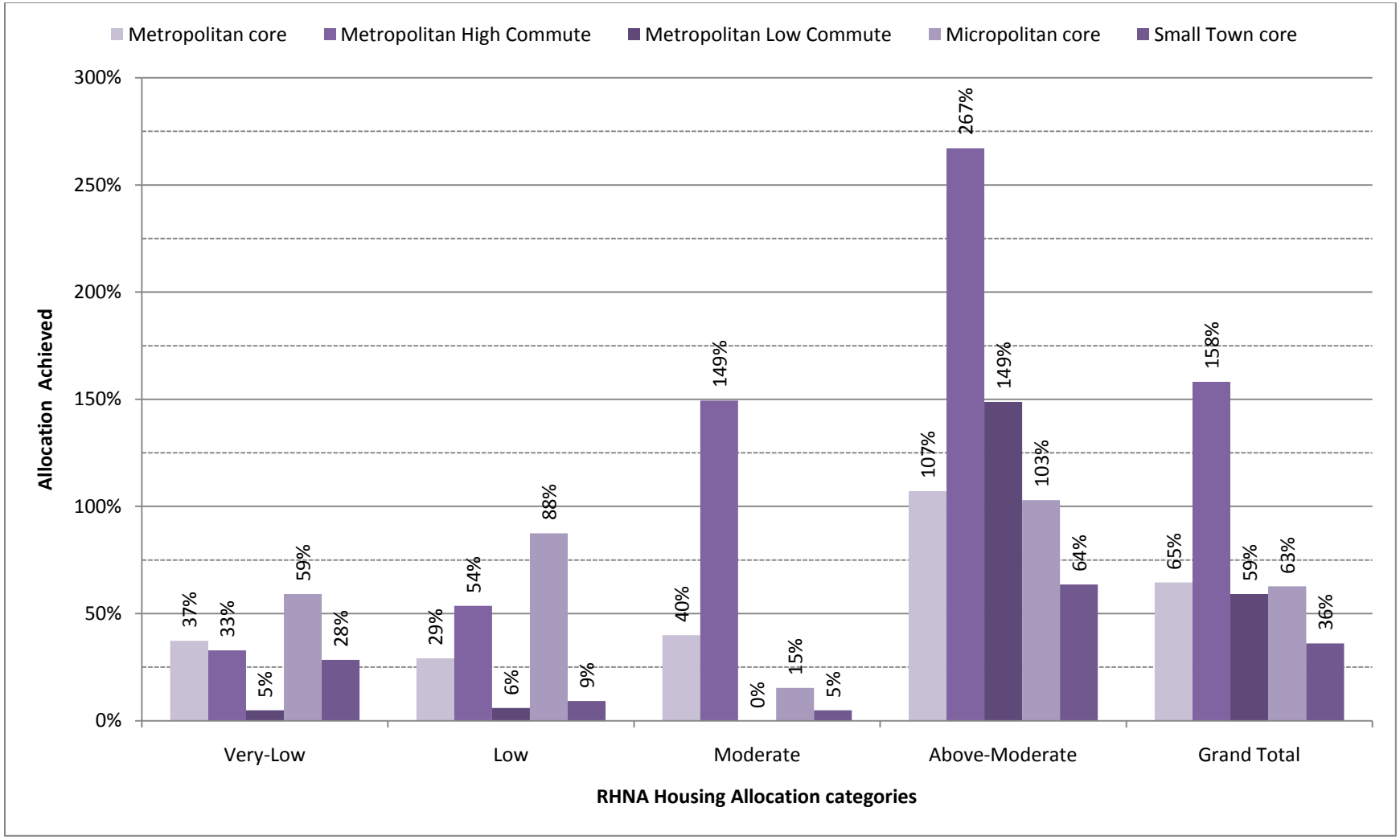

Figure 16: Total Construction (%) by RUCA codes

From the data in Figure 16, I note the following. Even though four of the six RUCA classes collectively exceeded their Above-Market goals, Metropolitan High Commuting robustly exceeded its collective goal. This may be due to the adjacency of this RUCA classification to the central city. Also, Metropolitan High Commuting obtained a higher achievement rate than the other classes for Moderate housing. The second notable point involves the Micropolitan municipalities. This RUCA class obtained higher percentage achieved for the Very-Low and Low RHNA categories and I attribute this to distance, which may signify lower land prices. The Micropolitan municipalities are Placerville and Woodland (e.g., 45 miles and 20 miles to downtown Sacramento via interstate freeways, respectively).

5.7 TREATMENT ADHERENCE AND TOTAL CONSTRUCTION / RHNA

Finding 15. In this sample, nearly 56% (or 58 of 104) of housing elements achieved a low-income housing efficacy rate of 25% or less.

Finding 16. In this sample, approximately 14% (or 15 of 104) of housing elements achieved a low-income housing efficacy rate of 100% or more.

In this final section, I examine the Housing Element Law under the lens of treatment implementation. In this analysis, I define Treatment Adherence as the *interaction* between RHNA allocation of Very-Low, Low, and Moderate and policies and programs described in the municipal housing element. I measure success as NCSH. In essence, did Treatment Adherence produce low-income housing? More importantly, how effective is each individual treatment (e.g., RHNA allocation) that HCD and COGs tailor to the unique spatial, population, and land-use conditions of each municipality? As I stated in the introduction, COGs (with input from HCD) delivered the treatments to the municipalities and municipalities received the treatments in their housing elements.

While this analysis is similar to Table 12 (e.g., the leaders and laggards of low-income housing production), the presented analysis disaggregates the municipalities into their Treatment Periods and speaks to HEL's efficacy as the State's prescription. In Figure 17, I present a synthesis of Treatment Adherence for each housing element in a bar plot.

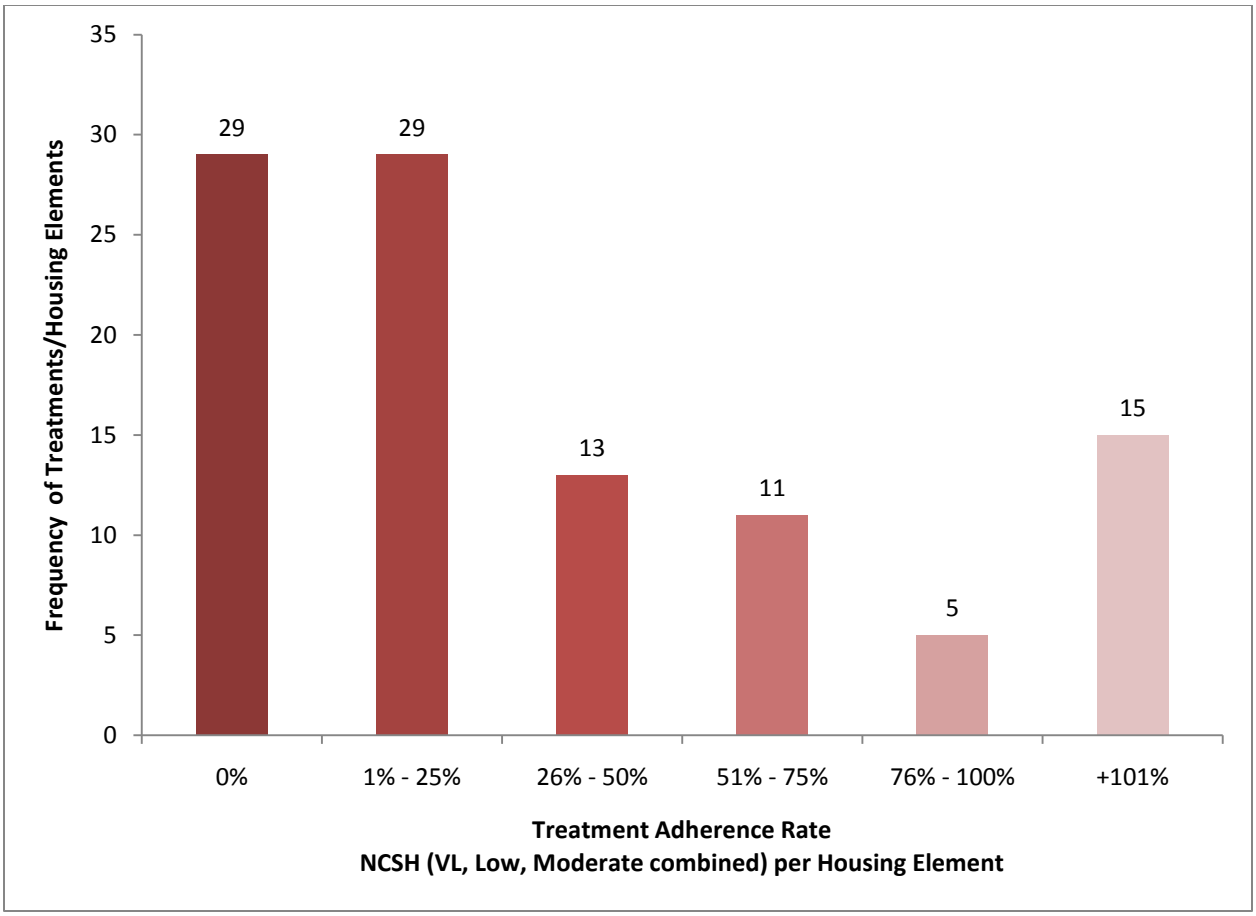

Figure 17: Treatment Adherence of Housing Element.

The Figure illustrates Treatment Adherence (e.g., interaction between the RHNA allocation and housing element programs and policies) on low-income housing production (1990-2005, municipalities = 53, Treatments per municipality = 2, n=104*)

As stated in my findings for this section, nearly 56% of all treatments yielded an efficacy of 25% or less and a scant number (approximately 14%) achieved the intended production of low-income housing. As researchers and policy analysts, we must ask, if such skewed efficacy rates are acceptable? I find that they are not. If we refer back to the declaration of the Housing Element Law, the State makes five findings regarding the importance of housing. Those findings are as follows:

a) The availability of housing is of vital statewide importance, and the early attainment of decent housing and a suitable living environment for every Californian, including farm workers, is a priority of the highest order.

b) The early attainment of this goal requires the cooperative participation of government and the private sector in an effort to expand housing opportunities and accommodate the housing needs of Californians of all economic levels.

c) The provision of housing affordable to low- and moderate-income households requires the cooperation of all levels of government.

d) Local and state governments have a responsibility to use the powers vested in them to facilitate the improvement and development of housing to make adequate provision for the housing needs of all economic segments of the community.

e) The Legislature recognizes that in carrying out this responsibility, each local government also has the responsibility to consider economic, environmental, and fiscal factors and community goals set forth in the general plan and to cooperate with other local governments and the state in addressing regional housing needs (Underline mine, "Govermment Code: The Housing Element Law,").

In this preamble to HEL, the State identifies housing for all economic segments and recognizes the local government responsibility. Yet, the efficacy rates presented in Figure 17 signal that there is a disconnection between the law's declaration and its continued implementation. Furthermore, a lack of data regarding housing production has glossed over this programmatic chasm. In 2004 and 2006, SCAG produced two reports on regional housing production. However, the reports used building permits as a proxy for housing production and permits do not accurately describe low-income production (e.g., the permit did not indicate low-income or market rate) or total production (e.g., permit issuance does not guarantee completion or occupancy) (Carreras; Luo).

Meier el al. would suggest that expansion of the evaluation metric may uncover exactly where in the lacuna occurs (2009, pp. 461, 464-465). At present, HCD evaluates HEL with a criterion metric (e.g., Compliance). In other words, did municipalities follow a process? What is needed to improve the evaluation of HEL is the addition of an outcome metric, such as enumeration of subsidized and market-

rate housing units. A more robust evaluation would ask (a) did municipalities follow the process, and (b) did their process produce housing for all economic segments within the municipality and region? If both answers are not positive, then not only should the municipality change its process (i.e., land-use policies, housing programs, general plan, zoning code, etc), but also the State much change HEL's framework, HCD must change its discretionary review, and COGs must change their allocation process.

A simple measure that would aide evaluation would be the requirement of side-by-side comparison of the RHNA allocation and then the subsequent housing units produced. This table must be contained in every municipality's Review of the Previous Housing Element. With that data, HCD, researchers, planning directors and housing advocates could clearly evaluate the efficacy of not only the treatment, but also the overall HEL implementation. I found an excellent example of such a table in the City of Diamond Bar's evaluation of its T1 housing element as illustrated in Figure 18 below:

Table 33: 1989-1994 RHNA, 1989 Housing Element Objectives, and Units Constructed during 1989-1997

Income Category	1989-1994 RHNA	Units Constructed 1989-12/1997
Very Low	117 (15%)	0 (0%)
Low	182 (23%)	0 (0%)
Moderate	144 (19%)	96 (41%)
Above Moderate	338 (43%)	141 (59%)
Total	781	237

Source: Development Services Department, City of Diamond Bar, September 2000

Figure 18: City of Diamond Bar comparison of RHNA Allocation and units constructed.
Source: (*City of Diamond Bar Housing Element,* 2000, pp. 5-2)

In close, these efficacy rates also speak to an issue inherent in Urban Planning evaluation in particular, but social science evaluation in general. At what threshold is a program successful? At what level is collateral damage acceptable? Is a program with a 65% success rate and 35% failure rate acceptable? Is a program with a 75% success rate and 25% failure rate acceptable? At this stage of my

research career, I do not have the answer, but I can state this. For the few California households who have secured quality and centrally located low-income housing, they are indeed lucky because the sample's observed rates of low-income housing production were dismal.

5.8 SUMMARY

In summary, I found that despite increasing annual compliance during the period of study, the sample's collective construction rates and percentage achieved for low-income housing were low, flat, or negligible, while the sample's collective construction rates and percentage achieved for market-rate housing were positive and exceeded its goal. Thus in this sample, compliance negatively affected low-income housing production and positively affected market-rate housing production. However, there are threats to this conclusion.

In my chapter on methodology, I outlined that Testing (e.g., HEL updates, document precision), Instrumentation (e.g., the interaction between the municipalities, private planning firms, and HCD), and Differential Subject Loss (e.g., no housing element, no quantitative review) may threaten this dissertation. I found that multiple municipalities did not produce a housing element (e.g., Montebello, Isleton, South Pasadena, Sacramento), multiple municipalities reported no NCSH constructed (e.g., Claremont, La Verne, San Marino), multiple municipalities either reported NCSH and ignored total housing production (i.e., NCSH and Above-Moderate combined), or multiple municipalities reported no units at all.

While these conditions did constrain the analysis (e.g., assignment of zero for NCSH), this constraint speaks to (a) HCD's criteria analysis of Compliance—HCD has little power to enforce municipal change, and (b) the larger implementation of HEL—zero has meaning. Zero denotes that a criteria based evaluation is an incomplete assessment as it evaluates process only. As HEL is currently written, the evaluation of units is not required for obtaining Compliance. This is the fundamental flaw; complete evaluation incorporates criteria (i.e., process) and proportion (i.e., units). As it stands, Compliance permits benign institutional neglect as operationalized within regional governance's isolated accountability.

Furthermore, there are larger issues that contribute to this conclusion. With the RHNA allocation process, I question the length of time (5- to 8-year) as regional markets shift and I question that SCAG's implementation of fair-share is unfair as it densifies low- and moderate-income municipalities and give high-income municipalities a pass. Regarding HCD, I question the validity and reliability of their annual reports to the Legislature, as a housing element is compliant, or not compliant: not in, out, due, in-review. I also wonder why the discretionary review doesn't require simple tables documenting the quantitative

comparison of the RHNA allocation to actual housing units constructed. Regarding the State and its influence on HEL, the lack of a penalty allows municipals to continue to implement policies, programs, and action that simply fail to transform housing opportunities to housing units.

In the event that these agencies mitigate these criticisms, another issue arises, success. Under a "comprehensive" evaluation, what constitutes success? Municipal completion of the process and construction of 25% of the allocation? Municipal completion of the process and construction of 50% of the allocation? Municipal completion of the process and construction of more than 75% of the allocation?

For the few households that secure such units, then the process is successful for them. However, what are levels of acceptable collateral damage? At this time, I do not have an answer for this; yet, I shall include this aspect in my long-term research career. Therefore, my working solution to Compliance's stifled creation of low-income housing is to "mend it, but don't end it" with the following reforms.

The State should amend the established intergovernmental processes, rather than create additional layers of bureaucratic process. This first step is a wholesale revision of HEL so that private consultants are no longer necessary for completion of a housing element. The second step is to mandate criteria and units as part of the Compliance evaluation. And lastly, a penalty comes in the form of sales taxes—the "actual" return of annual sales tax requires municipal completions of annual benchmarks. In the final chapter of this dissertation, I shall layout the who-what-when-where-how-and why of these reforms.

6.0 STATISTICAL FINDINGS

In my statistical analysis of HEL, I looked for significant relationships (|p<.05|) between a municipality's inventory of low-income housing, its annual housing production, and a vector of municipal conditions. Like chapter 5, I continued my collective approach (e.g., groups, regions, typology, etc.) as opposed to conducting a microanalysis on individual municipalities. Also in this chapter, I provided statistical evidence for the second claim (e.g., the negative relationship between growth and low-income housing) and the viability of the conceptual model (Basolo, 1999; Kotin & Peiser, 1997; Tiebout, 1956).

For research question 2 (e.g., *what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, and its inventory of NCSH?*), I limited the focus to "additions" to this inventory (e.g., "new construction" subsidized housing), not the quantity of housing units rehabilitated or preserved. For research question 3 (e.g., *what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, HCD compliance, and its annual production of housing?*), I combined single-family and multi-family residential units within Housing Production for two reasons. Due to the economies of scale, low-income housing units are usually constructed within multi-family projects (DeSantis, 2002, pp. 1, 9). Second, within the sample, there were municipalities in which exclusion of either housing type may result in a zero observation. Thus, I found that combining these housing types reduced a high preponderance of zeros within the Housing Production response variable.

For readers disinclined to sift through statistical analysis, I now provide a tight, focused, and robust answer for each question so that such readers can comprehend the big picture and continue to the summary of the each question. Thus for research question 2, I asked, *what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, and its inventory of NCSH?* I found that none of these concepts obtained a statistical relationship to a municipality's inventory of NCSH. However, other concepts such as Tax Revenues, State Transfers of funds, Municipal Area, Group, License Revenue, and quantity of Adjacent Cities influenced the new construction of subsidized housing. For example, as a municipality's Tax Revenues increased (e.g., property taxes), then the inventory of NCSH would decrease. Whereas, as monies transferred from the State increased (e.g., Motor Vehicle In-Lieu Tax, Gasoline taxes, Homeowners Property Tax Relief), NCSH

inventory increased. The same positive statistical relationship held for municipalities located in the Group, and Municipality Area.

For research question 3, I asked, *what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, HCD compliance, and its annual production of housing?* I found that Housing Demand and Existing Housing Supply maintained strong significant relationships to annual Housing Production, while the other concepts failed to do so. Due their collinear relationship, I can only state that as Housing Demand increased, Housing Production increased. Conversely, as the Existing Housing Supply increased, Housing Production decreased. I also found that Tax Revenues maintained a negative relationship to Housing Production (e.g., when Tax Revenues increased, Housing Production decreased). In addition, municipalities located in the Sacramento region can expect to have higher Housing Production than those located in the Los Angeles region. Similarly, municipalities containing Redevelopment Agencies will also have higher housing production than municipalities lacking such an agency.

For both associative tests, I found that Tax Revenues (primarily property taxes) and License Revenues (primarily business licenses and fees) maintained consistent statistical relationship to NCSH and Housing Production. In essence, rising property taxes *decreased* low-income and residential production, but rising business license revenues *increased* low-income and residential housing production. Furthermore, the findings of this analysis would caution against future studies in which the examined cases contain extreme values. For example, in the year 2000, the City of Sacramento issued more building permits than Davis, West Sacramento, Galt, Yuba, Placerville, Auburn, Winters, Woodland, Colfax, Loomis, Wheatland, Live Oak, Isleton, and Marysville combined. Furthermore, between the years of 1990-1997, the City of Los Angeles constructed nearly 5-times the amount low- income housing than the San Gabriel Valley cities and this had the effect of driving the entire model to central city conditions.

Yet even with these caveats, the following statistical analysis will improve and refine future research that seeks to examine municipal low-income and residential housing production with or without a statewide-unfunded mandate, such as California's Housing Element law.

6.0.1 WHY ELEVEN STEPS?

In the next paragraphs, I provide the three reasons (e.g., time, transformation, clarity) why I present the analysis in two separate sections (e.g., one eleven-step analysis for each research question). First, the period of study spans 18-years (e.g., 1990-2007) and contains two eight-year Treatment Periods (e.g., T1 = 1990-1997, T2 = 1998-2005). The response variable for research question 2, NCSH, represented multiple years of municipal effort and I could not disaggregate this data by year. As such, NCSH had one observation per treatment period, whereas the predicting data had one observation per year. Therefore, I transformed the annual prediction data into two observations per variable so that the prediction data aligned with the NCSH response data.

In Table 23, I provide an example of this time-oriented transformation with a selection of predicting variables (e.g., static values from dichotomous data, a proportional value for HCD Compliance data, mean values from ratio data) and the NCSH response variable.

Table 23: City of Alhambra annual data and its time-oriented transformation
This table illustrates city of Alhambra's annual data and the data's subsequent transformation into two observations (e.g., T1, T2): a constant measure for dichotomous data, a proportional measure for HCD Compliance data, and an average measure for ratio data.

City Name	Fiscal Year	Political Will	HCD Compliance	Housing Demand	Growth	Existing Housing Supply	NCSH
Alhambra	1991	1	1	82639	0.433402946	29751	
Alhambra	1992	1	1	83177	0.348658855	29893	
Alhambra	1993	1	0	83097	0.357418483	29935	
Alhambra	1994	1	0	83610	0.39802544	29968	234
Alhambra	1995	1	0	84373	0.377842463	29985	
Alhambra	1996	1	0	83965	0.404754986	29985	
Alhambra	1997	1	0	83871	0.439561789	29979	
Alhambra	*T1*	*1*	*.29*	*83533.14*	*0.394237852*	*29928*	*234*
Alhambra	1998	1	0	84081	0.43747513	29968	
Alhambra	1999	1	0	84488	0.445196179	29955	296
Alhambra	2000	1	0	85536	0.462172601	30048	

Table 23: City of Alhambra annual data and its time-oriented transformation

This table illustrates city of Alhambra's annual data and the data's subsequent transformation into two observations (e.g., T1, T2): a constant measure for dichotomous data, a proportional measure for HCD Compliance data, and an average measure for ratio data.

City Name	Fiscal Year	Political Will	HCD Compliance	Housing Demand	Growth	Existing Housing Supply	NCSH
Alhambra	2001	1	0	86806	0.448814379	30061	
Alhambra	2002	1	1	87848	0.432315775	30056	
Alhambra	2003	1	1	88713	0.471841208	30062	
Alhambra	2004	1	1	89432	0.468481813	30100	
Alhambra	2005	1	1	89929	0.318987631	30182	
Alhambra	*T2*	*1*	*.50*	*87104.13*	*0.435660589*	*30054*	*296*

Second, while both models contain similar predictor and control variables, the time-based transformation may have altered the distribution and statistical relationships between the response variable and the re-expressed predictor and control variables "as transformation in R requires more care and effort" (Kabacoff, p. 151). And regarding clarity, I suggest that an approach that elects to simultaneously discuss both research questions may only confuse the reader, but also the researcher and therefore, dilute the merits of the research and weaken the impact of the analysis (R. Johnson et al., 2007, p. 21, Table 5).

6.1 CONTEXT OF RESEARCH QUESTION 2

In the next subsection, I present the analysis of research question 2 (e.g., *what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, HCD compliance, and its annual production of housing?).* However, before I proceed with its 11-step analysis, let me provide the reader with an overview of the research design for this question.

- Period of Study: 1990-2007
- Treatment Periods: T1 = 1991-1997,[123] T2 = 1998-2005
- Units of Analysis: Municipalities located in Northern and Southern California.
- Sampling Frame: 53 municipalities
- Tested Sample: 47 municipalities[124]
- Groups: non-Central Cities (n=45) – suburban and rural municipalities
  Central Cities (n=2) – Los Angeles, Sacramento
- Response Variable: New Construction Subsidized Housing (NCSH)
- Predictor Variables: Conceptual Model (5 variables)
- Control Variables: Various Vectors (37 variables)
- Units of Observation: 2 observations per variable

[123] 1991 is the first year of electronic data from the California State Controller's office. Therefore, in the OLS Regression tests, the first Treatment Period begins in the year of 1991 and ends in 1997.

[124] Due to the time-oriented structure of the second research question and the examined control variables, I omitted the following municipalities from this analysis: Citrus Heights, Elk Grove, Loomis, Isleton, Placerville, and Sierra Madre. In my discussion of research question 2, I shall provide the rationale for these exclusions.

6.1.1 STATEMENT OF RESEARCH QUESTION 2

What is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, and its inventory of NCSH?

6.1.2 STATEMENT OF THE CONCEPTUAL MODEL

I conceptualize that the change in NCSH inventory is a function of a municipality's housing demand, growth, political will, existing housing supply, and subsidy.

6.1.3 OPERATIONALIZATION OF THE CONCEPTUAL MODEL

In chapter three, I provided a detailed analysis of the response and predictor variables (e.g., conceptual model). That discussion included the concept's definition, potential influence, units of measurement, and data sources. At this time, I simply note the response and those predictor variables, and I shall provide a discussion of the control variables. In addition, some control variables contained multiple measures (e.g., RUCA contains six dichotomous measures) and all vectors contained multiple variables (e.g., Municipal Finance contains 16 variables). Therefore, to clarify what constituted the "FULL" model, I include Table 24, at the end of this subsection. Table 24 will list the variable, its vector, and its codename as there are forty-two predictor and control variables that I tested for a statistical relationship with NCSH.

6.1.3A RESPONSE VARIABLE:

For Research Question 2, the *response variable* was NCSH. I measured NCSH as the amount of "new construction" subsidized housing identified in the Review of the Previous Housing Element for each municipality for Treatment Periods 1 and 2. Each municipality should have two observations of NCSH. As such, I eliminated Citrus Heights and Elk Grove from this statistical test since the observations for these municipalities were limited to Treatment Period 2. The exclusions were due to their dates of municipal incorporation (e.g., 1997 and 2000, respectively).

6.1.3B PREDICTOR VARIABLES:

For Research Question 2, the five-*predictor variables* (e.g., the conceptual model) are as follows.

(1) Housing Demand (e.g., the municipality's annual population),

(2) Growth (e.g., the returned sales tax as a proportion of annual municipal revenue),

(3) Political Will (e.g., General Law = 0, Charter = 1),

(4) Existing Housing Supply (e.g., the municipality's annual total of housing units), and

(5) Subsidy (e.g., No Redevelopment Agency = 0, Redevelopment Agency = 1).

6.1.3C CONTROL VARIABLES:

In this analysis, there may be factors outside of the conceptual model that also influenced the changes in NCSH inventory; therefore, I included the following *control variables* to reduce counterfactual claims and I sequestered these *control variables* in five vectors (e.g., Static, Adjacency, Municipal Finance, Population and Housing, and Municipal Effort).

VECTOR OF STATIC VARIABLES

The vector of static values contains six variables that are based on the research design or are time-invariant:

(1) Group (e.g., Central City = 0, Suburban = 1),

(2) Treatment Period (e.g., T1 = 0, T2 = 1),

(3) Municipal Region (e.g., LAX = 0, SAC = 1),

(4) Municipal Typology (e.g., six RUCA classifications, but four observations),[125]

(5) HCD Compliance (e.g., index of municipal years compliant / years in a treatment period),

(6) Municipal Area (e.g., square miles of the municipality, measured with current GIS data),

[125] In chapter 4, I explained the usage of the six RUCA classifications. However, due to Isleton's production of only one housing element and its continued non-submission of financial data, the RUCA classification for Rural Areas was un-observed in the descriptive and statistical analysis. In addition, Metropolitan Core operated as the base and "omitted" dichotomous variable.

VECTOR OF ADJACENCY

Owing to Tobler's First Law of Geography as well as Basolo's research on intercity competition, I used GIS data to account for any spatial effects (i.e., adjacency) on the response variable (Basolo, 1999; Tobler, 1970). The vector of adjacency contains the following three variables.

(7) Adjacent to Central City

Definition: *Adjacent to Central City* meant that a non-Central City municipality was spatially contiguous with its regional comparison city.

Influence: I hypothesized that *Adjacent to Central City* would have a positive influence on the response variable due to shorter commuting distances via public transportation. As argued by Glaeser et al., "public transport is inexpensive but slow. LeRoy and Sonstelie (1983) argue that low cash fixed costs but high fixed and marginal time costs make public transportation differentially attractive to the poor… [Whereas,] the group with the lower marginal cost of commuting should live further from the metropolitan work center" (2000, p. 3). In their analysis, the group that resides furthest from the central city is the rich.[126]

Units of Analysis: *Adjacent to Central City* was a dichotomous variable (e.g. yes / no). The data representing the Los Angeles region observations came from SCAG[127] and Los

[126] While I may use Glaeser et al.'s research as part of my adjacency analysis, I would like to the reader to be aware of a crucial omission in the framing of their study. I concede that the authors may be correct in assessing a syncretic relationship between the poor and public transportation, however, they fail to examine the antagonistic relationship between the rich and public transportation. The relationship is antagonistic because this public benefit is not sustainable solely on operating income (e.g., fares) but requires additional supplemental income (e.g., developer agreements, impact fees, tax subsidies) (Gomez-Ibanez, 1985; Graham, 1989).

For example, an examination of Milwaukee's regional transit agency formation would find that the wealthy suburban counties declined participation in the system (Anner, 1997) and an examination of Los Angeles MTA's construction of the Gold and Expo light rail lines would find that wealthy communities attempting to thwart regional transit (Lopez, 2007; "South Pasadena Residents Opposition To Gold Line Nuisances," 2003). I find that inclusion of such counterpoints may have changed the authors framing from "why to do the poor live in cities," to "how are poor households repelled from the suburbs."

[127] http://www.scag.ca.gov/mappingGIS.htm

Angeles County Assessor GIS data.[128] The data representing the Sacramento region came from SACOG,[129] El Dorado County,[130] Yolo County,[131] and Yuba County[132] GIS data.

(8) Adjacent Municipalities

Definition: *Adjacent Municipalities* reflected the number of municipalities (e.g., Central City, non-Central City, non-sample) that were spatially contiguous with the subject municipality. I did not include unincorporated county land in this measure because this dissertation did not observe county land-use.

Influence: I hypothesized that *Adjacent Municipalities* would have a positive influence on the response variable as numerous housing elements have noted that the subject municipality with either network, meet, or strategize with neighboring municipalities and/or regional agencies (e.g., public housing authorities, fair housing[133] councils, consortium of low-income housing providers, etc.,) in order to address low-income housing needs.

Units of Analysis: *Adjacent Municipalities* was a continuous variable (e.g., 0 to 29) in which I counted the adjacency between the municipalities once. Data sources were the same as *Adjacent to Central City*.

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[128] http://assessor.lacounty.gov/extranet/outsidesales/gisdata.aspx

[129] http://www.sacog.org/mapping/

[130] http://edcgov.us/DeptBlock.aspx?menuid=180&titleid=269&id=14709&terms=crummett

[131] http://www.yolocounty.org/Index.aspx?page=587

[132] http://gis.co.yuba.ca.us/data.html

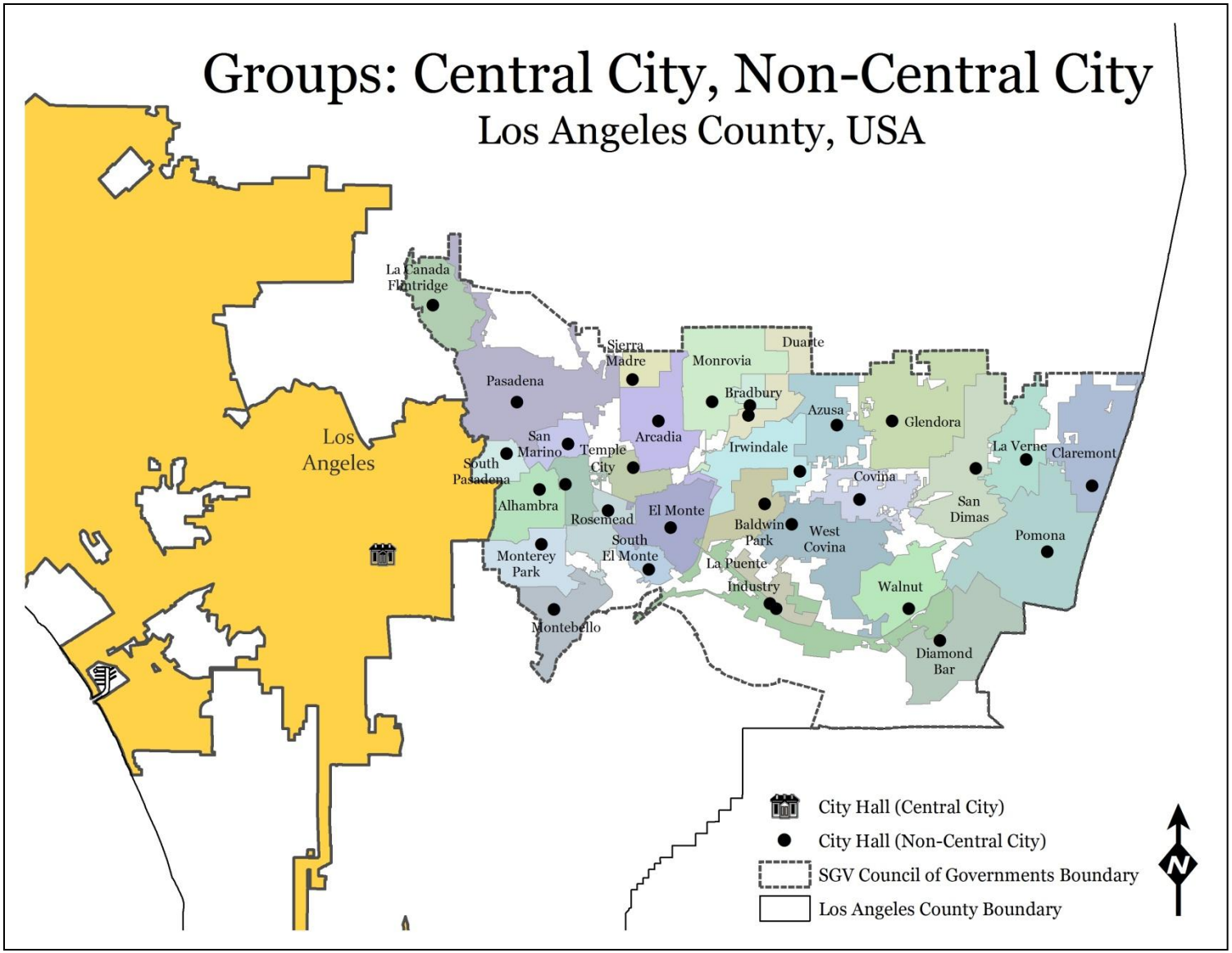
[133] Fair Housing councils implement the Fair Housing Act of 1968 act (amended in 1974 and 1988). This law provides the HUD Secretary with fair housing enforcement and investigation responsibilities and prohibits discrimination in all facets of the home buying process on the basis of race, color, national origin, religion, sex, familial status, or disability. Quite often municipalities will fund this activity with a portion of their CDBG funds. http://www.huduser.org/portal/glossary/glossary_all.html#f .

(9) Distance from Central City

Definition: *Distance from Central City* captured the spatial distance between the non-Central City and Central City city halls.

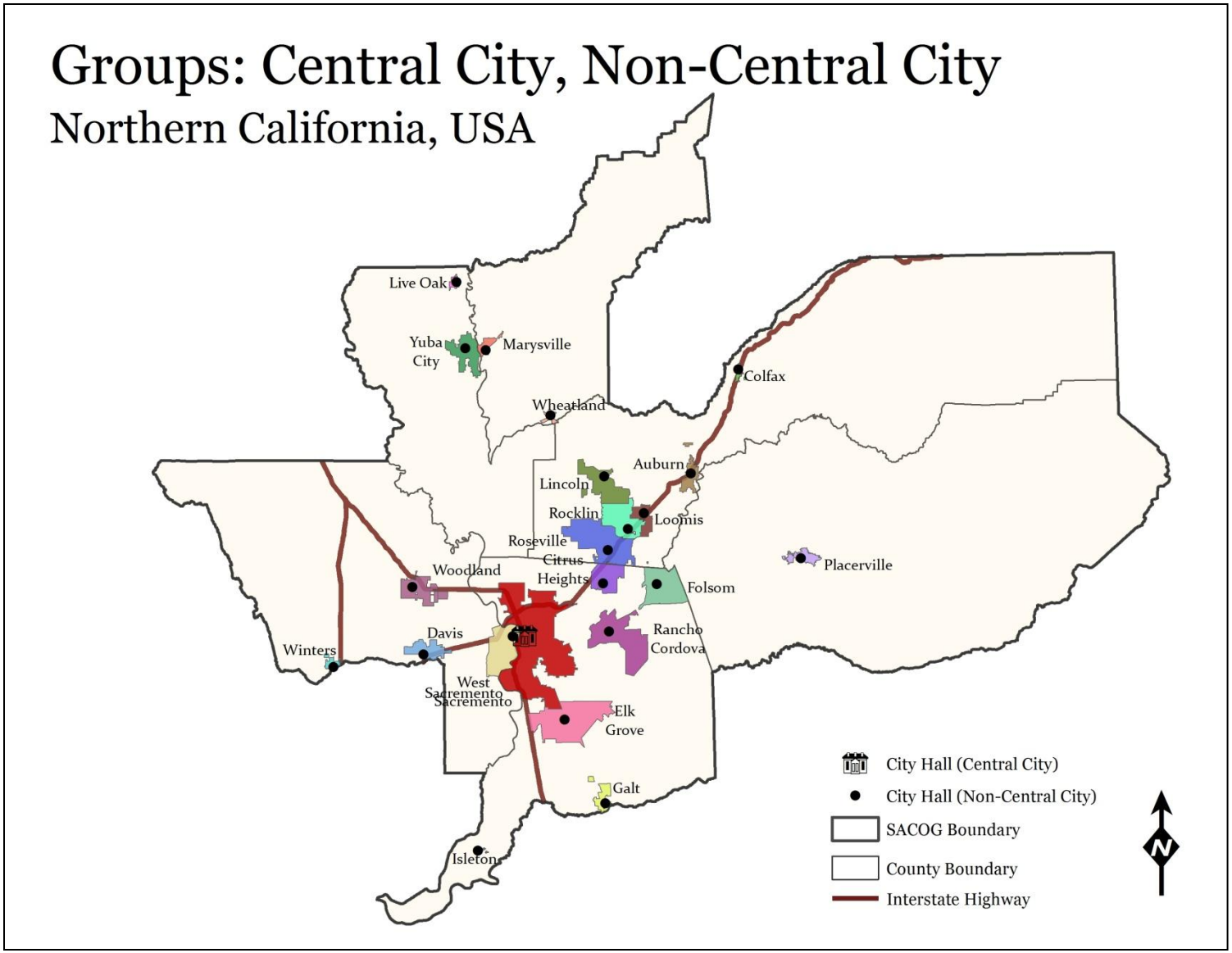
Influence: I hypothesized that *Distance from Central City* would have a negative influence on the response variable due to the low-density community character in suburban areas as typified in the Sacramento region. In my introduction, I noted that if a housing unit is affordable, then it may be too far from job centers, and also, during the investigation's time period, households may have commuted until they identified a community in which they could qualify for either rental or purchase of a housing unit (Ewing, 1997; Hanson et al., 2012). In addition, Glaeser et al., advised that any "examination of different metropolitan areas suggests a three ring model of urban location: an interior walking ring where rich people live, a middle public transportation ring where poor people live, and an exterior car ring where rich people live" (2000, p. 4).

Units of Analysis: *Distance from Central City* was observed as a continuous measure (e.g., meters). Because of street patterns and to reduce bias, I measured a straight-line distance (e.g. as the crow flies) between the respective city halls (e.g., distance between the city halls of Glendora and Los Angeles is 36322.433 meters). Please see Maps 9 and 10 as illustrations of this data. The data sources were the same as *Adjacent to Central City*.



Map 9: City Halls (Los Angeles region)

This map illustrates the locations of the San Gabriel Valley municipalities' city halls (non-Central City members) and the City of Los Angeles' city hall (Central City member).



Map 10: City Halls (Sacramento region)

This map illustrates the locations of the Sacramento region municipalities' city halls (non-Central City members) and the City of Sacramento's city hall (Central City member).

VECTOR OF MUNICIPAL FINANCE

Municipal Finance captured the fiscal decisions (e.g., annual budget) made by the City Council and City Managers of the sample municipalities. These decisions demarcated not only the revenues, expenditures, and transfers of funds, but also the "local power structure whose priorities set the limits within… the public budget" (Molotch, 1976, p. 309). The vector of municipal finance contained the sixteen variables and these variables reflected different aspects of each municipality's annual budget.

(10) Municipal Finance data

In this dissertation, I stratified these annual fiscal decisions into three categories:

(a) *Expenses* (e.g., General Administration, Public Safety, Transportation, Community Development, Health, Recreation & Culture, Total Net Expenditures),

(b) *Revenues* (e.g., Local Property Taxes, State Property Taxes, Exemptions, Tax Revenues, Licenses, Current Charges, Total Net Revenues), and

(c) *Transfers* (e.g., various transfers of State funds to municipalities).

Influence: In the problem statement, I argued that fiscally, municipal compliance inflames political will by requiring municipalities not only to identify a permanent funding source for low-income housing, but also to forgo potential revenue. Due to the complexity of the municipal data and its initial usage as a predicting dataset on housing, I did not advance a hypothesized influence on the response variable.

Units of Analysis: *Municipal Finance* was observed as a continuous measure (i.e., positive, negative, or zero dollars). The data sources for these fiscal variables came from California State Controller's Office (*Assessed Valuation Annual Report*, 1991-2008; *Cities Annual Report*, 1991-2008).

The reported financial data was voluntarily submitted by the municipal finance directors and was un-audited by the State Controller's Office. As such, I have omitted the

municipalities of Isleton, Loomis, Placerville, and Sierra Madre because of their continued non-submission of financial data. Furthermore, inclusion of this dataset meant that the first Treatment Period began in the year of 1991 as this was the first year of available electronic data. Subsequently, the OLS data for Treatment Period 1 was 1991-1997 (e.g., 7-years).

VECTOR OF POPULATION AND HOUSING

During my Sacramento fieldwork, I visually observed the variable land-use within the region and the extensive coverage of un-incorporated county land. These observations led to my "annexation" finding in chapter 5. In the California Department of Finance datasets in which I extracted Housing Demand and Existing Housing Supply, I also found the similar population and housing data for the county areas as well as additional municipal measures. Therefore, I included the following five variables as part of the vector of population and housing data.[134]

(11) Population and Housing data:

(a) Municipal Persons per Household (e.g., household population divided by the occupied housing units),

(b) Municipal Vacancy Rate (e.g., total housing units minus occupied housing units then divided by the total number of housing units multiplied by 100),

(c) County's annual population (e.g., the annual population of the county where the municipality is located),

(d) County Persons per Household (e.g., household population divided by the occupied housing units),

(e) County's Vacancy Rate (e.g., total housing units minus occupied housing units then divided by the total number of housing units multiplied by 100).

Influence: I did not advance a hypothesized influence on the response variable as this, to my knowledge, was the first time that this data has been used in this manner.

[134] Definitions provided by email from Douglas Kuczynski of the Department of Finance's Demographic Research Unit. http://www.dof.ca.gov/research/demographic/

VECTOR OF HOUSING ELEMENTS

In every housing element, the document contained the municipality's Policies, Programs, and Proposed Implementing Actions that are necessary to encourage the transformation housing opportunities into housing units. In my analysis of the housing element data, I captured the NCSH data, and when available, three additional measures that document municipal effort. These measures included the number of proposed implementing actions and the quantity of housing units proposed and achieved for rehabilitation and preservation.

(12) Housing Element data:

Definition: *Proposed Implementing Actions* were a declaration of municipality intent (i.e., zone changes, enacting an Inclusionary Housing Ordinance, establishing a network with other agencies, meeting with residential developers, holding workshops, submitting applications for state or federal funds, etc.) and effort (i.e., what the municipalities claimed that they would accomplish). In my sequential review of a municipality's housing elements, I found that the Policies, Programs, and *Proposed Implementing Actions* changed minimally (i.e., aspirational "templating") whereas the resulting NCSH and Housing Production changed radically.

Definition: *Rehabilitation* and *Preservation* were the quantities of housing units that were proposed for intervention, but more often than not, the intervention was reliant on contingent funding (e.g., Tax Increment Finance, state or federal grants, LIHTC, etc.).

While I have stated that rehabilited and preserved housing units are not the focus of this dissertation, it was possible to collect some of this information from a housing element's Quantified Objectives. I state "some" as not every municipal housing element's Quantitative Objectives transformed the RHNA allocation into the categories of new construction, rehabilitated and preserved. On the other hand, the "templating" of private consultant housing elements (especially those created by Cotton/Bridges/Associates) facilitated this task.

The vector of housing element data contains the following five variables.

(a) Actions Proposed (e.g., the number of proposed implementing actions contained in a housing element),

(b) Proposed Rehabilitation (e.g., the number of housing units proposed for rehabilitation),

(c) Achieved Rehabilitation (e.g., the number of housing units that received rehabilitation),

(d) Proposed Preservation (e.g., the number of housing units proposed for preservation),

(e) Achieved Preservation (e.g., the number of housing units that received preservation),

Influence: I did not advance a hypothesized influence on the response variable as this, to my knowledge, was the first time that this data has been used in this manner.

In Table 24, I provide a list of the FULL set of forty-two predictor and control variables. This table lists the variable, its code name, and vector.

Table 24: The forty-two variable "FULL" dataset of Research Question 2
This table lists the predictor (e.g., conceptual model) and control variables of the FULL model.

Row	Variable	Code Name	Vector
1	Housing Demand	h_demand	Conceptual Model
2	Growth	growth	
3	Political Will	p_will	
4	Existing Housing Supply	eh_supply	
5	Subsidy	subsidy	
6	Group	trt_grp	Static
7	Treatment Period	trt_period	
8	Region	region_id	
9	HCD Compliance	compliance	
10	Metropolitan High Commute	met_H	
11	Metropolitan Low Commute	met_L	
12	Micropolitan core	micro	
13	Small Town	sm_twn	
14	Municipal Area	city_area	
15	Adjacent to Central City	nn_cent	Adjacency
16	Adjacent Municipalities	nn_cities	
17	Distance from Central City	distance	
18	General Administration Expenses	exp_gengov	Municipal Finance
19	Public Safety Expenses	exp_pubsafe	
20	Transportation Expenses	exp_trans	
21	Community Development Expenses	exp_comdev	
22	Health Expenses	exp_health	
23	Cultural and Recreational Expenses	exp_cult	
24	Total Net Expenditures	city_net_exp	
25	Local Tax Assessment	local_assess	
26	State Tax Assessment	state_assess	
27	Tax Exemptions	exemptions_all	
28	Tax Revenues	rev_taxes	
29	License Revenues	rev_licenses	
30	Current Charge Revenues	rev_current	
31	Total Net Revenues	city_net_rev	
32	State Transfers	rev_state	
33	Municipal Persons per Household	city_pop_avg_per_hh	Population and Housing
34	Municipal Vacancy Rate	city_vcncy	
35	County Population	county_pop_tot	
36	County Persons per Household	county_pop_avg_per_hh	
37	County Vacancy Rate	county_vcncy	

Table 24: The forty-two variable "FULL" dataset of Research Question 2
This table lists the predictor (e.g., conceptual model) and control variables of the FULL model.

Row	Variable	Code Name	Vector
38	Proposed Implementing Actions	action_prop	Housing Element data
39	Proposed Rehabilitation units	qo_rehab	
40	Proposed Preservation units	qo_pres	
41	Achieved Rehabilitation units	ach_rehab	
42	Achieved Preservation units	ach_pres	

6.1.4 STATEMENT OF THE HYPOTHESIZED MODEL

The hypothesized regression equation for research question 2 (e.g., *what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, HCD compliance, and its annual production of housing?*) is as follows:

$$
\begin{aligned}
NSCH_{it} = \quad & B_0 + B_1*\text{Housing Demand}_{it} + B_2*\text{Growth}_{it} + B_3*\text{Political Will}_{it} \\
& + B_4*\text{Existing Housing Supply}_{it} + B_5*\text{Subsidy}_{it} + B_k*\text{Vector of Static data}_{it}, \\
& + B_k*\text{Vector of Adjacency data}_{it} + B_k*\text{Vector of Municipal Finance data}_{it} \\
& + B_k*\text{Vector of Additional Population and Housing data}_{it} \\
& + B_k*\text{Vector of Housing Element data}_{it} + e_{it}
\end{aligned}
$$

6.1.5 DATA TRENDS

The data for this regression test contains both raw dichotomous variables and time-oriented transformed continuous variables. Because the FULL model contains forty-two parameters, I have placed histograms and box plots in Appendix E. At this time, I provide Figure 19 that illustrates the response variable, NCSH, both raw and transformed (e.g., a square root) in box plots. In addition, I also separated the NCSH data by Region and Group in order to better display the data distributions as evidenced by the descriptive analysis in chapter 5.

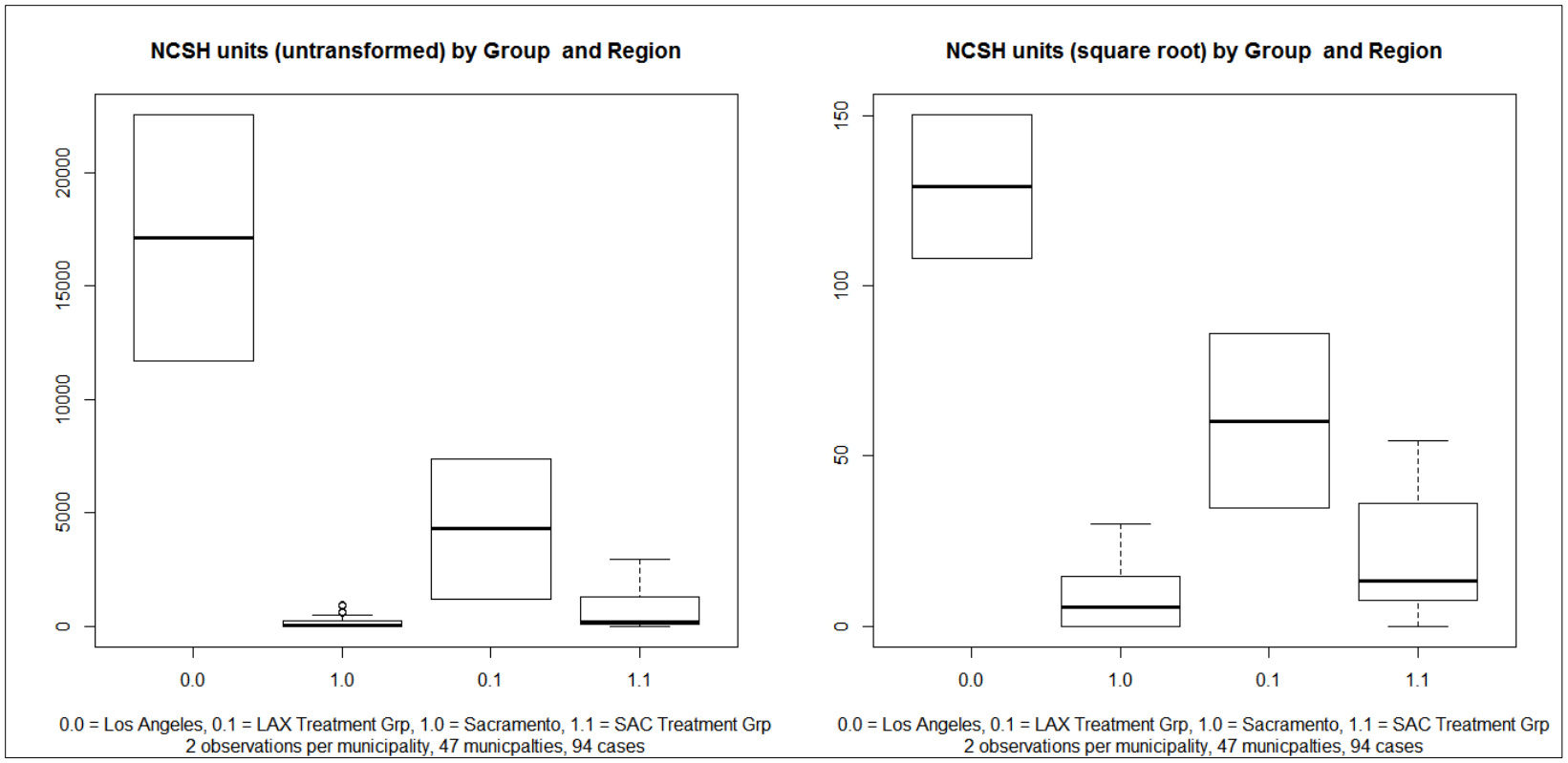


Figure 19: Box plots of New Construction Subsidized Housing (untransformed, square root)

Each box plot in this figure depicts the NCSH distribution as separated by Region and by Group (e.g., "#,#" respectively). In the left figure, the NCSH of the City of Los Angeles ("0.0") has two observations: 22,552 units in T1 and 11,674 in T2. In the right figure, the range of values for NCSH in the Sacramento region municipalities ("1.1") reflects a minimum value of 0.00, a 25% quartile of 2.289, a median of 9.484, a 75% quartile of 18.990, and a maximum value of 150.200.

6.1.6 IDENTIFYING THE ESTIMATING EQUATION

The selection of the estimating equation should reflect not only the "best fit" of the response and predicting variables, but also the aims of the research and the values of the researcher. Thus, there are five positions that informed my "best model" selection.

First, in my review of housing literature, I read many studies purporting to examine regional phenomena, but the findings did not link the regional effects to local efforts or call for future local studies to confirm the regional findings. Thus, the "FULL" dataset examined contains both regional and local municipal data. Second, the California's Departments of Finance and State Controller's Office data has never been, to my knowledge, employed in a housing investigation. While transformation of such data does take considerable effort, this data is quite informative for those persons seeking an understanding of the relationship between municipal policies, financial decisions, and housing.

Third, as a researcher, I conducted this investigation under the rubric of pragmatism—as I want to strengthen the ties between planning researchers and practitioners, and I sought meaningful interpretation of the results (e.g., statistical significance, $\propto = .05$). As such, I employed variables comprehensible not only to academics and planners, but also to housing advocates and the public. Fourth, I used OLS to find a simple and parsimonious equation realizing that no model is completely true, but some models are quite useful. And lastly, I tested data that will either confirm or refute my conceptual model, Lewis' previous examination of compliance, and my research aims.

In multivariate regression, the statistical significance of each predicting variables signifies that variable's importance when added or regressed last (e.g., ceteris paribus, or while holding the other variables constant). Therefore, I regressed all variables in the FULL model on NCSH to determine the number of statistically significant variables. In the FULL model 7.1% (or three of forty-two) of predicting variables were statistically significant ($|p< .05|$).

I then employed two subset methods to find a parsimonious model that has fewer predicting variables and has accurate results. The Akaike Information Criteria (Akaike) method "tries to balance the conflicting demands of accuracy (fit) and simplicity (smaller number of variables)" (Chatterjee & Hadi, p. 287). Akaike seeks a lower number of predicting variables, coupled with fit (i.e., each variable has a

statistical probability criterion of |p< .05|).[135] In this dissertation, Akaike tested the FULL model by penalizing excessive predicting variables (i.e., 42 variables vs. 41 variables, 41 variables vs. 40 variables, etc.) when each variable is "regressed" last. In the AIC model, 54.1% (or thirteen of twenty-four) of predicting variables were statistically significant (|p< .05|).

The LEAPS method operates similarly to the Akaike test, however, it is more robust as this method subsets variables by either exhaustive search (e.g., any combination of the variables), forward (e.g., adding variables to a model one-at-a-time), or backward (e.g., subtracting variables from a FULL model one-at-a-time).[136] In this dissertation, I employed the exhaustive method using the $\bar{R}^2$ (e.g., Adjusted Coefficient of Determination)[137] as my criterion. In the LEAPS Model, 100% (or eight of eight) of predicting variables were statistically significant (|p< .05|).

In Table 25, I provide an overview of statistics regarding the FULL, AIC, and LEAPS models. In this table, I list the primary tests that I applied to each model, given my research aims and the data selected. The bold figures indicate the best value for each criterion.

Table 25: Comparison of FULL, AIC, and LEAPS models on NCSH

Model	Subset Method	Predicting Variables	Residual / Fitted Plot	Akaike	R^2	$\bar{R}^2$	$\bar{R}^2 to\ R^2$ %	VIF < 10	VIF %
FULL	None	42	**Spread**	680.2	**0.9378**	0.8865	94.53%	17 of 42	40.5%
AIC	.05	24	**Spread**	**651.7**	0.9326	**0.9091**	97.48%	10 of 24	41.7%
LEAPS	$\bar{R}^2$	**8**	Packed	662.3	0.8989	0.8840	**98.89%**	**2 of 8**	**25.0%**

Based on the preliminary statistics listed in Table 25, I found that the LEAPS model was the best equation due to its lowest incidence of multi-collinearity in the predicting variables (e.g., 2 of 8 variables

[135] See Chatterjee and Hadi for a fuller explanation with AIC equations (Chapter 11).

[136] The Leaps Package manual: http://cran.r-project.org/web/packages/leaps/leaps.pdf

[137] The Adjusted Coefficient of Determination or $\bar{R}^2$ "tries to adjust for the unequal predicting variables in linear regression models" (Chatterjee & Hadi, p. 62).

or 25%), its highest proportion of adjusted $\bar{R}^2$ to R^2[138] (98.94%), and the minimal differences between Akaike and $\bar{R}^2$ statistics between the AIC and LEAPS models. The advanced LEAPS estimating equation is as follows:

$$\widehat{sqrt\ NCSH} = 253.7 + 77.16*\text{Group} + 1.776*\text{Adjacent Municipalities} + .6223*\text{Municipal Area} + .00000001055*\text{Exemptions} - .0000004187*\text{Tax Revenues} + .000003014*\text{License Revenues} + .000001729*\text{State transfers} - 511.0*\text{County Vacancy rate}$$

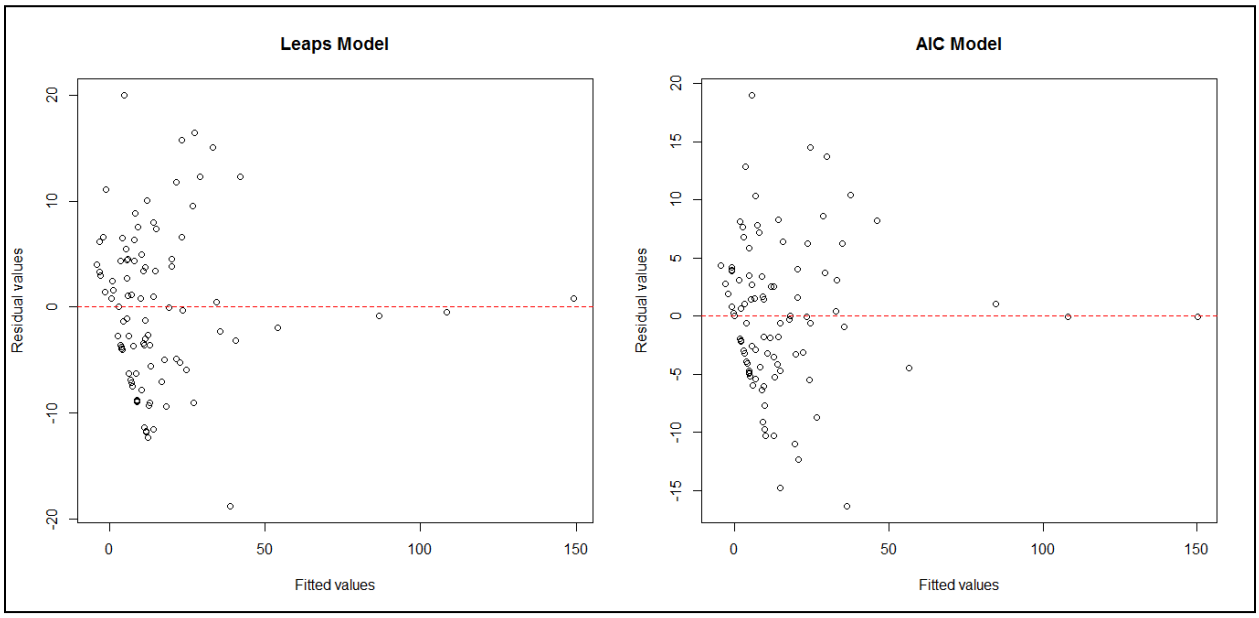


Figure 20: Comparison of Residual Errors plots of the LEAPS and AIC models on NCSH.

Visually, the residual errors over fitted values plot reveals a difference in the spread, but not shape (please note that I do not present the FULL residual errors plot as it is virtually the same as the AIC plot). In Figure 20, one can see the difference in the points' density. In the AIC model, the points are more spread than those of the advanced LEAPS model. This dispersion may be indicative of the differences in parsimony, F statistics (|p< .05|), which indicates the likelihood of predicting variables that are not zero

[138] A Coefficient of Determination is a measure of goodness of "fit" for a regression model based on the ratio of explained variation to total variation in the response variable (e.g., SSR/SST) (Meier et al., p. 533)

(e.g., LEAPS: $F_{.05,8,85} = 2.05$. F-statistic: 89.56; AIC: $F_{.05,20,73} = 1.71$. F-statistic: 39.77), and the Sums of Squares due to Error.

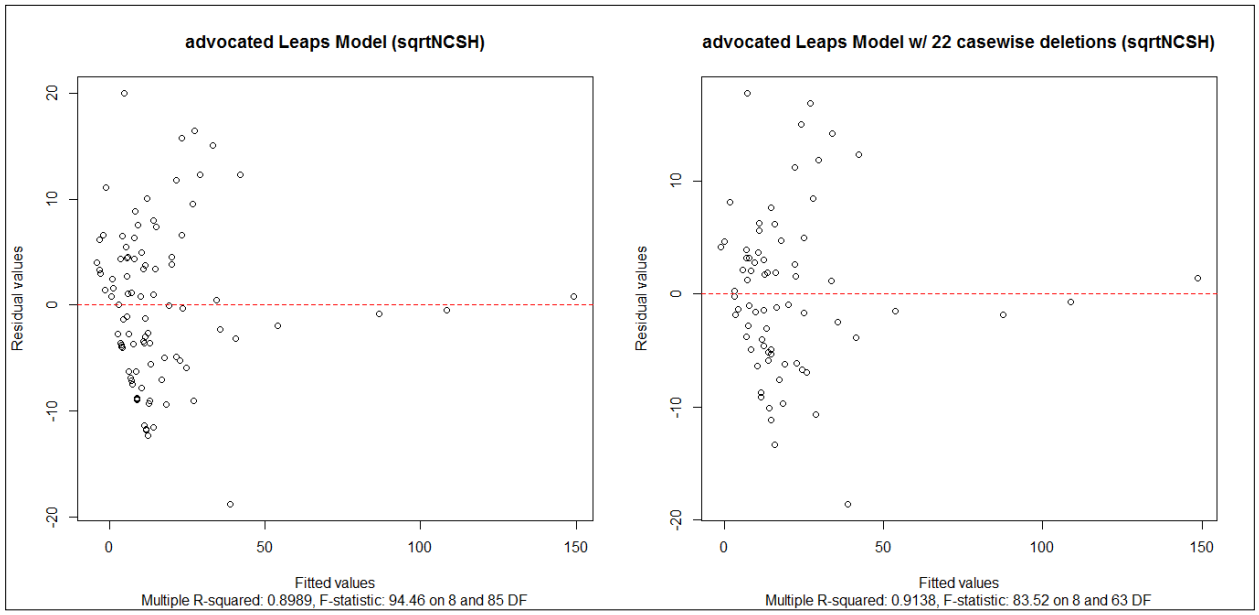


Figure 21: Comparison of advanced LEAPS model and expunged LEAPS on NCSH.

The first image illustrates the advanced LEAPS model with 94 cases. The second image illustrates the LEAPS model with 22 case wise deletions (e.g., municipalities in which NCSH = 0).

In addition, one may also think that both the LEAPS and AIC models contain non-constant variances. They do, but not in the manner, one would expect. The sharp downward line (from left to right) indicates municipalities with zero values for NCSH (n=22). In Figure 21, I have forced out the municipalities with NCSH values of zero to highlight the distribution of zeros. In the LEAPS Model w/ 22 casewise deletions, the sharp line of negative observations is not as pronounced. In addition, the expunged model achieves a higher R^2, but a lower F-statistic. The statistics suggest a better fit; however, at the expense of omitting municipal data. Later in this section, I shall discuss the non-constant error variance when I address the model assumptions.

And finally in Table 26, I present a statistical listing of the predicting variables of the FULL, AIC, and the advanced LEAPS models (e.g., code name, parameter estimate, and p-value). One should note how the predicting variables identified in the LEAPS models, became more statistically significant as the

estimating parameters reduced from the FULL (e.g., 42), to the AIC (e.g., 24), and to the LEAPS (e.g., 8) models. The LEAPS parameters are in bold. In addition, is eight predicting variable sufficient? In the summer of 2012, I employed Principal Components and Factor Analysis to the FULL dataset, and both tests indicated a maximum of eight predicting variables, but not “which” predicting variables.

Table 26: Parameter Estimates for the FULL, AIC, and LEAPS models.

In this comparison of the FULL, AIC, and LEAPS models, the LEAPS model provides the best estimating equation for explaining variation of the square root of NCSH.

	FULL model		AIC model		LEAPS model	
Variable	Estimate	Pr(>|t|)	Estimate	Pr(>|t|)	Estimate	Pr(>|t|)
(Intercept)	**1.200e+02**	**0.7931**	**-1.521e+01**	**0.869704**	**2.537e+02**	**2.16e-06 *** **
trt_grp	**6.931e+01**	**0.1874**	**9.702e+01**	**2.83e-06 *** **	**7.716e+01**	**2.27e-08 *** **
trt_period	-4.341e+00	0.4812	-3.483e+00	0.208169		
region_id	6.086e+01	0.3435	7.234e+01	0.024456 *		
met_H	5.014e+00	0.3569				
met_L	5.250e+00	0.5419				
micro	2.960e+00	0.7116				
sm_twn	-1.105e+00	0.8745				
p_will	-3.626e+00	0.2547	-3.778e+00	0.116274		
subsidy	2.003e+00	0.6958				
nn_cities	**2.634e+00**	**0.0121 ***	**2.233e+00**	**0.003231 ** **	**1.776e+00**	**0.000829 *** **
nn_cent	-6.758e+00	0.1341	-3.756e+00	0.213683		
city_area	**5.750e-01**	**0.0124 ***	**5.939e-01**	**0.000399 *** **	**6.223e-01**	**3.12e-10 *** **
distance	-2.158e-04	0.0369 *	-1.496e-04	0.031382 *		
compliance	2.521e-01	0.9448				
h_demand	2.370e-04	0.4545	1.324e-04	0.064177 .		
growth	-7.234e+00	0.3188	-7.347e+00	0.182505		
eh_supply	-2.397e-04	0.8355				
local_assess	-1.950e-09	0.3431	-2.071e-09	0.097926 .		
state_assess	7.384e-08	0.7802				
exemptions_all	**9.014e-09**	**0.3261**	**7.772e-09**	**0.120555**	**1.055e-08**	**0.011418 ***
rev_taxes	**-4.181e-07**	**0.5389**	**-5.114e-07**	**0.025481 ***	**-4.187e-07**	**3.04e-12 *** **
rev_licenses	**3.748e-06**	**0.0732 .**	**4.491e-06**	**0.002481 ** **	**3.014e-06**	**0.020728 ***
rev_current	2.875e-07	0.3147	1.421e-07	0.024078 *		
rev_state	**1.307e-06**	**0.1027**	**1.145e-06**	**0.009311 ** **	**1.729e-06**	**1.43e-06 *** **
city_net_rev	-4.619e-08	0.8575				
exp_gengov	8.093e-07	0.4644				
exp_pubsafe	-1.309e-06	0.1241	-6.138e-07	0.056062 .		
exp_trans	-5.506e-07	0.5924				
exp_comdev	-3.230e-07	0.7030				
exp_health	-2.564e-06	0.1847				
exp_cult	-1.108e-06	0.3366				
city_net_exp	6.533e-07	0.1860	2.081e-07	0.037834 *		
city_vcncy	7.178e+01	0.4287	6.199e+01	0.200132		
city_pop_avg_per_hh	-2.700e+00	0.5072				
county_pop_tot	5.725e-06	0.3924	6.874e-06	0.040423 *		
county_vcncy	**-5.159e+02**	**0.6817**	**-2.272e+02**	**0.042181 ***	**-5.110e+02**	**4.38e-10 *** **
county_pop_avg_per_hh	3.466e+01	0.8237				
action_prop	1.376e-01	0.1254	1.343e-01	0.022941 *		
qo_rehab	2.231e-03	0.0885 .	1.497e-03	0.084284 .		
qo_pres	-2.199e-03	0.2668				
ach_rehab	4.846e-04	0.9335				
ach_pres	-2.714e-03	0.4386				

Significance codes: '***' 0.001; '**' 0.01; '*' 0.05; '.' 0.1

FULL model R^2: 0.9378; AIC model R^2: 0.9326, LEAPS model R^2: 0.8939

6.1.7 MULTICOLLINEARITY

In the previous section, I employed Multicollinearity as a criterion for the selection of the advanced LEAPS model. In my coursework and reference texts, both sets of information warn of Multicollinearity in the predicting variables as Multicollinearity signals that "two or more independent variables are highly correlated" (Meier et al., p. 402). This condition makes it difficult to (a) distinguish the independent effect of the collinear variables, and (b) inflated errors tend to prevent statistical significance. However, the criterion for detecting Multicollinearity is not agreed upon. In different disciplines, the criterion signaling the absence of Multicollinearity was a Variance Inflation Factor (VIF) statistic lower than 4 or 7. In published texts, the criterion is a VIF statistic is lower than 10 (Chatterjee & Hadi, 2006). In this dissertation, I use the latter.

As such, the FULL model suffers from Multicollinearity as it attains not only a high R^2, but also few predicting variables attain statistical significance. The AIC model also suffers from Multicollinearity as many of the predicting variables attain VIF statistics above 10, as noted in Table 27.

Table 27: Multicollinearity of the AIC model on NCSH
This table presents the AIC subset model: its variables, estimates, p-values, and VIF statistics.

Row	Variable	Estimate	Pr(>|t|)	VIF statistics > 10
1	trt_grp	9.702e+01	2.83e-06 ***	
2	trt_period	-3.483e+00	0.208169	
3	region_id	7.234e+01	0.024456 *	21.06
4	p_will	-3.778e+00	0.116274	
5	nn_cities	2.233e+00	0.003231 **	
6	nn_cent	-3.756e+00	0.213683	
7	city_area	5.939e-01	0.000399 ***	15.34
8	distance	-1.496e-04	0.031382 *	
9	h_demand	1.324e-04	0.064177 .	52.20
10	growth	-7.347e+00	0.182505	
11	local_assess	-2.071e-09	0.097926 .	57.00
12	exemptions_all	7.772e-09	0.120555	12.04
13	rev_taxes	-5.114e-07	0.025481 *	94.81
14	rev_licenses	4.491e-06	0.002481 **	10.04
15	rev_current	1.421e-07	0.024078 *	53.52
16	rev_state	1.145e-06	0.009311 **	26.01
17	exp_gengov	8.488e-07	0.085470 .	19.10

Table 27: Multicollinearity of the AIC model on NCSH
This table presents the AIC subset model: its variables, estimates, p-values, and VIF statistics.

Row	Variable	Estimate	Pr(>|t|)	VIF statistics > 10
18	exp_pubsafe	-6.138e-07	0.056062 .	95.59
19	city_net_exp	2.081e-07	0.037834 *	44.63
20	city_vcncy	6.199e+01	0.200132	
21	county_pop_tot	6.874e-06	0.040423 *	19.98
22	county_vcncy	-2.272e+02	0.042181 *	
23	action_prop	1.343e-01	0.022941 *	
24	qo_rehab	1.497e-03	0.084284 .	
Significance codes: '***' 0.001; '**' 0.01; '*' 0.05; '.' 0.1 AIC model R^2: 0.9326, $\bar{R}^2$: 0.9091				

I did not suspect that the Vector of Municipal Finance data would contain a large share of Multicollinearity until after I ran the FULL and AIC models. Quite simply, many of the financial variables are components of either the Total Net Expenditures or Total Net Revenues. Subsequent models limiting the Vector of Municipal Finance to only two variables (e.g., Total Net Expenditures, Total Net Revenues), also contained eight predicting variables, but those models violated normality, had lower R^2 values, and had a lower proportion of statistically significant variables.

In the LEAPS model, the two collinear variables are Tax Revenues (e.g., VIF of 19.29) and State Transfers (e.g., VIF of 17.94). I ran an additional model, regressing Tax Revenues on all the independent LEAPS model variables and found that the combined influence of Group (|p< .001|), Adjacent Municipalities, Municipal Area (|p< .001|), Exemptions (|p< .001|), License Revenues (|p< .05|), State Transfers (|p< .001|), and County Vacancy as they vary about their means explain 99% of the variance of Tax Revenue as it varies about its mean. I also performed a similar model with State Transfers and found that the combined influence of Group (|p< .01|), Adjacent Municipalities, Municipal Area (|p< .05|), Exemptions, License Revenues, Tax Revenues (|p< .001|), and County Vacancy (|p< .05|) as they vary about their means explain 99% of the variance of State Transfers as it varies about its mean.

In short, Multicollinearity will not allow an independent interpretation of either Tax Revenues or State Transfers. I could remove them from the model, but then I lose explanatory power (e.g. lower R^2). I could also set them up as an interaction (Tax Revenue/State Transfers or vice-versa), but then I lose

interpretation and some relevance as not every planner, housing advocate or the general public knows a municipality's ex ante annual Tax Revenue or State Transfer funds. Therefore, those variables remain un-transformed, un-weighted, or un-interacted in the advanced LEAPS model.

6.1.8 GOODNESS OF FIT TESTS

For my goodness of fit tests, I employed R^2 for explanatory power, the F-test as a collective evaluation of the predicting variables, and a T-test as an individual evaluation of the predicting variables.

Initially, I used each model's proportion of the adjusted $\bar{R}^2$ to the R^2 (e.g., Coefficient of Determination) as part of my best equation criteria. While the LEAPS model may have obtained the lowest R^2 of the three models (e.g., FULL = 0.9378, AIC = 0.9326, LEAPS = 0.8939), the LEAPS model had the lowest differential between the R^2 the adjusted $\bar{R}^2$ (e.g., LEAPS = 1.11% differential, AIC = 2.52% differential, FULL = 5.47% differential). This differential operates as a decision statistic as the adjusted $\bar{R}^2$ accounts for systemic errors (e.g., Sums of Squares due to Error) in the estimating equation due to surplus predicting variables. In essence, a small differential signals the formation of a tight estimating equation, whereas a larger differential signals an estimating equation redolent with junk.

Thus, the LEAPS model's R^2 allows me to state that 89.39% of the variation of NCSH about its mean is explained by the combined linear influence of Group, Adjacent Municipalities, Municipal Area, Exemptions, Tax Revenues, Current Charge Revenues, State Transfers, and County Vacancy as they vary about their means.

In the second goodness of fit test, I employed the F-test to determine if at least one of the predicting variables (also known as the partial regression slope coefficients) could be zero. The hypothesis for the F-test is as follows:

$$H_O: b_1 = b_2 = b_3 = b_4 = b_5 = b_6 = b_7 = b_8 = 0$$

$$H_A: b_k \neq 0$$

For the advanced LEAPS model, the critical value is $F_{.05,8,85} = 2.0492$ and the F-statistic is 89.56 (|p<.001|). Therefore, we can reject the null hypothesis that states that <u>all</u> of the partial regression slope coefficients equal zero, and conclude that <u>at least one</u> of the partial regression slope coefficients is not equal to zero.

In my third goodness of fit test, I employed a T-test to determine if a partial regression slope coefficient (or predicting variable) could be zero. The hypothesis for the T-test is as follows:

$$H_O: b_K = 0$$

$$H_A: b_k \neq 0$$

The critical value is $T_{.05,85} = 1.9882$ and in Table 28, I present the calculated t, p values, and significance level of the predicting variables (e.g., partial regression slope coefficients) of the Leaps model.

Table 28: T-Tests of the LEAPS model's partial coefficients

Predicting Variable	t statistic	p value	Significance
Group	$b_1 = 5.085$	2.16e-06	p < .001
Adjacent Municipalities	$b_2 = 6.166$	2.27e-08	p < .001
Municipal Area	$b_3 = 3.467$	0.000829	p < .001
Exemptions	$b_4 = 7.127$	3.12e-10	p < .001
Tax Revenues	$b_5 = 2.586$	0.011418	p < .05
License Revenues	$b_6 = -8.134$	3.04e-12	p < .001
State Transfers	$b_7 = 2.357$	0.020728	p < .05
County Vacancy rate	$b_8 = 5.186$	1.43e-06	p < .001

In this test, my alpha contained a 2-sided rejection region of 5% (e.g., $\propto = .05$); therefore, I sought t statistics that exceeded the absolute value of $T_{.05,85} = 1.9882$. In the LEAPS model, all the predicting variables exceed the t criterion and thus maintain a statistical relationship with the response variable, NCSH. This test addresses not only my second claim, my assertion of a negative relationship between growth and low-income housing, but also the conceptual model. Regarding the former, the absence of Growth in the Leaps equation indicates that my second claim is unsupported with the data operationalized for Growth (e.g., Sales Tax as proportion of Total Municipal Revenue) and for NCSH (e.g., "new construction" subsidized housing). Regarding the latter, this test indicates that the variables operationalizing my conceptual model have failed to attain statistical significance, due to their absence from the advanced LEAPS estimating equation.

6.1.9 INTERPRET THE PARTIAL REGRESSION SLOPE COEFFICIENTS

In this section, I provide two interpretations of the relationship between the predicting variables and the response variable contained in the LEAPS Model. For each variable that maintains a statistical relationship, I provide a simple interpretation based on the partial regression slope coefficient, and then a more nuanced interpretation of the statistical relationship (e.g., a $\propto = .05$ confidence interval of the partial regression slope coefficient).

While both interpretations are helpful, it is the second that is more reliable as it accounts the range of observations in the different variables from the different municipalities. In this purposive sample, I have 94 observations and I acknowledge that the partial regression slope coefficients may not be a true unbiased estimate of the population of California municipalities. Therefore, I bracketed the range of the values for each independent variable. In this second interpretation, I used an alpha of .05 ($T_{.05,85} = 1.9882$, two-tailed), which is consistent with the alpha used in the previous goodness of fit tests, to state the 95% confidence interval of the true partial regression slope coefficient.

What follows this paragraph is the LEAPS estimating equation and its interpretations based on the one-unit-change for static data, and the one-unit-change of the *Treatment Period's mean observation* for the ratio data.

$$\widehat{sqrt\ NCSH} = 253.7 + 77.16*\text{Group} + 1.776*\text{Adjacent Municipalities} + .6223*\text{Municipal Area} + .00000001055*\text{Exemptions} - .0000004187*\text{Tax Revenues} + .000003014*\text{License Revenues} + .000001729*\text{State transfers} - 511.0*\text{County Vacancy rate}$$

1. Group (static):
    a. For each Suburban municipality, we can expect that member's square root of NCSH will increase by 77.16 units, while holding the other parameters constant.

b. Based on the statistical relationship between Group membership and square root of NCSH, I am 95% confident that the true effect of non-Central City membership on the square root of NCSH is an increase between 52.28 and 102.04 units.

2. Adjacent Municipalities (static):

   a. For each 1-unit increase in the number of Adjacent Municipalities that surround a subject municipality, we can expect that the square root of NCSH will increase by 1.78 units, while holding the other parameters constant.

   b. Based on the statistical relationship between Adjacent Municipalities and the square root of NCSH, I am 95% confident that the true effect of Adjacent Municipalities on the square root of NCSH is an increase between .757 and 2.795 units.

3. Municipal Area (static):

   a. For each 1-unit increase in Municipal Area (e.g., square miles) of a subject municipality, we can expect that the square root of NCSH will increase by .6223 units, while holding the other parameters constant.

   b. Based on the statistical relationship between Municipal Area and the square root of NCSH, I am 95% confident that the true effect of Municipal Area on the square root of NCSH is an increase between .4486 and .7959 units.

4. Exemptions (ratio):

   a. For each 1-unit increase in the Treatment Period's mean observation for tax Exemptions of a subject municipality, we can expect that the square root of NCSH will increase by .00000001055 units, while holding the other parameters constant.

b. Based on the statistical relationship between tax Exemptions and the square root of NCSH, I am 95% confident that the true effect of Exemptions on the square root of NCSH is an increase between .000000002438 and .00000001866 units.

5. Tax Revenues: While the F-test evidences a statistical relationship between the Treatment Period's mean observation for Tax Revenues and the square root of NCSH, Tax Revenues' collinearity with State Transfers obscures Tax Revenues' independent effect. Thus, I can state that as Tax Revenues increase, the square root of NCSH decreases; however, I cannot determine either an independent or range effect.

6. License Revenues (ratio):

   a. For each 1-unit increase in the Treatment Period's mean observation for License Revenues of a subject municipality, we can expect that the square root of NCSH will decrease by -.000003014 units, while holding the other parameters constant.

   b. Based on the statistical relationship between License Revenues and the square root of NCSH, I am 95% confident that the true effect of License Revenues on the square root of NCSH is a decrease between -.00000047 and -.00000555 units.

7. State Transfers: While the F-test evidences a statistical relationship between State Transfers and the square root of NCSH, State Transfers' collinearity with Tax Revenues obscures State Transfers' independent effect. Thus, I can state that as Tax Revenue increases, the square root of NCSH increases; however, I cannot determine either an independent or range effect.

8. County Vacancy rate (ratio):

a. For each 1-unit increase in the Treatment Period's mean observation for County Vacancy of a subject municipality, we can expect that the square root of NCSH will decrease by 511 units, while holding the other parameters constant.

b. Based on the statistical relationship between the County Vacancy rate and the square root of NCSH, I am 95% confident that the true effect of the County Vacancy rate on the square root of NCSH is a decrease between -655.07 and -366.93 units.

Of these interpretations, the independent effect of Group requires further discussion. In chapter 5.3 discussion of Groups, the data indicated that the bulk of NCSH was constructed in the Central Cities, not the suburbs. However, there are three points to note. First NCSH is a combined measure of housing units targeted to Very-Low, Low and Moderate-income households. Second, in Figure 9 of section 5.3's discussion of Group, the non-Central Cities achieved 75.5% of its overall RHNA allocation for Moderate housing. Third, in section 5.5's discussion of Regions, the Sacramento municipalities achieved 79.8% of their overall RHNA allocation of Moderate housing. Therefore, Group's positive effect and range on NCSH is driven by Sacramento's Suburban municipalities. When I examine the standardized coefficients for each predicting variable, I shall discuss how Group's independent effects were over powered by other predicting variables in the LEAPS model.

With these interpretations, I acknowledge that they are based on my purposive sample of municipalities located in Northern and Southern California, and the independent and range effects of these partial regression slope coefficients may not generalize to the general population of California cities, or all cities located in Southern California. However, the Northern California sample captured 77% of the SACOG region cities and this sample contained urban and suburban municipalities. Furthermore, the Southern California sample is 100% urban municipalities. Therefore, the ranges described above can serve as rough guide for planners, analysts, and housing advocates when they analyze municipalities situated in urban locations.

6.1.10 CHECK MODEL ASSUMPTIONS

In regression, a researcher can advocate that an estimating equation is good, useful, or helpful, if the equation does not violate four key assumptions. These assumptions require that the researcher answer the following four questions, in the affirmative. Is this the correct model? Does the model maintain an equal variance? Are the residual errors independent? And lastly, do the residual errors resemble a normal distribution? In the following paragraphs, I shall answer these questions.

6.1.10A CORRECT MODEL

Is this the correct model? In order to best explain the relationship between NCSH and the conceptual model and the vectors of control variables, I selected the LEAPS model. This decision was based on parsimony (e.g., a reduced number of predicting variables), proportion of $\bar{R}^2$ to R^2 (e.g., least differential), and minimal Multicollinearity (e.g., lowest percentage of predicting variables are collinear). Yet, what if the response variable was insufficient?

In this dissertation, NCSH represents the total amount of "new construction" subsidized housing constructed during the effective period of each housing element. In the FULL, AIC, and LEAPS models, I transformed NCSH from its raw form to its square root in order increase its normality. I had tried natural log transformations, but that technique created 22 observations that elicited case wise deletions (e.g., natural log of zero = infinity). Furthermore, zero has "meaning" in the HEL phenomenon (i.e., program failure); therefore, I felt that such deletions skewed the test and results. Yet, the square root transformation had its issues. For example, the Central Cities are presented as both outliers and leverage points. Please see Figure 22 as illustration of this dual presentation.

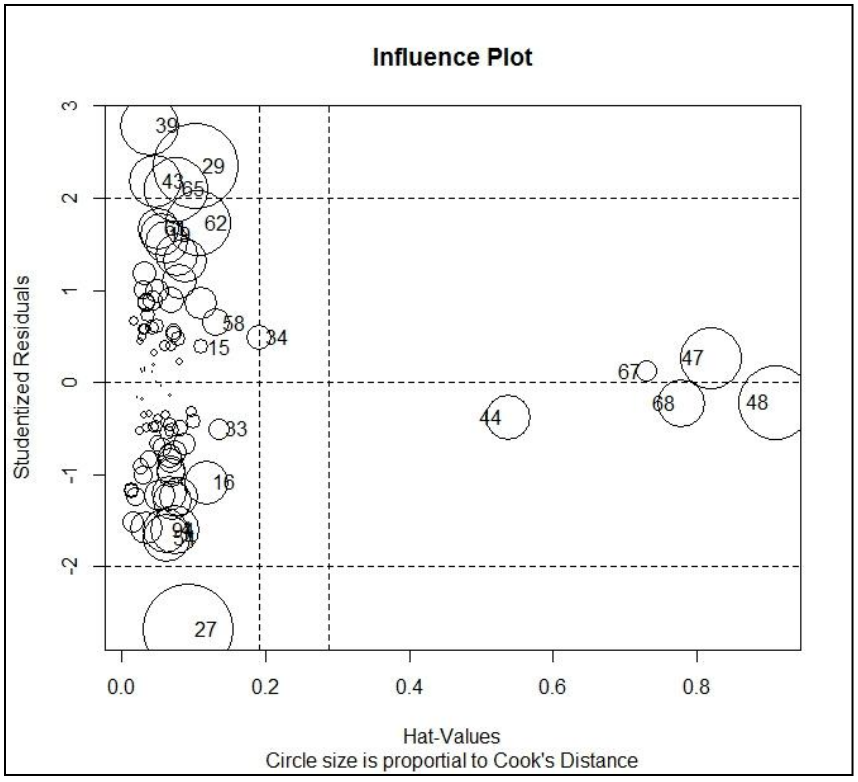


Figure 22: Influence plot of LEAPS model

In this figure, observations #47:48 represent the City of Los Angeles and observations #67:68 represent the City of Sacramento.

Figure 22 displays both influence and leverage. The points labeled 47:48 and 67:68 represent the T1 and T2 observations for Los Angeles and Sacramento, respectively. If I chose to remove these municipalities, then five things would occur. First, I have invalidated my research design because I use Los Angeles and Sacramento to account for group and region effects. Second, removal of these municipalities also lowers the R^2 for the advanced LEAPS model from .8989 to .6854 in the same model. Third, creation of a new "exhaustive" LEAPS subset produces a R^2 of .6165 (e.g., the "No LAX/SAC LEAPS" model). Fourth, if I removed any observation, then I have removed an entire treatment period. And lastly, suburban municipalities have a symbiotic relationship to their central city (Ottensmann, 1992), and I would not find any examination of HEL that omitted central cities as interesting.

In my assessment of the "No LAX/SAC" LEAPS model's residual plot and Multicollinearity, the statistics are excellent (e.g., no VIF values higher than 10), but the model has many non-significant variables (e.g., R^2= .6165), and consequently answers different and less expansive questions. In Figure 23,

I provide the residual errors plot and the influence plot (e.g. outliers and leverage) for the "No LAX/SAC" LEAPS model.

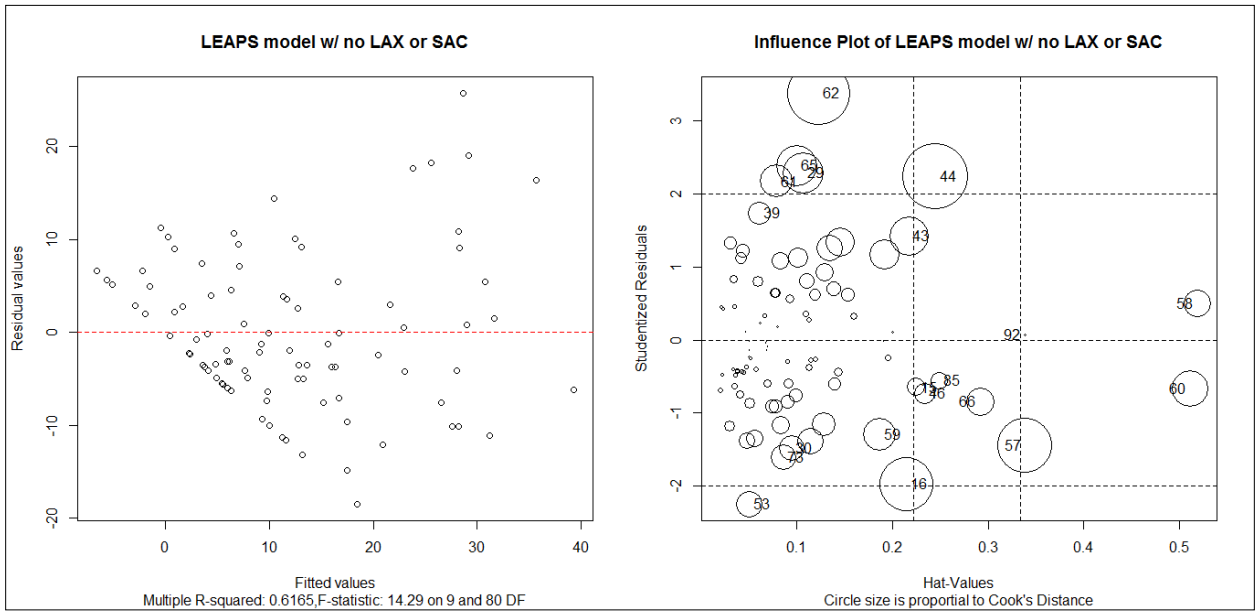


Figure 23: Residual Errors and Influence plots of "No LAX/SAC" LEAPS model,

I provide the Residual Errors and Influence plots of the "No LAX/SAC" LEAPS model. In the residual error plot, left image, the zero values are more pronounced. In the Influence, plot influential points shift to high populous municipalities of Pasadena #57:58 and Pomona #59:60 and municipalities with big shifts in NCSH like Rocklin #61:62 and Lincoln #43:44.

In Figure 23, the residual error plot illustrates a more compact plot, and still displays the strong vertical line of zero NCSH observations. In the "No LAX/SAC" LEAPS model, observations #58-Pasadena and #60-Pomona operate as the new leverage municipalities. Please note that Pasadena and Pomona are the 3rd and 4th most populous municipalities in the sample, respectively. In my analysis of these municipalities, between T1 and T2, Pasadena's NCSH increased by 85% and Pomona's NCSH increased by 86%, whereas the predicting and control variables did not change in that magnitude. In Table 29, I provide the estimation equation for the "No LAX/SAC" LEAPS.

Table 29: "No LAX/SAX" LEAPS model
This table depicts a new "exhaustive" LEAPS subset model in which the municipalities of Los Angeles and Sacramento were omitted.

Predicting Variable	Estimate	t statistic	(p-value)
(Intercept)	1.877e+02	2.078e+01	7.61e-14 ***
Metropolitan High Commuting	1.208e+01	4.573e+00	0.009937 **
Adjacent to Central City	-1.139e+01	3.600e+00	0.002196 **
Distance	-2.875e-04	7.689e-05	0.000345 ***
Growth	-9.726e+00	6.179e+00	0.119412
Existing Housing Supply	5.019e-04	1.332e-04	0.000312 ***
Current Charges Revenues	9.948e-09	3.977e-08	0.803110
Transportation Expenses	-9.721e-08	5.867e-07	0.868814
County Persons per Household	-5.915e+01	7.080e+00	1.63e-12 ***
Achieved Rehabilited units	1.099e-02	5.228e-03	0.038725 *

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

Residual standard error: 8.643 on 80 degrees of freedom
Multiple R-squared: 0.6165, Adjusted R-squared: 0.5733
F-statistic: 14.29 on 9 and 80 DF, p-value: 1.84e-13

Continuing my discussion of correct model via the correct response variable, I know that Los Angeles and Sacramento drive the model due to their size (e.g., population, housing units, municipal budgets, etc.). Yet, are their other methods to account for this municipal dynamic?

The advanced LEAPS model contains adjacency measures and municipal area, so those endogenous values are not suitable for weighting. However, I could take the NCSH as a proportion of the low-income housing specified in the RHNA allocation (e.g., T1 City of Alhambra: NCSH / RHNA low-income = 234 / 1310 = 17.38%). On paper, this proportional response variable appears suitable, as the RHNA allocation data is exogenous from the forty-two variable FULL model; however, usage of the proportional response variable is dismal in its results.

In Table 30, I compare three models employing a proportional NCSH against the advanced LEAPS model.

Table 30: FULL, AIC, and LEAPS on NCSH as Proportion vs. LEAPS NCSH as Square Root
A comparison of the FULL, AIC subset, LEAPS subset models using the proportional NCSH (e.g., NCSH to NCSH allocated) against the LEAPS subset model with the square root of NCSH.

Model (DV)	Subset Method	Predicting Variables	Residual / Fitted Plot	AIC	R^2	$\bar{R}^2$	$\bar{R}^2$ to R^2 %	VIF < 10	VIF %
FULL (prop)	none	42	Good	274.99	0.2993	-0.2778	-99.2%	26 of 42	61.9%
AIC (prop)	.05	**6**	**Excellent**	**218.45**	0.1740	0.1170	67.2%	2 of 6	33.3%
LEAPS (prop)	$\bar{R}^2$	7	Condensed	227.46	0.1836	0.1067	34.2%	**None**	**0**
LEAPS (sqrt)	$\bar{R}^2$	8	Condensed	662.32	**0.8989**	**0.8894**	**98.9%**	2 of 8	25.0%

In Figure 24, I provide a visual comparison of the residual plots of the advanced LEAPS (sqrt) model and the LEAPS (prop) model. While the latter is an excellent choice (e.g., lowest AIC, no Multicollinearity) using the proportional NCSH lacks the explanatory power of the square root NCSH.

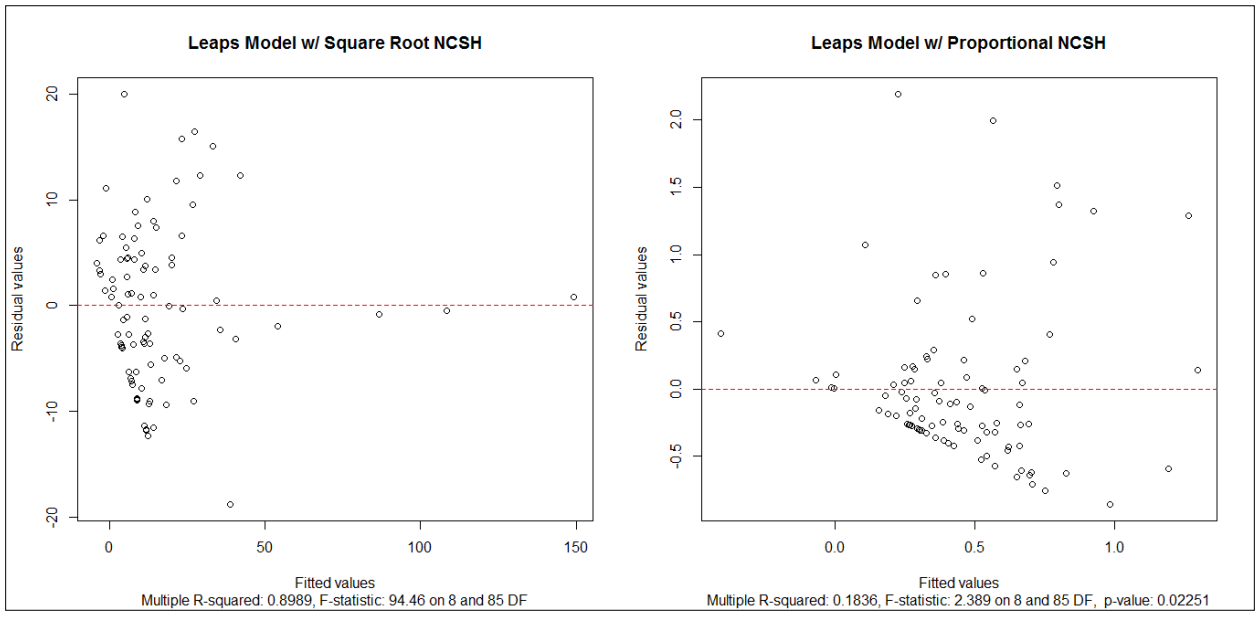


Figure 24: LEAPS models NCSH model: square root, proportional

In this comparison of the LEAPS models, the usage of the square root NCSH yield a better shape and explanatory statistics.

In summary, is the LEAPS model the correct model? While their will be critics who state that measuring the Central City observations inflates the explanatory power of the LEAPS sqrt model, I concede that they are correct. However, this model is a necessary first step in understanding the regional

application of California's Housing Element Law. Therefore, given the research questions, design, claims and researcher values, I state that the LEAPS model is the best model and the square root NCSH is the best response variable under these conditions.

6.1.10B EQUAL VARIANCE

Does the model maintain an equal variance? In essence, how accurate is the model's prediction by an assessing if the equation over- or under- estimates NCSH. The ideal state is a model in which the residual error remain in a tight (e.g., constant) band along the fitted line. If you recall in the Figure 19 in section 6.1.6, I removed 22-cases in which NCSH observations equaled zero in order to illustrate the LEAPS model's increasing variance. In Figure 25, I illustrate both the advanced LEAPS model and same the LEAPS model with zeros removed.

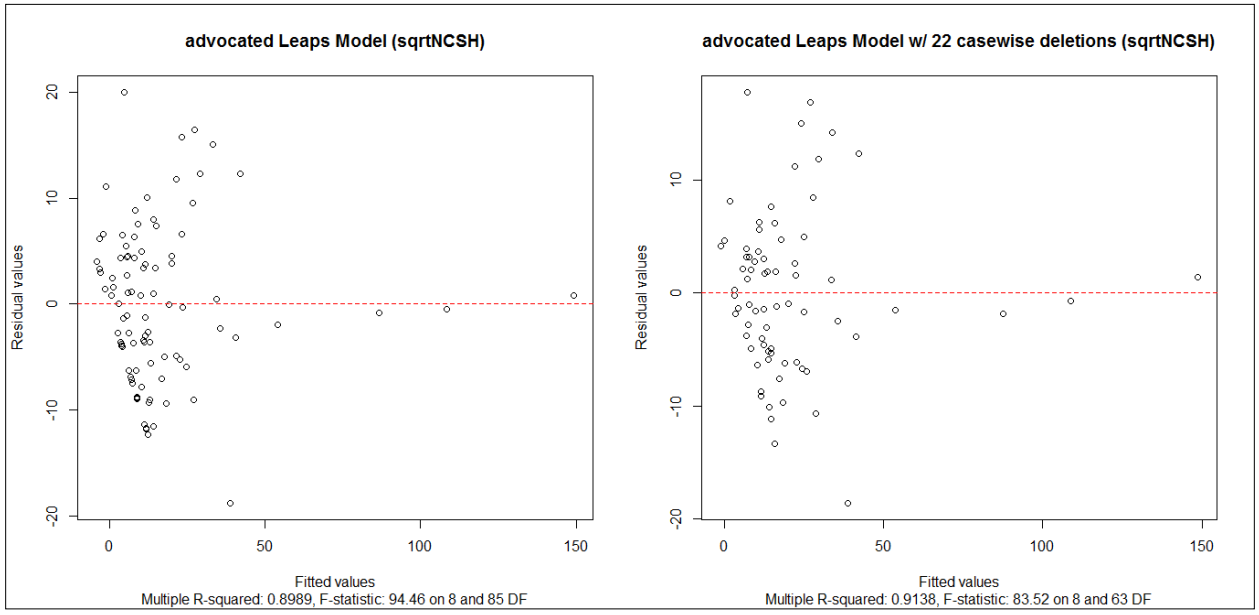


Figure 25: Residual Error plots: LEAPS (n=94), LEAPS (n=72)

This figure displays the Residual Error plot for the advanced LEAPS model and the same model I which cases with NCSH equal zero are expunged (e.g., twenty-two case wise deletions).

In my visual examination of both plots in Figure 25, it appears that as the fitted values are plotted along the X-axis, the residual errors expand along the Y-axis. This would mean as the data is fitted to the model, the expected values become farther from the actual values, signaling a lack of fit. This lack of fit is quite apparent when the NCSH is zero. To statistically determine if this visual assessment is correct since the LEAPS model is being executed as a linear model, I employed a Spread Level test.

The Spread Level test consists of two components: a Non-Constant Error Variance test and a Spread Level plot. With the former, a Non-Constant Error Variance test conducts a hypothesis test with equal variance as the null hypothesis (Kabacoff, pp. 197-198). With the latter, the Spread Level plot

illustrates the standardized residual values on the fitted line and superimposes a line of best fit—with a horizontal line as the goal. The direction of the superimposed line suggests the level of the transformation of the response value as indicated in Table 31.

Table 31: Common Transformations of Response Variables

	-2	-1	-0.5	0	0.5	1	2
Transformation	$1/Y^2$	$1/Y$	$1/\sqrt{Y}$	$log(Y)$	$\sqrt{Y}$	None	Y^2

.

The results of the Non-Constant Error Variance is a non-significant Chi-square statistic (X^2= 0.2178879, |p> .1 |). This indicates that the LEAPS model statistically meets the equal variance assumption. Figure 26 displays the results of the Spread Level plot. In that figure, the absolute studentized residuals do form a band around the superimposed fitted line; however, the line's upward slope interacts with the Non-Constant Error Variance. Meaning, while the Chi-Square statistic was statistically non-significant, the Spread Level plot's suggested power transformation indicates that the response variable may possibly need further transformation. I suspect that the time-oriented transformation of the predicting data might be at hand.

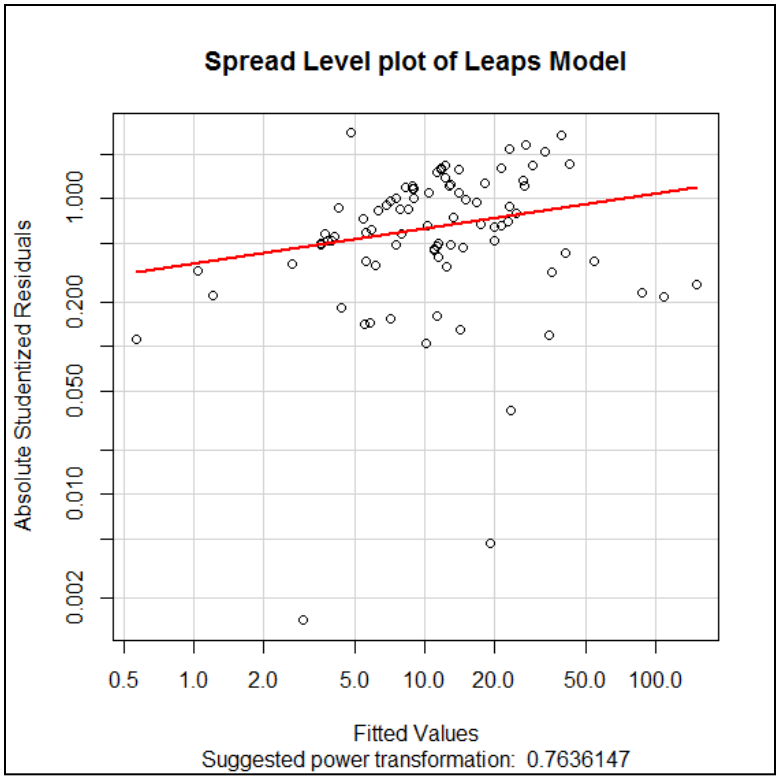


Figure 26: Spread Level plot of the LEAPS model

The Spread Level plot suggests that transformation of the response variable, NCSH, may or may not be necessary, as the suggested power transformation is statistic is .76.

In my overview discussion of NCSH and the predicting data, I documented how the predicting variables were transformed into the Treatment Period's mean observation. Therefore, while the LEAPS model tests two observations per variables, each observation concatenates 7 or 8 years of data. Therefore, the potential conflict between the Non-Constant Error Variance and the Spread Level plot may lie within this data transformation. Yet, the suggested power transformation statistics (e.g., .76) suggests that some response variable transformation may or may not be needed as a .5 statistic suggests a square root transformation and a 1 statistic suggests no transformation.

In summary, does the LEAPS model maintain a constant variance? The conservative answer based on the data's time-oriented transformation, the non-significant Non-Constant Error Variance statistic, and the Spread Level Plot's power transformation is yes, the LEAPS model maintains a constant variance.

6.1.10C INDEPENDENT ERRORS

Are the residual errors of the LEAPS model independent? In essence, does this model produce residual errors that influence other residual errors (e.g., autocorrelation). In any equation in which data is observed over a uniform series of time, it makes sense that Year 1 may influence Year 2 and Year 2 may influence Year 3, etc. For example, in the vector of Municipal Finance data, many financial directors base a future budget on the present budget. In addition, the intent of a municipal housing element is to influence housing production over a 5-year period. Thus, the presence of correlated residual errors in an estimating equation is reasonable given the previously noted data sources.

To formally test the independence of errors, I employed the Durbin Watson test to determine if the errors of Treatment Period 1 influenced the errors of Treatment Period 2, hence a 2-year lag. The critical Durbin-Watson ($\propto = .05, k = 8, df = 85$) values are $D_L = 1.44837$ and $D_U = 1.85730$. In Table 32, I provide the methodology of the Durbin-Watson test and in Table 33, I provide the analysis.

Table 32: Durbin Watson Test methodology, LEAPS model on NCSH

D-W Formula	D-W Statistic	D-W Interpretation
$DW\ statistic < D_L$	$DW\ statistic < 1.44837$	Statistical Positive Autocorrelation
$DW\ statistic > D_U$	$DW\ statistic > 1.85730$	No Statistical Positive Autocorrelation
$D_L < DW\ statistic < D_U$	$1.44837 < DW\ statistic < 1.85730$	Inconclusive
$(4 - DW\ statistic) > D_U$	$(4 - DW\ statistic) > 1.85730$	No Statistical Negative Autocorrelation
$(4 - DW\ statistic) < D_L$	$(4 - DW\ statistic) < 1.44837$	Statistical Negative Autocorrelation

Table 33: Durbin-Watson Test of LEAPS Model on NCSH, 2-year lags

Lag	Autocorrelation	D-W Statistic	D-W Interpretation
1	0.05785826	1.852796	Inconclusive
2	-0.07870095	2.131486	No Statistical Negative Autocorrelation

In summary, are the residual errors of the Leap model independent? According to a Durbin Watson test, the statistical answer is no. However, I may have introduced bias into this model when I concatenated the annual predicting data to align with the response data. And thus, I may commit a Type II error (in which I reject the null hypothesis that states that the residual errors are independent of one another). In my forthcoming analysis on Housing Production, I provide a more robust conclusion regarding correlated errors using annual observed response and predicting data.

6.1.10D NORMALITY

Do the residual errors in the LEAPS model resemble a normal distribution? In essence, does the model distribute the residual errors randomly around a mean of zero, as opposed to being skewed with a left or right tail? To demonstrate normality, I shall present two graphics: Distribution of Errors, Q-Q plot.

The Distribution of Errors is essentially a histogram that illustrates whether or not the distribution of these errors appears normal. In Figure 27, I illustrate the error distributions for the FULL, AIC, and LEAPS model to illustrate how the error distribution becomes more normal with parsimony. I make this statement by noting how well a) the Kernel Density Curve (e.g., dashed representing the observed values) matches the Normal curve (i.e., the ideal state), and b) the convergence of the "rugs" short vertical lines (e.g., representing the observed values) around zero.

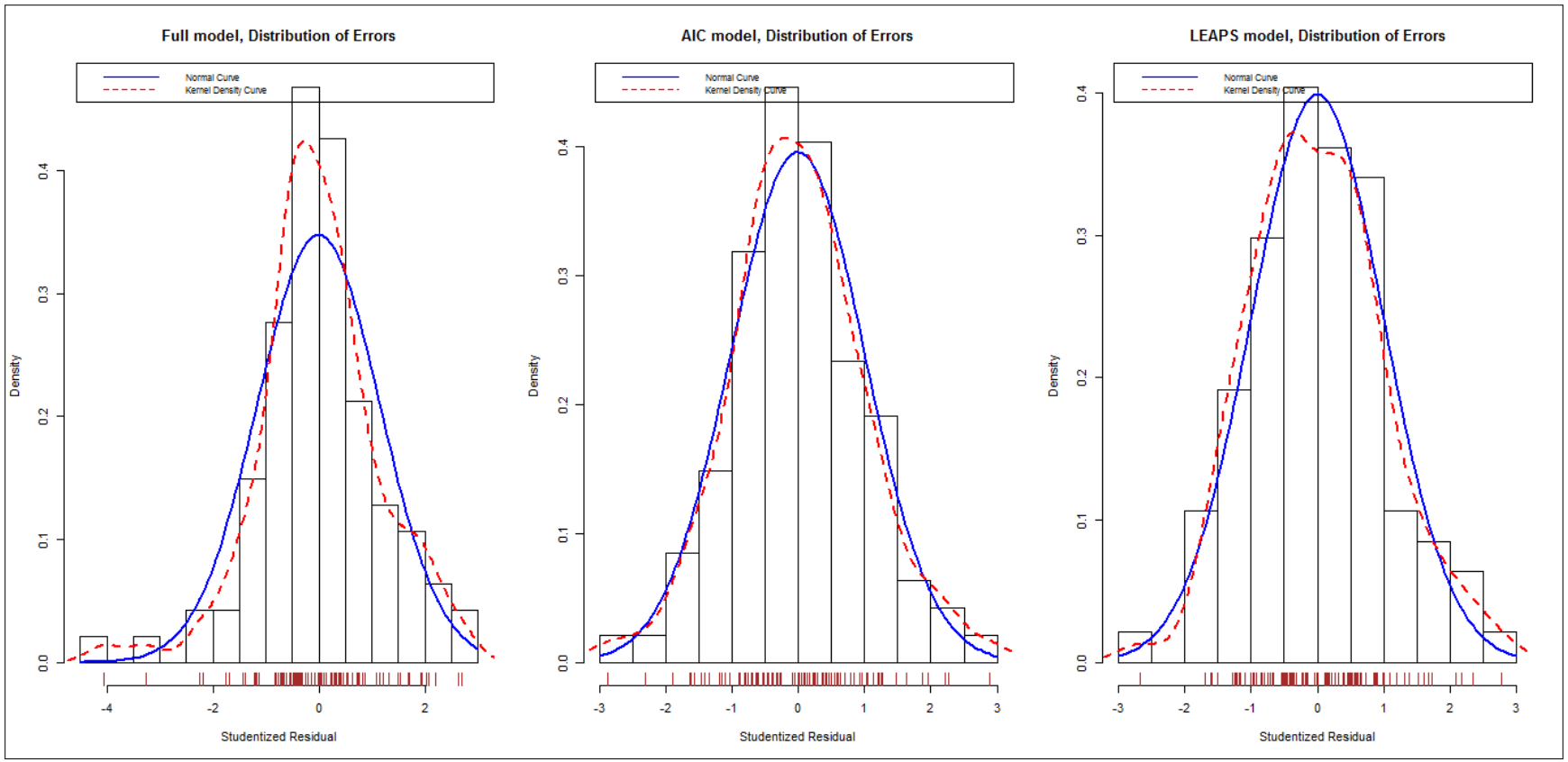


Figure 27: Distribution of Errors plots: FULL, AIC, LEAPS models

In this figure, I present the error distributions for the FULL, AIC, and LEAPS models. Please note that as the models reduce in estimating parameters (e.g., 42, 24, 8, respectively), the error distributions move closer to normal.

In my second graphic, I present a Q-Q plot. A Q-Q plot assesses normality by plotting the studentized residuals against an estimating equation's degrees of freedom. In essence, do the errors fall on the line? Furthermore, this graphic contains a 95% confidence interval. Therefore, the more complete Q-Q test assesses how well the errors fall on the line, and how well the errors stay within the interval boundaries. In Figure 28 and 29, I provide the Q-Q plots for both the AIC and LEAPS models, respectively.

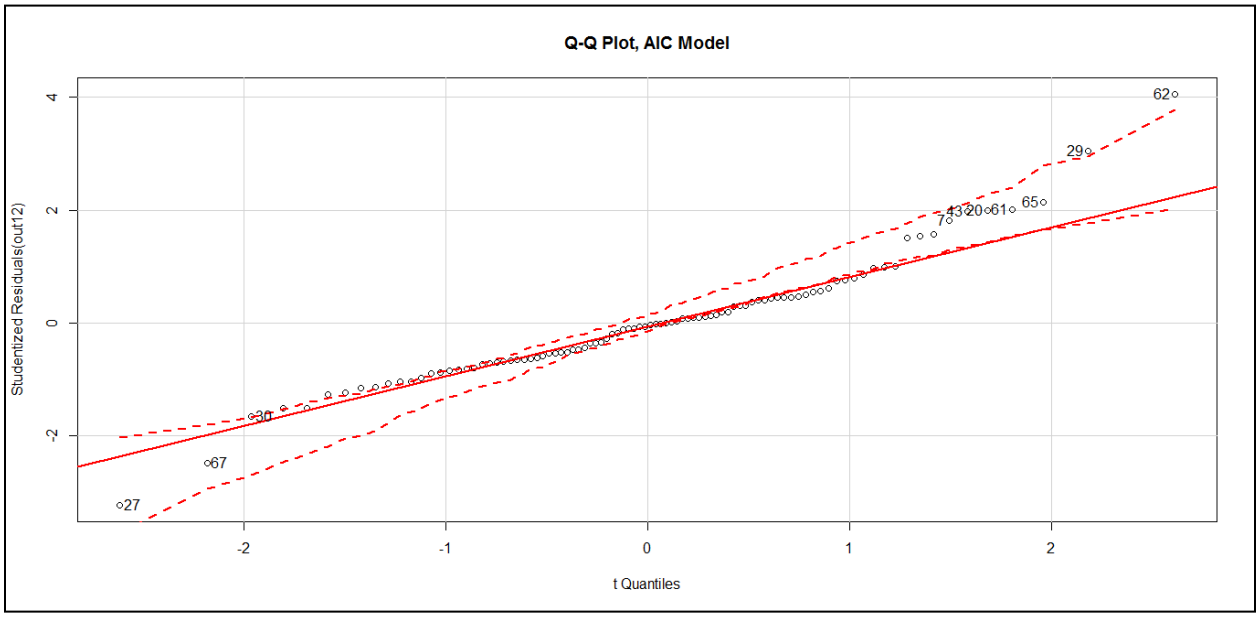


Figure 28: Q-Q plot: AIC model

In this figure, the residual errors of the AIC do not stay on the line and also drift outside the interval boundaries.

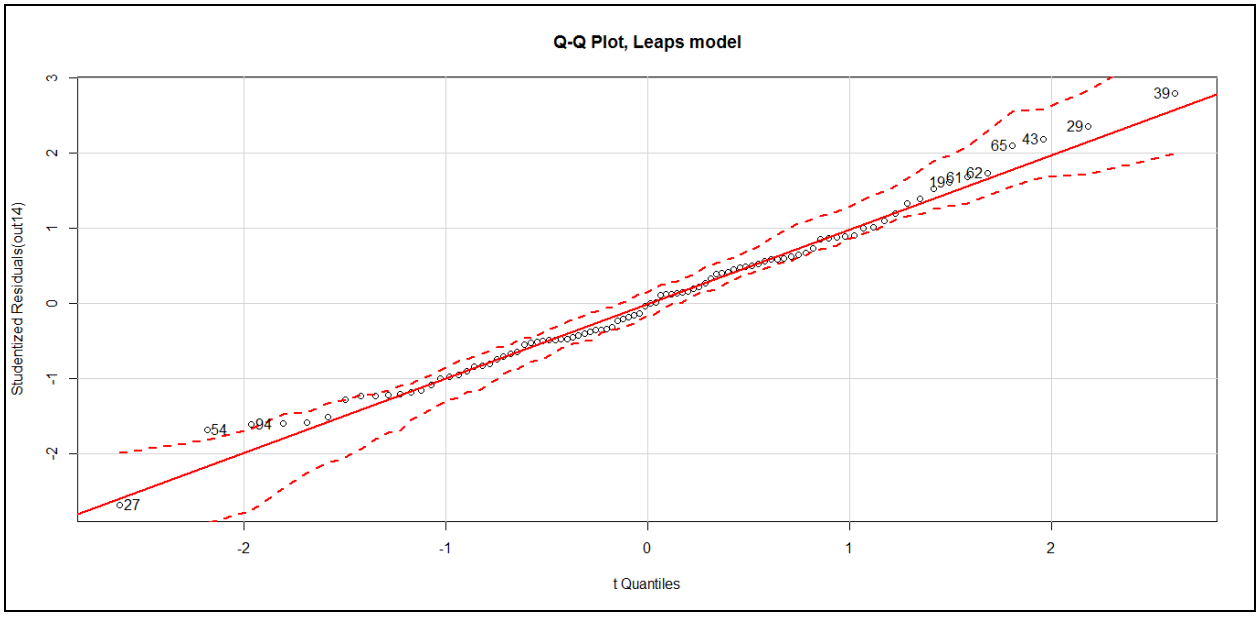


Figure 29: Q-Q plot: LEAPS model

In this figure, the residual errors of the LEAPS stay closer to the line and only two observations drift outside the interval boundaries (e.g., #54 Montebello, #94 Yuba City)..

In a comparison of the Q-Q plots, the residual errors of the AIC plot fall outside of the 95% confidence interval, whereas only 2 observations fall outside of the confidence interval for the advanced LEAPS model. (e.g., #54 = Montebello – no housing element produced for T2 or T3; #94 = Yuba City – no NCSH in T2)

In summary, do the residual errors in the LEAPS model resemble a normal distribution? Based on the figures for the Distribution of Errors and Q-Q-Plot, the answer is yes.

6.1.11 SUMMARY

In this last analysis of the advanced LEAPS model, I standardize the parameters in order to determine which of these partial regression slope coefficients is the most influential on the square root of NCSH. In section 6.1.9, I stated I was 95% confident that the true effect of Group membership on the square root of NCSH is an increase between 57.73 and 106.44 units; yet chapter 5's descriptive statistic determined that the Central City municipalities constructed more low-income housing.

In this section, I demonstrate how other parameters may have overpowered Group membership's effect. For this analysis, I provide Figure 30 which synthesizes size and direction in a bar plot, and Table 33 which list the parameters, their std. errors, t-values and statistical significance.

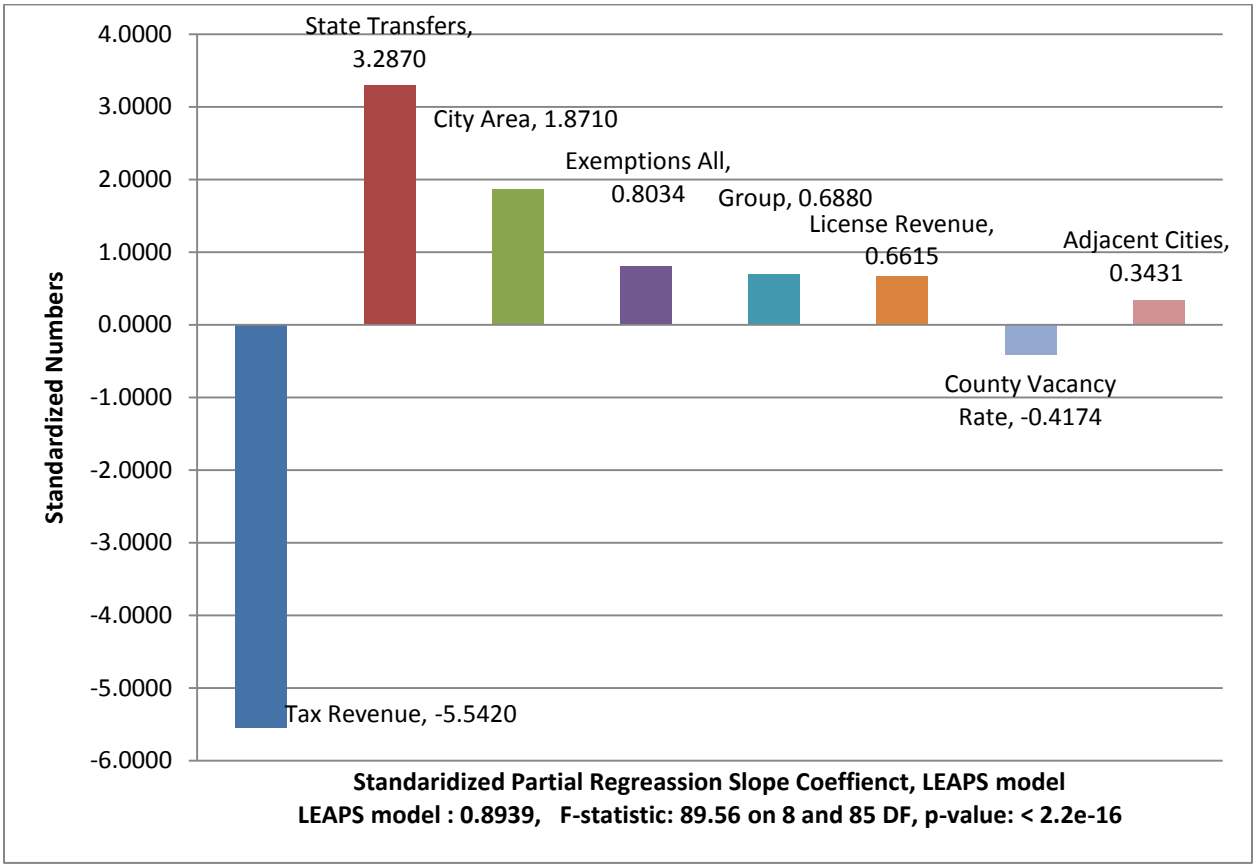


Figure 30: Standardized Partial Slope Coefficients of the LEAPS model on NCSH.

This figure depicts the size and direction of the standardized partial regression slope coefficients of the LEAPS model on the square root of NCSH.

Table 34: The LEAPS model w/ standardized estimates

This table presents the standardized LEAPS model: its variables, estimates, t-values, p statistics—ordered by their absolute value. The response variable is the square root of NCSH.

Row	Variable	Estimate	T-value	Pr(>|t|)
1	Tax Revenue	-4.8750	-7.98500	6.07e-12 ***
2	Group	3.5912	6.69900	2.15e-09 ***
3	State Transfers	3.1578	5.07500	2.25e-06 ***
4	City Area	1.7620	6.96700	6.44e-10 ***
5	License Revenues	1.0823	4.20700	6.40e-05 ***
6	County Vacancy Rate	-0.3702	-6.86400	1.02e-09 ***
7	Adjacent Cities	0.3116	3.37700	0.00111 **
8	Growth	-0.0681	-1.90500	0.06014 .

Significance codes: '***' 0.001; '**' 0.01; '*' 0.05; '.' 0.1

LEAPS model R^2: 0.8989, $\bar{R}^2$: 0.8894

F-statistic: 96.46 on 8 and 85 DF, p-value: < 2.2e-16

From the data in Figure 30 and Table 34, it is clear that Tax Revenue is the most influential variable of the LEAPS model. Tax Revenues direction is negative and the absolute value of the coefficient and the t-value is larger than any other parameter. Unfortunately, I have detected that Tax Revenue is collinear with State Transfers and therefore, I cannot state Tax Revenue's independent effect. Even still, Tax Revenue large and negative direction confirms the problem statement in which I argued that municipal compliance with HEL inflames political will by requiring municipalities to identify a permanent funding source for low-income housing and to forgo potential revenue. Collectively, these actions require that municipalities implement land-use processes that they perceive as antagonistic to their self-interest.

The second most influential parameter is State Transfers. According to the State Comptroller's office, this variable operates as "catch-all" as the definition captures the State's municipal reimbursement of Motor Vehicle In-Lieu Tax, Homeowners Property Tax Relief, Gasoline Tax, Peace Officers Standards and Training, Off Highway Motor Vehicle In-Lieu Fee, and "others." As a voluntary and un-audited report, this analysis is subject to the accuracy of the municipal financial director. In addition, this variable is collinear with Tax Revenues, so while I can indicate State Transfer's positive direction and third ranking, it is impossible to determine which aspect of the funds is consistently influencing the LEAPS model.

The third most influential parameter is City Area. This fixed variable indicates that municipal size can be associated with dynamic housing production.

In close, the LEAPS model is the correct model and NCSH (transformed as a square root) is the appropriate response variable. The LEAPS model maintains an equal variance and normal distribution of errors, but the errors violate independence. This violation was not unforeseen as fiscal budgets and housing element are relational to multiple years.

In addition, the LEAPS model refuted the conceptual model as operationalized in this dissertation for research question 2. However, the LEAPS model did indicate that License Revenues, which are controlled by the municipality, and State Transfer payments maintained positive relationships with NCSH. Unfortunately, the two largest and most influential parameters, Tax Revenues and State Transfer, are collinear. The collinear relationship spurs me to search for an "available land" parameter. Also, Growth, operationalized as returned sales tax revenues maintain no statistical relationship with NCSH, regardless of the model (FULL, AIC, LEAPS), exclusion of the central cities, or transformation of the response variable.

And lastly, Lewis' finding of the compliance non-statistical relationship to housing production was not confirmed. Even though compliance was not statistically significant in any of the "presented and discussed" models, I found that compliance did maintain a statistical relationship ($|p<.001|$) under certain conditions. In my model search (e.g., 50+ equations), compliance's statistical relationship was achieved when the full model contained a limited vector of Municipal Finance (only Total Net Revenue and Total Net Expenditure), and the response variable is transformed as a natural log of NCSH with 1.00e-8 is substituted for infinity values. I did not choose this model because of its low explanatory power, $R^2 = .5919,\ \bar{R}^2 = 0.55352.$

6.2 CONTEXT OF RESEARCH QUESTION 3

In the next subsection, I present the analysis of research question 3 (e.g., *what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, compliance, and its annual production of housing?).* However, before I proceed with its 11-step analysis, let me provide the reader with an overview of the research design for this question. I have underlined the conditions that differ from the NCSH analysis.

- Period of Study: 1990-2007
- Treatment Period: 1991-2007 (17-years)[139]
- Units of Analysis: Municipalities located in Northern and Southern California.
- Sampling Frame: 53 municipalities
- Tested Sample: 47 municipalities[140]
- Groups: non-Central Cities (n=45) – suburban and rural municipalities
  Central Cities (n=2) – Los Angeles, Sacramento
- Response Variable: Housing Production (Annual Residential building permits)
- Predictor Variables: Conceptual Model (6 variables)
- Control Variables: Five Vectors (37 variables)
- Units of Observation: 1 observation per year per variable

[139] 1991 is the first year that electronic data from the California State Controller's office.

[140] Due to the structure of the third research question and the examined control variables, I omitted the following municipalities from this analysis: Citrus Heights, Elk Grove, Loomis, Isleton, Placerville, and Sierra Madre. In my discussion of research question 3, I shall provide the rationale for these exclusions.

6.2.1 STATEMENT OF RESEARCH QUESTION 3

What is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, compliance, and its annual production of housing?

6.2.2 STATEMENT OF THE CONCEPTUAL MODEL

I conceptualize that the change in a municipality's annual Housing Production is a function of its housing demand, growth, political will, existing housing supply, subsidy, and compliance.

6.2.3 OPERATIONALIZATION OF CONCEPTUAL MODEL

In chapter 3, I provided a detailed analysis of the response and predictor variables. In the previous NCSH analysis, I provided a detailed description of the predictor and control variables. For the statistical analysis of research question 3, I employ similar variables in the FULL model. However, no time-oriented transformation was necessary, as I regressed the predicting and response variables in their original annual format. However, I did transform on the predicting and data to increase normality within the sample. For the continuous predicting variables, I employed their standardized form. For the response data, I employed Annual Building Permits in a natural log.

As I noted previously, the California State Comptroller's Office electronic data began in 1991 and the presented analysis covers the years of 1991 to 2007. The SCO data was voluntarily submitted by the municipal finance directors and was un-audited by the State Controller's Office. I have omitted the municipalities of Isleton, Loomis, Placerville, and Sierra Madre because of their continued non-submission of financial data. In addition, I have also eliminated Citrus Heights and Elk Grove from this statistical test due to their municipal incorporations during the period of study (e.g., 1997, 2000, respectively). Thus, in the next sections, I note the response, predictor variables, and control variables and in Table 35, I list the variables that constituted the "FULL" model.

6.2.3A RESPONSE VARIABLE:

For Research Question 3, the *response variable* is Housing Production. I measure Housing Production as number of housing units constructed within a housing element's effective period. This quantity included both single- and multi-family residences. Each municipality should have 17 observations of Housing Production.

6.2.3B PREDICTOR VARIABLES:

For Research Question 3, the six-*predictor variables* that I derived from the conceptual model were as follows.

(1) Housing Demand (e.g., the municipality's annual population),

(2) Growth (e.g., the returned sales tax as a proportion of annual municipal revenue),

(3) Political Will (e.g., General Law = 0, Charter = 1),

(4) Existing Housing Supply, (e.g., the municipality's annual total of housing units) and

(5) Subsidy (e.g., No Redevelopment Agency = 0, Redevelopment Agency = 1), and

(6) Compliance (e.g., is the municipality in compliance with HEL in a given year—yes/no).

6.2.3C CONTROL VARIABLES:

In this analysis, there may be factors outside of the conceptual model that also influence the changes in annual Housing Production; therefore, I included the following *control variables* to reduce counterfactual claims and I sequestered these *control variables* in five vectors (e.g., Static, Adjacency, Municipal Finance, Population and Housing, and Consumer Spending). The vector of Municipal Effort was not included in this analysis because this vector, like NCSH, represented multiple years of municipal effort and cannot be disaggregated into annual observations. In addition, I have expanded the vector of Population and Housing to included observations for California.[141] What follows is a listing of the previously discussed the vectors/variables, and a discussion of the vector of Consumer Spending.

[141] I did not include the California variables in the analysis of NCSH as the time-oriented transformation produced NAs within the Full model, as the transformed observations were unchanged for each municipality.

VECTOR OF STATIC VARIABLES

(1) Group (e.g., Treatment or Comparison),

(2) Fiscal Year (e.g., 1991, 1992, 1993, etc.,),

(3) Region (e.g., LAX = 0, SAC = 1),

(4) Municipal Typology (e.g., six RUCA classifications, but only four observations),[142]

(5) Municipal Area (e.g., square miles of the municipality),

VECTOR OF ADJACENCY

(6) Adjacent to Central City (e.g., is the municipality adjacent to the Central City, yes/no)

(7) Adjacent Municipalities (e.g., how many municipalities are contiguous to the subject municipality, 0-29)

(8) Distance (e.g., the straight line distance between the non-Central City and Central City city halls—measured in meters)

VECTOR OF MUNICIPAL FINANCE

(9) Municipal Finance (16 variables)

(a) Expenses (e.g., General Administration, Public Safety, Transportation, Community Development, Health, Recreation & Culture, Total Net Expenditures),

[142] In chapter 4, I explained the usage of the six RUCA classifications. However, due to Isleton's production of only one housing element and its continued non-submission of financial data, the RUCA classification for Rural Areas was un-observed in the descriptive and statistical analysis. In addition, Metropolitan Core operated as the base and "omitted" dichotomous variable.

(b) Revenues (e.g., Local Property Taxes, State Property Taxes, Exemptions, All Tax Revenues, Licenses, Current Charges, Total Net Revenues), and

(c) Transfers (e.g., various transfers of State funds to municipalities).

VECTOR OF POPULATION AND HOUSING

(10) Population and Housing (8 variables)

(a) Municipal Persons per Household (e.g., household population divided by the occupied housing units),

(b) Municipal vacancy rate (e.g., total housing units minus occupied housing units then divided by the total number of housing units multiplied by 100),

(c) County's annual population (e.g., the annual population of the county where the municipality is contained),

(d) County Persons per Household (e.g., household population divided by the occupied housing units),

(e) County's Vacancy Rate (e.g., total housing units minus occupied housing units then divided by the total number of housing units multiplied by 100)

(f) California annual population (e.g., the annual population of California),

(g) California Persons per Household (e.g., California's household population divided by the occupied housing units), and

(h) California's Vacancy Rate (e.g., California's total housing units minus occupied housing units then divided by the total number of housing units multiplied by 100).

VECTOR OF CONSUMER SPENDING

Because the RHNA allocation is stratified by household income, the suggestion of "drive til you qualify," and also the failure of growth to obtain a statistically significant relationship to NCSH, I expanded my analysis of Housing Production with the inclusion of state level economic information. Because this dissertation examines purposive samples in a regional setting for local effects, I wanted to know if there was a consumer based counterfactual that I had not specified in the research design. Therefore, I selected a state-level per-capita income measure to determine to see if there was any relationship between consumer purchasing power and housing production. The vector of Consumer Data contains three variables: Per Capita Personal Income for California, California's Metropolitan, and Non-Metropolitan areas.[143]

(11) Per Capita Personal Income

Definition: *Per Capita Personal Income* functions as an indicator of consumers' purchasing power and of the economic well-being of the residents of an area and is an index of two measures: Personal Income and Population. Personal Income is income received by persons from all sources. Population is the number of residents in a given area.

Influence: I did not advance a hypothesized influence on the response variable as this, to my knowledge, was the first time that this data has been used in this manner.

Units of Analysis: *Per Capita Personal Income* for California is observed as a continuous measure (i.e., positive dollars) and is separated into California, California's Metropolitan, and Non-Metropolitan areas. All state and local area dollar estimates are in current dollars (not adjusted for inflation). The data source for these fiscal variables is the US Department of Commerce's Bureau of Economic Analysis (*Personal income, per capita personal income, and population (CA1-3)*, 1980-2010).

[143] http://www.bea.gov/regional/definitions/nextpage.cfm?key=Per%20capita%20personal%20income

In Table 35, I provide a list of the FULL set of forty-three predictor and control variables. This table lists the variable, its code name, and vector.

Table 35: List of the FULL set of forty-three predicting variables
This table lists the forty-three variables that consist of the conceptual predicting variables and control variables, and constituted the FULL model.

Row	Variable	Code Name	Vector
1	Housing Demand	h_demand	Conceptual Model
2	Growth	growth	
3	Political Will	p_will	
4	Existing Housing Supply	eh_supply	
5	Subsidy	subsidy	
6	Compliance	compliance	
7	Group	trt_grp	Static
8	Region	region_id	
9	Metropolitan High Commute	met_H	
10	Metropolitan Low Commute	met_L	
11	Micropolitan core	micro	
12	Small Town	sm_twn	
13	Municipal Area	city_area	
14	Adjacent to Central City	nn_cent	Adjacency
15	Adjacent Municipalities	nn_cities	
16	Distance from Central City	distance	
17	Fiscal Year	fiscal_year	Municipal Finance
18	General Administration Expenses	exp_gengov	
19	Public Safety Expenses	exp_pubsafe	
20	Transportation Expenses	exp_trans	
21	Community Development Expenses	exp_comdev	
22	Health Expenses	exp_health	
23	Cultural and Recreational Expenses	exp_cult	
24	Total Net Expenditures	city_net_exp	
25	Local Tax Assessment	local_assess	
26	State Tax Assessment	state_assess	
27	Tax Exemptions	exemptions_all	
28	Tax Revenues	rev_taxes	
29	License Revenues	rev_licenses	
30	Current Charge Revenues	rev_current	
31	Total Net Revenues	city_net_rev	
32	State Transfers	rev_state	
33	Municipal Persons per Household	city_pop_avg_per_hh	Population and Housing

Table 35: List of the FULL set of forty-three predicting variables

This table lists the forty-three variables that consist of the conceptual predicting variables and control variables, and constituted the FULL model.

Row	Variable	Code Name	Vector
34	Municipal Vacancy Rate	city_vcncy	
35	County Population	county_pop_tot	
36	County Persons per Household	county_pop_avg_per_hh	
37	County Vacancy Rate	county_vcncy	
38	California Population	CA_pop_tot	
39	California Persons per Household	CA_pop_avg_per_hh	
40	California Vacancy Rate	CA_vcncy	
41	California Per Capita Personal Income	CA_pcpi	Consumer Spending
42	California PCPI Metropolitan Areas	CA_metro_pcpi	
43	California PCPI Non-Metropolitan Areas	CA_non_metro_pcpi	

6.2.4 STATEMENT OF THE HYPOTHESIZED MODEL

The hypothesized regression equation for research question 3 is as follows:

$$\begin{aligned}\text{Housing Production}_{it} = {} & B_0 + B_1*\text{Housing Demand}_{it} + B_2*\text{Growth}_{it} + B_3*\text{Political Will}_{it} \\ & + B_4*\text{Existing Housing Supply}_{it} + B_5*\text{Subsidy}_{it} + B_6*\text{Compliance}_{it} \\ & + B_k*\text{Vector of Static data}_{it}, \; + B_k*\text{Vector of Adjacency data}_{it} \\ & + B_k*\text{Vector of Municipal Finance data}_{it} \\ & + B_k*\text{Vector of Population and Housing data}_{it} \\ & + B_k*\text{Vector of Consumer Spending data}_{it} + e_{it}\end{aligned}$$

6.2.5 DISCUSS DATA TRENDS

The data for this regression test contains both raw dichotomous variables and standardized continuous variables. Because the FULL model contains forty-three parameters, I have placed histograms and box plots in Appendix F. At this time, I provide Figure 31 that illustrates the response variable, Housing Production, raw and transformed as a natural log.

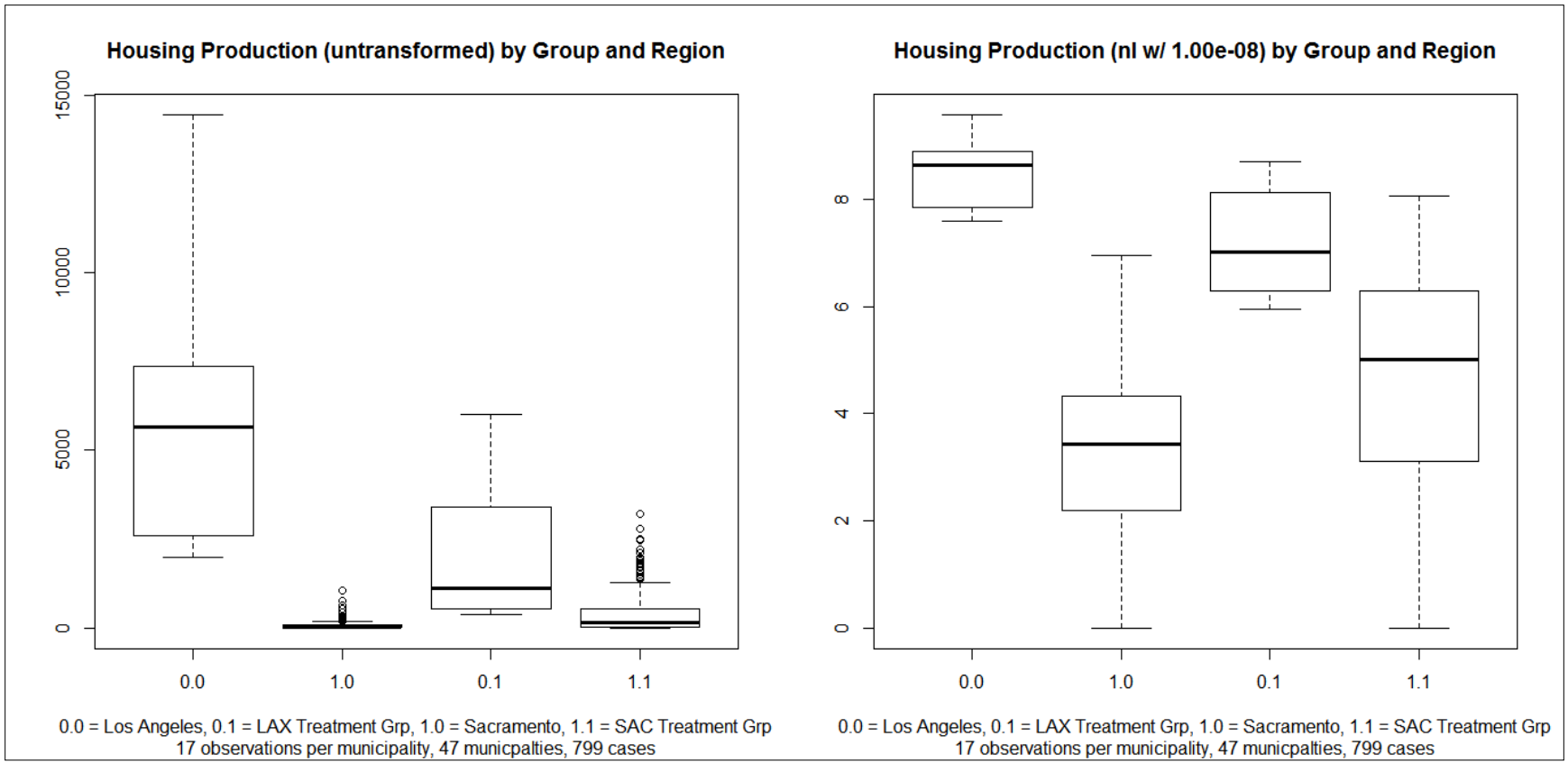


Figure 31: Box plots of Housing Production (untransformed, standardized)

Each box plot in this figure depicts the Housing Production distribution as separated by Region and by Group (e.g., "#,#" respectively). In the left figure, the Housing Production of the City of Sacramento (1.0) has 17 observations that reflect a minimum value of 386, a 25% quartile of 542, a median of 1,114, a 75% quartile of 2,103, and a maximum value of 6,016 building permits. In the right figure, the range of values for Housing Production in the Los Angeles region non-Central Cities (1.0) reflects a standardized minimum value of -0, a 25% quartile of 2.303, a median of 3.807, a 75% quartile of 4.927, and a maximum value of 8.075.

6.2.6 IDENTIFY THE ESTIMATING EQUATION

The selection of the estimating equation should reflect not only the "best fit" of the response and predicting variables, but also the aims of the research and the values of the researcher. In the previous NCSH analysis, I discussed four positions that informed my "best model" selection (e.g., linkage between regional and local, examination of a new dataset, pragmatic research lens, confirmation of conceptual model). In this examination of Housing Production, I add an additional position: zero has meaning.

In the HEL phenomena, I equate observations of zero NCSH or zero Housing Production as failure because of the State's intent to provide housing opportunities for its current and future population and the municipal effort required to document "housing opportunities" within the housing element. As such, a zero observation would mean that either California or its municipalities contained enough housing units to satisfy housing demand, let alone low-income housing demand. This a spurious assumption since Chapter 5 demonstrated municipal preference for market-rate housing construction. Therefore zero, in my view, signals not only the failure of housing opportunities to be become housing units, but also the disconnect between State intent (e.g., housing for all households in various economic levels) and municipal effort (e.g., the housing element).

In my view, zero should be documented within any analysis of HEL. In Chapter 5, I closed descriptive analysis with an examination of Treatment Adherence (e.g., the interaction between the RHNA allocation, municipal policies, programs, and implementing actions). In that section, I found that nearly 56% (or 58 of 104) of housing elements achieved an efficacy rate of 25% or less. Subsequently, I then commented on what proportion should be considered a success (e.g., a 75% success rate and 25% failure rate, etc.). In the previous NCSH analysis, I asked if NCSH was the appropriate response variable (e.g., square root or proportional transformation) given the municipal dynamics of Los Angeles and Sacramento? I concluded that the square root NCSH was the best response variable given the research questions, design, claims and researcher values. In these three instances, observations of zero had meaning.

In this present analysis on Housing Production, I have decided to intentionally incorporate observations of zero by transforming Housing Production as a natural log. Unfortunately, this

transformation produced observations in which the natural log of zero is infinity, and in R, infinity observations are deleted from analysis (e.g., case-wise deletions). Therefore, for those infinity observations, I inserted 1.00e-8 (or .00000001). This simple action caused five results.

First, the distribution of the transformed natural log of Housing Production (e.g., HPi) became normal. Second, the sample maintained 47 municipalities as opposed to deleting the municipalities of Industry and Irwindale.[144] Third, the residual errors plot were less packed, but evenly dispersed and clearly illustrated the zero observations. Fourth, the explanatory power of the models has decreased from a range of 75-77% to a range of 52-66%. While this last point may be disappointing, I am comfortable with a lower explanatory power as I can still complete the aims of the research and uphold the values of the researcher. In Figure 32, I provide a series of histograms that illustrate the statistical transformations of Housing Production, also referred to as HPi.

[144] I had considered eliminating the cities of Industry and Irwindale from the Housing Production analysis as the Bureau of Census does not record any construction activities for theses municipalities during the period of study. For example, the City of Industry actively prevents the new construction of any housing. Regarding the City of Irwindale, the Bureau of Census reported no building permits whereas the municipality's housing elements reported 86 new housing units during the period of study.

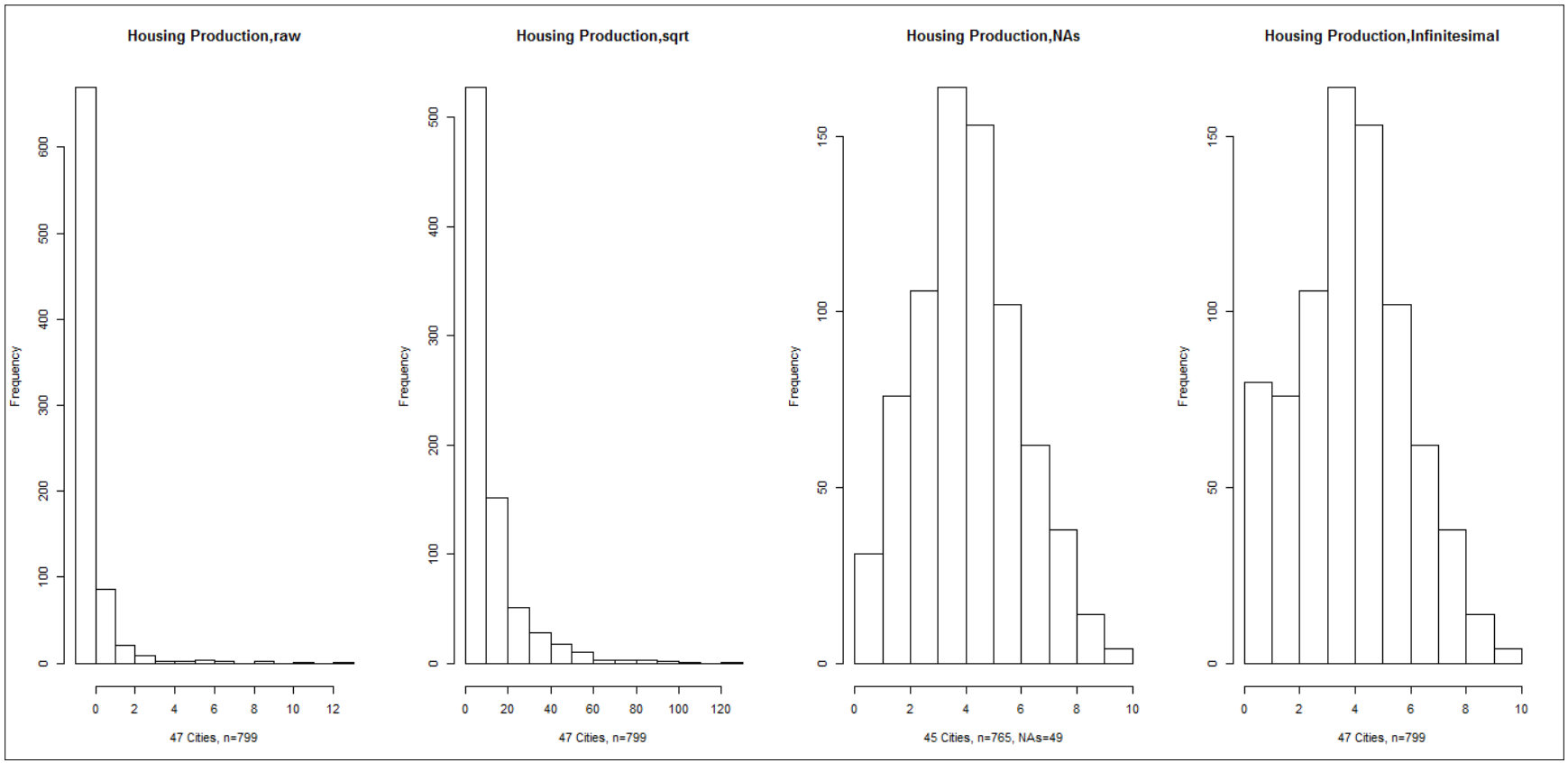


Figure 32: Histograms of Housing Production

This graphic illustrates distributions of Housing Production and its subsequent transformation from its raw form, to square root, to natural log (w/ 49 infinities), HPi (natural log with 1.00e-08, or .00000001 replacing infinity observations).

Fifth and finally, the FULL model retains the complete vector of Municipal Finance. In the NCSH analysis, I discovered that much of Municipal Finance was subject to high correlation. In my Housing Production analysis, I regressed HPi with the complete vector of standardized Municipal Finance, a limited selection of financial data (e.g., Total Net Expenditures, Total Net Revenues), and no financial data. While these models may have obtained R^2 values ranging in the 70s, the residual errors plots for these models resembled densely packed clumps, as opposed to an even spread of fitted values.

In multivariate regression, the statistical significance of each predicting variable signifies that variable's importance when added or "regressed" last (e.g., ceteris paribus, or when holding the other variables constant). Therefore, I regressed all forty-three variables within the FULL Model to determine the number of statistically significant variables. In the FULL model 51.1% (or twenty-two of forty-three) of predicting variables had statistical significance (|p< .05|).

I then employed two subset methods (Akaike and LEAPS) to find a parsimonious model that had fewer predicting variables and accurate results. In the AIC model, 86.6% (or twenty-six of thirty) of predicting variables had statistical significance (|p< .05|). In the LEAPS/HPi model, 100% (or eight of eight) of predicting variables have statistical significance (|p< .05|).

In Table 35, I provide an overview of statistics regarding the FULL, AIC, and LEAPS/HPi models. In this table, I list the primary tests that I applied to each model and I conclude that the LEAPS/HPi model best explains the statistical relationship between Housing Production and the predicting variables given my research aims and the data selected. The bold figures indicate the best value for each criterion.

Table 36: Comparison of the FULL, AIC, and LEAPS/HPi models
The table illustrates the criteria employed for comparing the FULL, AIC subset, and LEAPS/HPi subset estimating equations. The response value is the natural log of Housing Production w/ infinitesimal values.

Model	Subset Method	Predicting Variables	Residual / Fitted Plot	AIC	R^2	$\overline{R}^2$	$\overline{R}^2$ *to* R^2 %	VIF < 10	VIF %
FULL	None	43	**Spread**	2663.335	**0.6587**	0.6393	96.60%	20 of 43	47.0%
AIC	.05	30	**Spread**	**2647.731**	0.6542	**0.6407**	97.94%	13 of 30	43.0%
LEAPS/HPi	$\overline{R}^2$	**8**	**Spread**	2864.775	0.5206	0.5158	**99.65%**	**2 of 8**	**25.0%**

Based on the previous criteria, I advance that the LEAPS/HPi model[145] was the best estimating equation due to the lowest incidence of Multicollinearity in the predicting variables (e.g., 2 of 8 variables or 25%) and the highest proportion of adjusted $\bar{R}^2$ to R^2 (99.65%).[146] Unlike the NCSH analysis, there were differences between Akaike and $\bar{R}^2$ statistics obtained in the AIC and LEAPS/HPi models. In spite of the LEAPS/HPi model's higher Akaike statistic and lower $\bar{R}^2$ statistic, I chose the LEAPS/HPi model as the best estimating equation as it supports the aims of the research and researcher. The LEAPS/HPi estimating equation is as follows:

$$\widehat{HPi} = 2.687 + 1.805*\text{Region} + 1.690*\text{Subsidy} - 22.05*\text{Existing Housing Supply} - .00003403*\text{Distance} + 25.32*\text{Housing Demand} - 3.989*\text{Tax Revenues} + 1.345*\text{License Revenues} - .6178*\text{Municipal Persons per Household}$$

In my examination of the Residual Errors plot, I noted that all models provide even-spread of errors, infinitesimal observations notwithstanding. However, the LEAPS/HPi model had the largest range of fitted values (e.g., 0-14), and discounting the infinitesimal observations, the largest range of residual errors (e.g., +3 to -4.5). These differences may suggest a lack of fit. Therefore, I shall continue with my sensitivity tests to determine how true the LEAPS/HPi model estimates annual housing production. Please see Figure 33 as a comparison of the Residual Error plots for the three models.

[145] LEAPS/HPi refers to the Leaps subset method and HPi refers to Housing Production transformed as a natural log with 1.00e-08 (or .00000001) substituted for infinity observations.

[146] A Coefficient of Determination is a measure of goodness of "fit" for a regression model based on the ratio of explained variation to total variation in the response variable (e.g., SSR/SST) (Meier et al., p. 533)

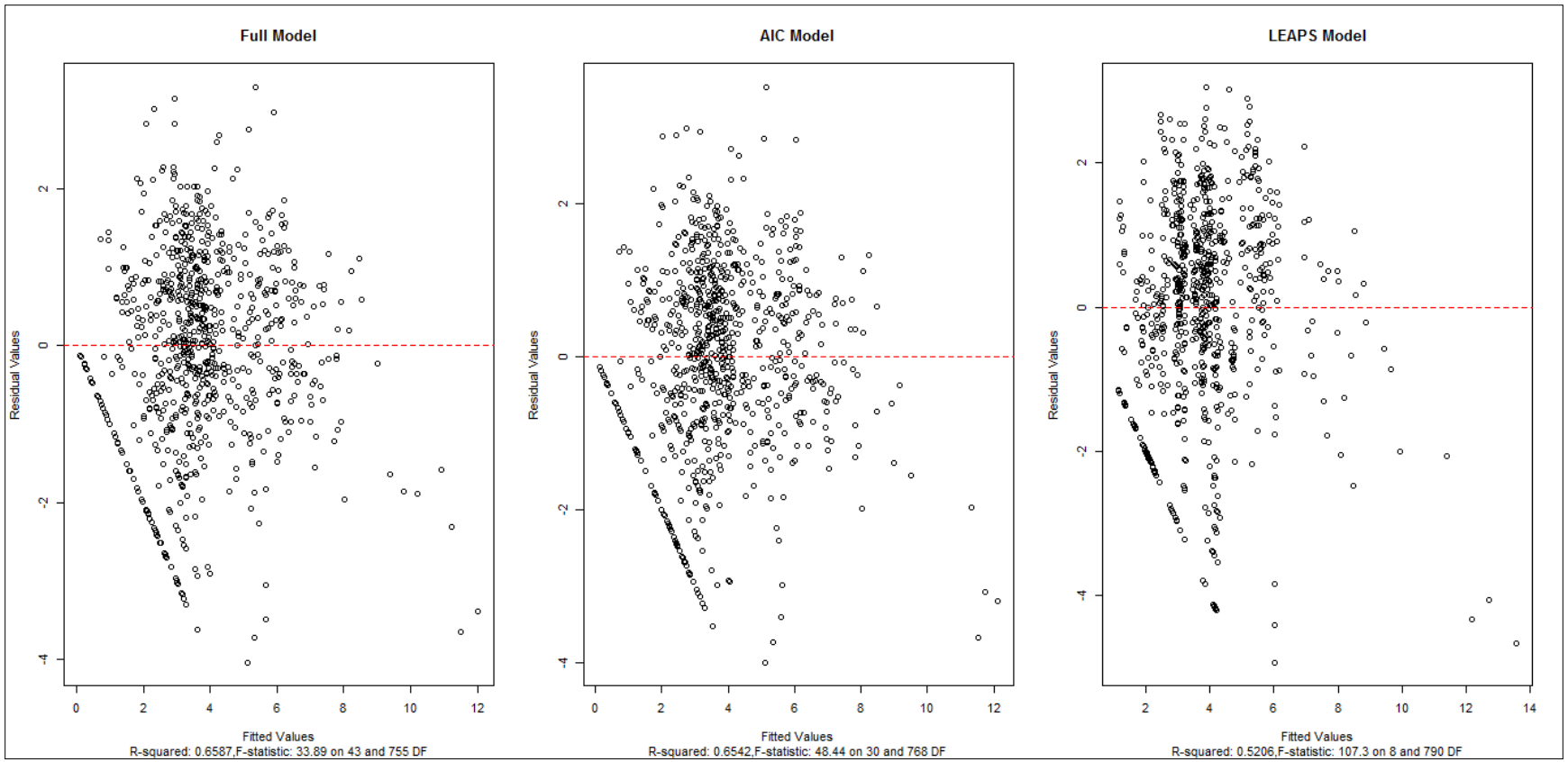


Figure 33: Residual Error Plots: FULL, AIC, LEAPS/HPi

In this figure, the Residual Error plots for the FULL, AIC subset, and LEAPS subset model. Due to the compactness of the LEAPS model and other criteria listed in Table 35, I have selected the LEAPS/HPi model as the model for explaining the change in a municipality's annual Housing Production.

In my earlier discussion regarding the choice of the appropriate Housing Production transformation, I compared the LEAPS/HPi and LEAPS/HPsqrt and visually concluded (e.g., densely packed vs. evenly spread) that even with the lower explanatory power, the LEAPS/HPi with infinitesimal Housing Production was the best estimating question. In addition, the infinitesimal equation appears to display an equal variance. In section 6.2.10b, I subsequently test for equal variance. Please see Figure 34 as a comparison of the Residual Errors plots for LEAPS/HPi and LEAPS/HPsqrt.

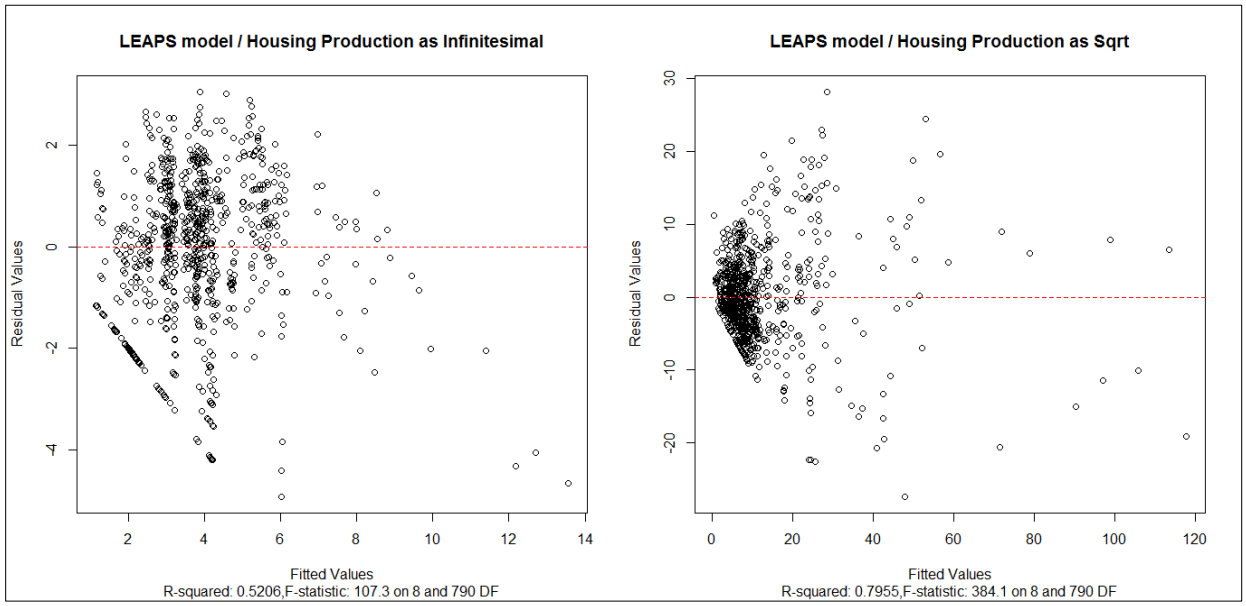


Figure 34: Residual Errors plots: LEAPS/HPi, LEAPS/HPsqrt

In this figure, I present two distinct LEAPS subset equations in which the Housing Production is transformed with infinitesimal observations (e.g., .00000001) or has undergone square root transformation. Visually, the infinitesimal transformation provides a better picture for residual analysis in spite of the lower explanatory power.

In Table 37, I present a statistical listing of the predicting variables of the FULL, AIC, and LEAPS/HPi models (e.g., code name, parameter estimate, and p-value). In this table, two points should be noted. First, as the predicting variables reduces from the FULL (e.g., 43), to the AIC (e.g., 30), and to the LEAPS/HPi (e.g., 8) model, the size and direction of four LEAPS/HPi parameters consistently get smaller and more statistically significant, two LEAPS/HPi parameters consistently become larger and more statistically significant, three LEAPS/HPi parameters either change sizes or direction. Second, while my initial criteria for model selection indentified Multicollinearity all models, the three inconsistent parameters are the Intercept, Distance, and Tax Revenues. In all three models, Distance was not collinear

with any other parameter but Tax Revenues was found collinear in the FULL and AIC models. Therefore, I conclude that the changes in sizes and directions reflect Multicollinearity found in the FULL and AIC models, not the advanced LEAPS/HPi model. The LEAPS/HPi variables are in bold.

Table 37: Parameter Estimates for the FULL, AIC, and LEAPS/HPi models.
A comparison of the FULL, AIC, and LEAPS/HPi models. From this comparison, the LEAPS/HPi model provides the best estimating equation for explaining the municipal variation of Housing Production.

	FULL model		AIC subset model		LEAPS subset model	
Variable	Estimate	Pr(>|t|)	Estimate	Pr(>|t|)	Estimate	Pr(>|t|)
(Intercept)	**-1.712e+03**	**0.092880 .**	**-1.235e+03**	**0.141183**	**2.687e+00**	**2e-16 *****
fiscal_year	8.546e-01	0.093588 .	6.157e-01	0.142440		
trt_grp	1.698e+00	0.074342 .	1.764e+00	0.005843 **		
region_id	**1.117e+01**	**2.03e-07 *****	**1.137e+01**	**4.36e-08 *****	**1.805e+00**	**2e-16 *****
p_will	-2.460e-01	0.079530 .	-2.717e-01	0.047238 *		
compliance	-2.126e-02	0.843351				
subsidy	**1.493e+00**	**1.41e-10 *****	**1.506e+00**	**1.94e-11 *****	**1.690e+00**	**2e-16 *****
met_H	5.626e-03	0.982557				
met_L	9.429e-01	0.025508 *	9.669e-01	0.015916 *		
micro	-3.980e-01	0.245879				
sm_twn	-1.354e+00	0.000118 ***	-1.345e+00	8.68e-05 ***		
nn_cent	-4.240e-01	0.034645 *	-3.677e-01	0.052707 .		
nn_cities	1.211e-01	0.008490 **	1.317e-01	0.002868 **		
city_area	5.995e-02	4.56e-10 ***	5.820e-02	8.04e-10 ***		
distance	**-3.082e-05**	**4.29e-10 *****	**-2.882e-05**	**-4.05e-12 *****	**-3.403e-05**	**2e-16 *****
h_demand	**3.303e+01**	**2e-16 *****	**3.114e+01**	**2e-16 *****	**2.532e+01**	**2e-16 *****
growth	-1.998e-01	0.000211 ***	-2.198e-01	3.38e-05 ***		
eh_supply	-3.070e+01	2e-16 ***	-2.894e+01	2e-16 ***	-2.205e+01	2e-16 ***
local_assess	-1.223e+00	0.328484				
state_assess	-5.662e-01	4.01e-05 ***	-5.308e-01	1.91e-05 ***		
exemptions_all	2.907e+00	2.53e-11 ***	2.709e+00	8.63e-13 ***		
rev_taxes	**-6.215e+00**	**0.000680 *****	**-8.066e+00**	**2e-16 *****	**-3.989e+00**	**2e-16 *****
rev_licenses	**9.186e-01**	**3.38e-06 *****	**8.533e-01**	**2.07e-06 *****	**1.345e+00**	**4.16e-16 *****
rev_current	1.671e+00	0.278243				
rev_state	-1.588e+00	0.000570 ***	-1.870e+00	2.99e-10 ***		
city_net_rev	-2.571e+00	0.091271 .				
exp_gengov	7.113e-03	0.972598				
exp_pubsafe	1.132e+00	0.054880 .	1.218e+00	0.025063 *		
exp_trans	-1.176e-01	0.066953 .				
exp_comdev	-1.687e-01	0.156957	-2.029e-01	0.017861 *		
exp_health	-7.851e-02	0.286830				
exp_cult	-1.322e-01	0.618598				
city_net_exp	-2.391e-01	0.412423				
city_vcncy	-1.089e-01	0.075107 .	-1.096e-01	0.066965 .		
city_pop_avg_per_hh	**-6.554e-01**	**2e-16 *****	**-6.313e-01**	**2e-16 *****	**-6.178e-01**	**2e-16 *****
cnty_pop_tot	4.678e+00	5.85e-06 ***	4.770e+00	1.70e-06 ***		

Table 37: Parameter Estimates for the FULL, AIC, and LEAPS/HPi models.

A comparison of the FULL, AIC, and LEAPS/HPi models. From this comparison, the LEAPS/HPi model provides the best estimating equation for explaining the municipal variation of Housing Production.

	FULL model		AIC subset model		LEAPS subset model	
Variable	Estimate	Pr(>|t|)	Estimate	Pr(>|t|)	Estimate	Pr(>|t|)
cnty_vcncy	5.084e+00	0.001650 **	4.858e+00	0.001617 **		
cnty_pop_avg_per_hh	-5.670e+00	0.000710 ***	-5.435e+00	0.000677 ***		
CA_pop_tot	-5.987e+00	0.020731 *	-5.791e+00	0.019039 *		
CA_vcncy	1.434e+00	0.029088 *	9.941e-01	0.064669 .		
CA_pop_avg_per_hh	2.817e+00	0.000271 ***	2.601e+00	0.000340 ***		
CA_pcpi	-6.388e+01	0.903189				
CA_metro_pcpi	6.542e+01	0.899109	1.420e+00	0.000808 ***		
CA_non_metro_pcpi	-8.535e-01	0.928848				
Significance codes: '***' 0.001; '**' 0.01; '*' 0.05; '.' 0.1 FULL model R^2: 0.6587; AIC model R^2: 0.6542, LEAPS model R^2: 0.5158						

6.2.7 MULTICOLLINEARITY

In the previous section, I employed Multicollinearity as a criterion for the selection of the LEAPS/HPi model as the best estimating equation. In the previous NCSH analysis, I explained that Multicollinearity signals that "two or more independent variables are highly correlated" (Meier et al., p. 402). This condition makes it difficult to distinguish the independent effect of the collinear variables, and inflated errors tend to prevent statistical significance. In this analysis, my VIF criterion is 10 (Chatterjee & Hadi).

As such, the FULL model suffered from Multicollinearity as it attains not only a high R^2 and but 50% of predicting variables attain statistical significance, but unfortunately 47% (or 20 of 43) of the predicting variables have VIF statistics greater than 10. The AIC model also suffered from Multicollinearity as 43% (or 13 of 30) predicting variables have VIF statistics greater than 10. In the LEAPS/HPi model, 25% (or 2 of 8) predicting variables have VIF statistics greater than 10; however, all predicting variables are highly statistically significant (|p<.001|).

In Table 37, I present the VIF statistics of the advanced LEAPS/HPi model.

Table 38:VIF Statistics: LEAPS/HPi model
The response variable is Housing Production infinitesimal and the predicting data is standardized.

Row	Variable	Estimate	Pr(>|t|)	VIF > 10
1	(Intercept)	2.687e+00	< 2e-16 ***	
2	Region	1.805e+00	< 2e-16 ***	1.283687
3	Subsidy	1.690e+00	< 2e-16 ***	1.033200
4	*Existing Housing Supply*	*-2.205e+01*	*< 2e-16 *****	*43.133586*
5	Distance	-3.403e-05	< 2e-16 ***	1.228221
6	*Housing Demand*	*2.532e+01*	*< 2e-16 *****	*48.302039*
7	Tax Revenues	-3.989e+00	< 2e-16 ***	7.937134
8	License Revenues	1.345e+00	4.16e-16 ***	3.168392
9	Municipal Persons per Household	-6.178e-01	< 2e-16 ***	1.268077

Significance codes: '***' 0.001; '**' 0.01; '*' 0.05; '.' 0.1
LEAPS model R^2: 0.5206, $\bar{R}^2$: 0.5158
F-statistic: 107.3 on 8 and 790 DF, p-value: < 2.2e-16

Unlike the NCSH analysis, I anticipated Multicollinearity within the vector of Municipal Finance. Subsequent models limiting the vector of Municipal Finance to only two variables (e.g., Total Net Expenditures, Total Net Revenues), contained eight predicting variables, but those models violated normality, had lower R^2 values, and had a lower proportion of statistically significant variables. In addition, the residual errors plot displayed as dense clump that read as heteroscedastic. Please see Figure 32 as a comparison of the LEAPS/HPi models with differing variables for Municipal Finance.

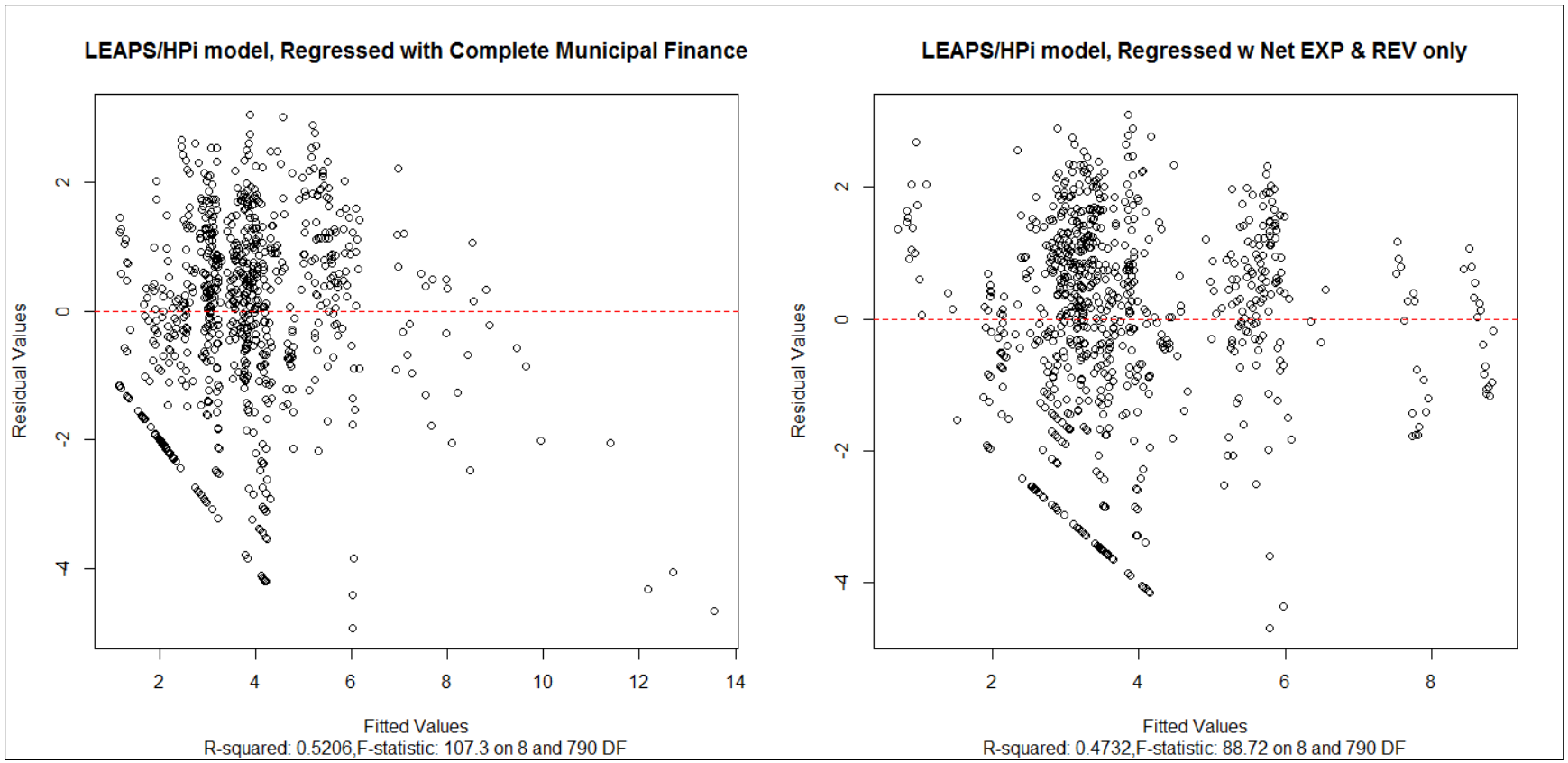


Figure 35: Residual Error plots: LEAPS/HPi w/ full and limited financial data.

The first plot is the advanced LEAPS/HPi model in which the complete vector of Municipal Finance was "exhaustively" regressed as part of 43 predicting variables on HPi. The second plot illustrates a LEAPS subset model in which a limited vector of Municipal Finance (Total Net Expenditure, Total Net Revenues) were "exhaustively" regressed as part of 19 predicting variables on HPi. While both models contain eight predicting variables, only Region, Existing Housing Supply, Distance, and Subsidy appear in both.

Thus in the LEAPS/HPi model, the two collinear variables are Existing Housing Supply (e.g., VIF of 43.13) and Housing Demand (e.g., VIF of 48.30). I ran an additional model, regressing Existing Housing Supply on all the independent LEAPS/HPi model variables. I found that the combined influence of Region, Subsidy, Distance, Housing Demand, Tax Revenues, License Revenues and Municipal Persons per Household as they vary about their means explain 99.95% of the variance of Existing Housing Supply as it varies about its mean with all predicting variables attaining statistical significance ($|p<.05|$). Similarly, I found that the combined influence of Region, Subsidy, Distance, Existing Housing Supply, Tax Revenues, License Revenues and Municipal Persons per Household as they vary about their means explain 99.96% of the variance of Housing Demand as it varies about its mean with all predicting variables attaining statistical significance ($|p<.05|$).

In short, Multicollinearity will not allow an independent interpretation of either Existing Housing Supply or Housing Demand. I could remove them from the model, but then I lose explanatory power (e.g. lower R^2). I could also set them up as an interaction (Existing Housing Supply / Housing Demand or vice-versa), but then I lose interpretation and some relevance as not every planner, housing advocate, or the general public knows a municipality's ex ante annual Existing Housing Supply or Housing Demand. Therefore, those variables remain un-transformed, un-weighted, or un-interacted in the advanced LEAPS/HPi model.

6.2.8 CONDUCT GOODNESS OF FIT TESTS.

For my goodness of fit tests, I employ R^2 for explanatory power, the F-test as a collective evaluation of the predicting variables, and a T-test as an individual evaluation of the predicting variables.

Initially, I used each model's proportion of the adjusted $\bar{R}^2$ to the R^2 (e.g., Coefficient of Determination) as part of my best equation criteria. While the LEAPS/HPi model may have obtained the lowest R^2 of the three models (e.g., FULL = 0.6587, AIC = 0.6542, LEAPS/HPi = 0.5206), the LEAPS/HPi model had the lowest differential between the R^2 the adjusted $\bar{R}^2$ (LEAPS/HPi = .35% differential, AIC = 2.36% differential, FULL = 3.4% differential). This differential operates as a decision statistic as the adjusted $\bar{R}^2$ accounts for systemic errors (e.g., Sums of Squares due to Error) in the estimating equation due to surplus predicting variables. In essence, a small differential signals the formation of a tight estimating equation, whereas a larger differential signals an estimating equation redolent with junk.

Thus, the LEAPS/HPi model's R^2 allows me to state that 52.06% of the variation of Housing Production infinitesimal about its mean is explained by the combined linear influence of Region, Subsidy, Existing Housing Supply, Distance, Housing Demand, Tax Revenues, License Revenues and Municipal Persons per Household as they vary about their means.

In the second goodness of fit test, I employ the F-test to determine if at least one of the predicting variables (also known as the partial regression slope coefficients) could be zero. The hypothesis for the F-test is as follows:

$$H_O: b_1 = b_2 = b_3 = b_4 = b_5 = b_6 = b_7 = b_8 = 0$$

$$H_A: b_k \neq 0$$

For the LEAPS/HPi model, the critical value is $F_{.05,8,790} = 1.9501$. The LEAPS/HPi model F statistic is F = 107.30 (|p<.001|). Therefore, we can reject the null hypothesis that states that <u>all</u> of the partial regression slope coefficients equal zero, and conclude that <u>at least one</u> of the partial regression slope coefficients is not equal to zero.

In my third goodness of fit test, I employ a T-test to determine if a partial regression slope coefficient (or predicting variable) could be zero. The hypothesis for the T-test is as follows:

$$H_O: b_K = 0$$

$$H_A: b_k \neq 0$$

The critical value is $T_{.05,790} = 1.9629$ and in the Table 39, I present the calculated *t*, *p-values*, and significance level of the predicting variables (e.g., partial regression slope coefficients).

Table 39: T-Test of the Parameters of the LEAPS/HPi model

Predicting Variable	*t* statistic	(*p*-value)	Significance
Region	$b_1 = 13.049$	< 2e-16 ***	p< .001
Subsidy	$b_2 = 8.939$	< 2e-16 ***	p< .001
Existing Housing Supply	$b_3 = -10.005$	< 2e-16 ***	p< .001
Distance	$b_4 = -9.488$	< 2e-16 ***	p< .001
Housing Demand	$b_5 = 10.260$	< 2e-16 ***	p< .001
Tax Revenues	$b_6 = -9.837$	< 2e-16 ***	p< .001
License Revenues	$b_7 = 8.310$	4.16e-16 ***	p< .001
Municipal Persons per Household	$b_8 = -9.535$	< 2e-16 ***	p< .001

In this test, my alpha contains a 2-sided rejection region of 5% (e.g., $\propto = .05$); therefore, I sought *t* statistics that exceeded the absolute value of $T_{.05,790} = 1.9629$. In the LEAPS model, all the predicting variables exceed the *t* criterion and thus maintain a statistical relationship with the response variable, Housing Production infinitesimal. This test also assessed the conceptual model.

The LEAPS/HPi confirms significance and direction of Subsidy and Housing Demand, but Existing Housing Supply's negative direction t-statistic provides a partial confirmation (statistically significant, but different from my hypothesized direction). Furthermore, since a collinear relationship is evident between Existing Housing Supply and Housing Demand, it will be impossible to isolate the independent affects for each variable. However, the direction of each variable's relationship is clear.

6.2.9 INTERPRET THE PARTIAL REGRESSION SLOPE COEFFICIENTS.

In this section, I provide two interpretations of the relationship between the predicting variables and the response variable contained in the LEAPS/HPi Model. For each variable, that maintains a statistical relationship, I provide a simple interpretation based on the partial regression slope coefficient, and then a more nuanced interpretation of the statistical relationship (e.g., a $\propto = .05$ confidence interval of the partial regression slope coefficient).

While both interpretations are helpful, it is the second that is more reliable as it accounts the range of measures in the different variables from the different municipalities. In this purposive sample, I have 790 observations and 47 municipalities and I acknowledge that the partial regression slope coefficients may not be a true unbiased estimate of the population of California municipalities. Therefore, I bracketed the range of the values for each independent variable. In this second interpretation, I use an alpha of .05 ($T_{.05,790} = 1.9629$, two-tailed), which is consistent with the alpha used in the previous goodness of fit tests. This means that the second interpretation will state the 95% confidence interval of the true partial regression slope coefficient.

Also note, the following interpretations are based on raw dichotomous predicting data and standardized predicting ratio data regressed on natural log response data. The calculation that I use for interpreting the dichotomous and standardized estimates on the natural log response data is $[(\exp(\beta) - 1) \cdot 100]$. What follows are the LEAPS/HPi estimating equation and its interpretations based on the conditions of the predicting and response variables.

$$\begin{aligned}\widehat{HPi} = \; & 2.687 + 1.805*\text{Region} + 1.690*\text{Subsidy} \\ & - 22.05*\text{Existing Housing Supply} - .00003403*\text{Distance} \\ & + 25.32*\text{Housing Demand} - 3.989*\text{Tax Revenues} \\ & + 1.345*\text{License Revenues} - .6178*\text{Municipal Persons per Household}\end{aligned}$$

1. Region (dichotomous and untransformed):

    a. For each municipality that is a located of the Sacramento region, we can expect the natural log of Housing Production to increase by 507.99%, while holding the other parameters constant.

    b. Based on the statistical relationship between Region and annual Housing Production, I am 95% confident that the true effect of Region on the natural log of Housing Production is an increase between 507.73% and 508.27%.

2. Subsidy (dichotomous and untransformed):

    a. For each municipality that has established a redevelopment agency, we can expect the natural log of Housing Production to increase by 441.95%.

    b. Based on the statistical relationship between Redevelopment Agency establishment and annual Housing Production, I am 95% confident that the true effect of Redevelopment Agency establishment on the natural log annual Housing Production is an increase between 441.58% and 442.32%.

3. Existing Housing Supply: While the F-test evidences a statistical relationship between Existing Housing Supply and annual Housing Production, Existing Housing Supply's collinearity with Housing Demand obscures Existing Housing Supply's independent effect. Thus, I can state that as Existing Housing Supply increases, annual Housing Production decreases; however, I cannot determine either an independent or a range effect.

4. Distance (ratio and standardized):

a. For every one-unit increase in the standard deviation of Distance (e.g., 17494.99 meters), we can expect the natural log of a municipality's annual Housing Production will decrease by −.0034%.

b. Based on the statistical relationship between Distance and annual Housing Production, I am 95% confident that the true effect of Distance on the natural log of a municipality's annual Housing Production is a decrease between −.00341% and −.00339%.

5. Housing Demand: While the F-test evidences a statistical relationship between Housing Demand and annual Housing Production, Housing Demand's collinearity with Existing Housing Supply obscures Housing Demand's independent effect. Thus, I can state that as Housing Demand increases, annual Housing Production increases however, I cannot determine either an independent or a range effect.

6. Tax Revenues (ratio and standardized):

a. For each one-unit increase in the standard deviation of annual Tax Revenues (e.g., $331,826,619), we expect the natural log of Housing Production will decrease by 98.14%, while holding the other parameters constant.

b. Based on the statistical relationship between Tax Revenues and annual Housing Production, I am 95% confident that the true effect of Tax Revenues on the natural log of annual Housing Production is a decrease between −98.9441% and − 97.3522%.

7. License Revenues (ratio and standardized):

a. For each one-unit increase in the standard deviation of annual License Revenues (e.g, $5,690,005), we can expect that the natural log of annual Housing Production will increase by 283.81%.

b. Based on the statistical relationship between License Revenues and annual Housing Production, I am 95% confident that the true effect of License Revenues on the natural log annual Housing Production is an increase between 283.50% and 284.14%.

8. Municipal Persons per Household (ratio and standardized):

   a. For each one-unit increase in the standard deviation of Municipal Persons per Household (e.g., 0.57), we can expect that the natural log of annual Housing Production will decrease by −46.09%.

   b. Based on the statistical relationship between the County Vacancy rate and annual Housing Production, I am 95% confident that the true effect of the County Vacancy rate on the natural log of Housing Production is a decrease between −46.21% and − 45.96%.

Of these interpretations, the independent effects of Region and Subsidy membership require further discussion. In this analysis, Region is coded 0 for LAX and 1 for SAC. If you recall in Figure 14 in section 5.5, the Sacramento region produced more housing that the Los Angeles region despite have a RHNA allocation that was 40% less (128k vs. 114K, respectively). Therefore, the large effect of Region reflects the Sacramento region's high production of housing. With Subsidy, 92% (or 43 or 47) of municipality have established a Redevelopment Agency and therefore have the potential to not only utilize 20% of Tax Increment Funds for low-income housing, but also the remaining 80% on a combination of commercial, industrial and market-rate residential uses.

With these interpretations, I acknowledge that they are based on my purposive sample of municipalities located in Northern and Southern California, and the independent and range effects of these partial regression slope coefficients may not generalize to the general population of California cities, or all cities located in Southern California. Therefore, the ranges described above can serve as rough guide for planners, analysts, and housing advocates when they analyze municipalities situated in urban locations.

6.2.10 CHECK MODEL ASSUMPTIONS.

In regression, a researcher can advocate that estimating equation is good, useful, or helpful, if the equation does not violate four key assumptions. These assumptions require that the researcher answer the following four questions, in the affirmative. Is this the correct model? Does the model maintain a constant variance? Are the residual errors independent? And lastly, do the residual errors resemble a normal distribution? In the following paragraphs, I shall answer these questions.

6.1.10A CORRECT MODEL

Is this the correct model? Similar to the NCSH analysis, I selected the LEAPS/HPi model as the best explanation of the relationship between the conceptual model, the vectors of control variables and annual Housing Production. This decision was based on parsimony (e.g., a reduced number of predicting variables), proportion of $\bar{R}^2$ to R^2 (e.g., least differential), and minimal Multicollinearity (e.g., lowest percentage of predicting variables are collinear). Yet, what if the response variable was insufficient?

In this dissertation, Housing Production represents the total amount residential permits issued each year as observed by the Bureau of Census. At this time, there is no other comprehensive of source of housing units or construction activity as the Construction Industry Research Board only measures the years from 1996-present. In the FULL, AIC, and LEAPS/HPi model, I transformed Housing Production from its raw form to a natural log with 1.0e-8 substituted for infinity observations. As I have stated earlier, zero has “meaning” in the HEL phenomenon (i.e., program failure); therefore, I wanted to capture and highlight those observations of Housing Production. In Figure 31, I provided an illustration of the response variable transformation. Thus, I am satisfied with the transformed response variable, but there are issues with the sample. Please see Figure 36 and 37 as comparison of Residual Error and the Influence plots of three LEAPS/HPi models in which I omit Los Angeles, then Los Angeles and Sacramento.

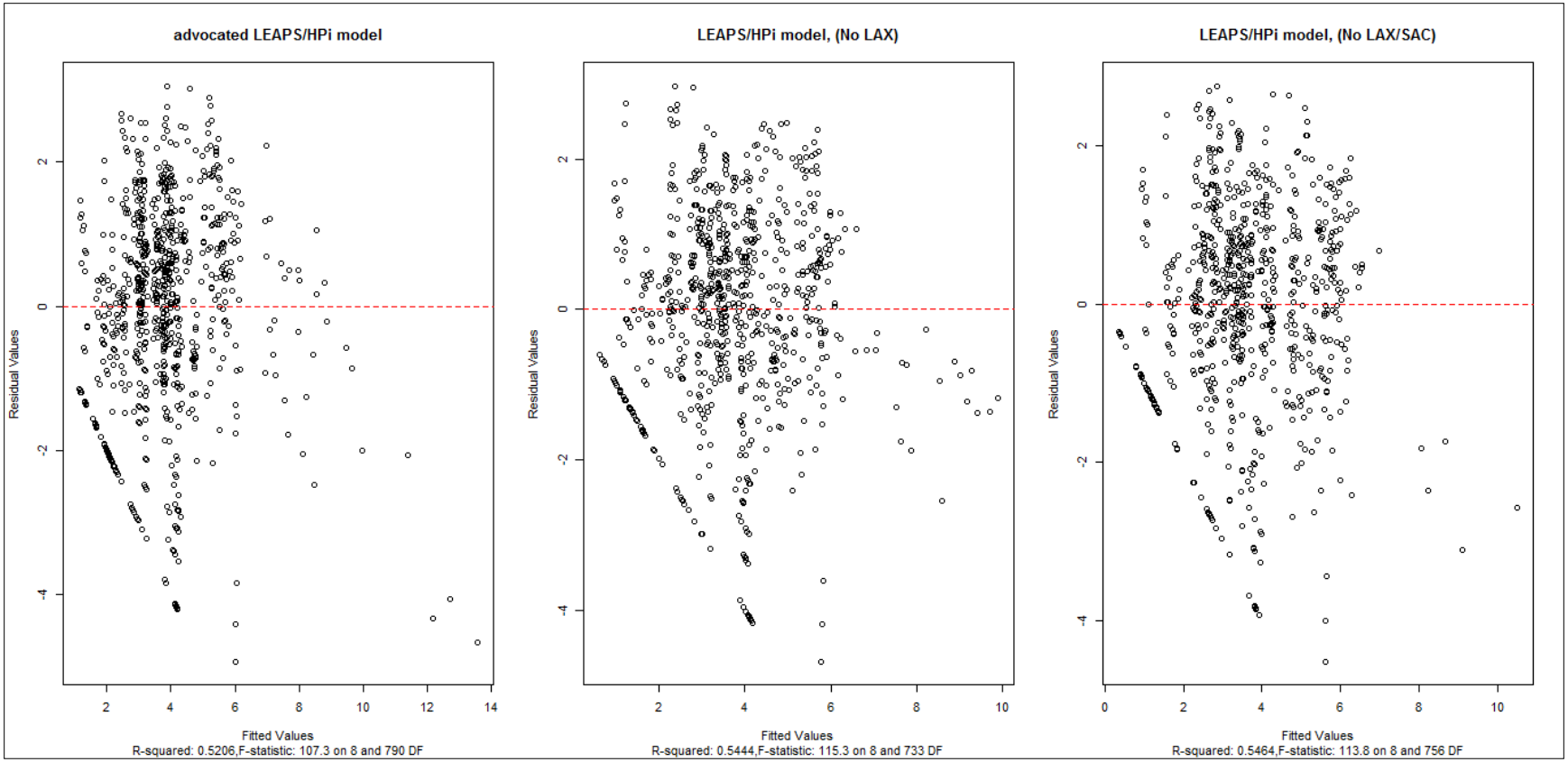


Figure 36: Residual Error plots: LEAPS/HPi, LEAPS/HPi (no LAX), LEAPS/HPi (No LAX/SAC)

In this figure, I provide three Residual Errors plots of the LEAPS/HPi model: the advanced model, the model without the City of Los Angeles, and the model with the cities of Los Angeles and Sacramento. The advanced model is the LEAPS/HPi model selected as the best equation for explaining Housing Production. With the "No LAX" model, the R^2 and F statistics increase and the residual errors contract as the City of Los Angeles no longer operates as the outlying and leverage points. With the "No LAX/SAC" model, R^2 continues to increase, but the F statistic decreases and residual errors remain the same as No LAX.

In essence, the shape of the model without Los Angeles and/or Sacramento remains essentially the same, but contracts due to reduced municipal dynamics.

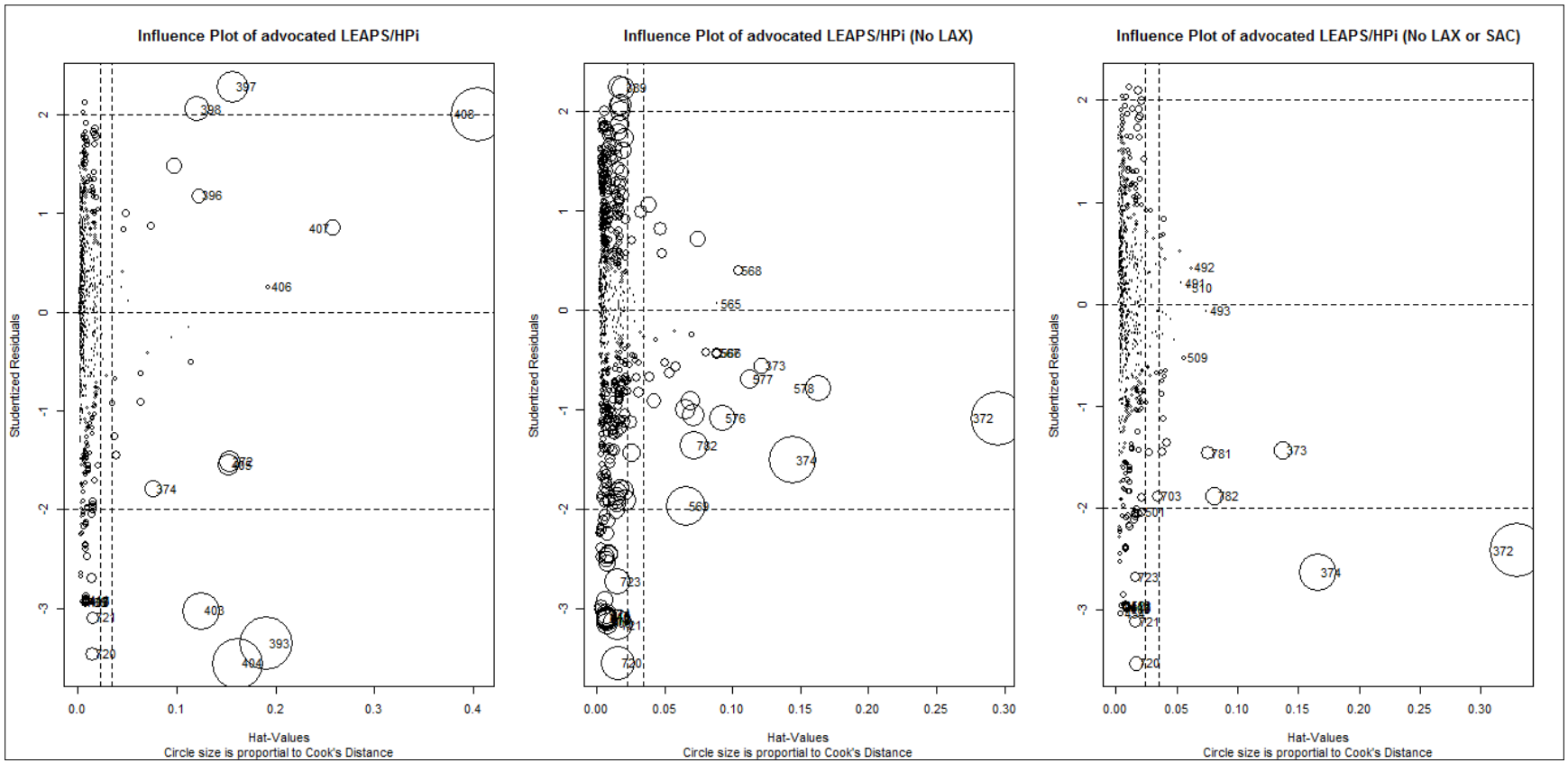


Figure 37: Influence plots: LEAPS/HPi, LEAPS/HPi (no LAX), LEAPS/HPi (No LAX/SAC)

In this figure, I provide three influence plots of the LEAPS/HPi model: the advanced model, the model without the City of Los Angeles, and the model with the cities of Los Angeles and Sacramento. In the advanced model, observations of #392:408 represent the City of Los Angeles and it is apparent that these observations operate as outliers and leverage points. With the "No LAX" model, the outlier and leverage points shift to the City of Sacramento (#562:578) and City of Lincoln (#372, 374) and City of Wheatland (#732). With the "No LAX/SAC" model, the outlier and leverage points collapse with two observations of Lincoln as overestimated.

In essence, the influence plots of the models without Los Angeles and/or Sacramento change dramatically, due to reduced municipal dynamics. Also, because the "No LAX/SAC" model has municipalities of similar dynamics, it has the highest R^2, and fewer leverage points.

In Figure 36's Residual Errors plots, one can see that the LEAPS/HPi models keep the same shape even with the removal of Los Angeles and Sacramento from the estimating equations. However, Figure 37's subsequent Influence plots display different relationships. In Figure 37, the Influence plot for the advanced LEAPS/HPi model displays that observations labeled 392 to 408 represent Los Angeles and Los Angeles drives the model. In the subsequent models, the influence and leverage points shift to Sacramento, Wheatland, and Lincoln (No LAX) and then only to Lincoln (No LAX/SAC). In essence, the advanced LEAPS/HPi may be insufficient to explain the population of California cities due to the municipal dynamics of the municipalities as represented by their municipal and financial data.

As the first iteration of this research design examining HEL, I have found that if you think of the phenomenon as a basketball game, then the problem lies with the team, not the game. In essence, Los Angeles and Sacramento can be characterized as Kareem Abdul Jabbar and Wilt Chamberlin and the suburban cities can be characterized as 7th graders. If Kareem and Wilt are a part of every 5-member team, then by their dynamics, they will dominate the team and influence the game's outcome. If one removes both Kareem and/or Wilt, then the team dynamics change and as a result, the game is different. Therefore, the proper game (i.e., research examination) should contain players of like sizes and skills (i.e., municipalities of similar conditions and municipal data). A game with evenly matched members will be more competitive (i.e., future research), as opposed to a wholesale slaughter. I would not have had this revelation had I not executed this research design in the manner specified in Chapter 4. In Table 39, I provide a comparison of the three LEAPS/HPi models depicted in Figures 36 and 37.

Table 40: Comparison of the advanced LEAPS/HPi, "No LAX," and "No LAX/SAC" models
The table illustrates the criteria employed for comparing the advanced LEAPS/HPi , "No LAX, and No LAX/SAC." The response value is the natural log of Housing Production w/ infinitesimal values.

Model	Parameters (|p> .05|)	Residual Errors Plot	F	AIC	R^2	$\bar{R}^2$	$\bar{R}^2$to R^2 %	VIF %
LEAPS/HPi	8	**Excellent**	107.3 ***	2864.775	0.5206	0.5158	99.08%	25.0%
LEAPS/HPi (No LAX)	**7**	**Excellent**	**115.5 *****	2689.390	0.5444	0.5397	99.14%	**0%**
LEAPS/HPi (No LAX/SAC)	**7**	**Excellent**	113.8 ***	**2584.746**	**0.5464**	**0.5416**	**99.12%**	**0%**

Significance codes: '***' 0.001; '**' 0.01; '*' 0.05; '.' 0.1

Therefore, under the presented research questions and design, I still advocate that the LEAPS/HPi model (containing Los Angeles and Sacramento) is the best model because I am interested in the relationship between central cities and their surrounding suburban and rural municipalities. In the next iteration of my research, I shall examine municipalities of like characteristics (i.e., the ten most populous Californian municipalities) to determine if the conceptual model improves with similar players.

In summary, is the LEAPS model the correct model? Yes, the LEAPS model is the best model and the natural log of Housing Production (w/ infinitesimal observations) is the best response variable given the research questions, design, claims and researcher values.

6.1.10B EQUAL VARIANCE

Does the model maintain an equal variance? In essence, how accurate is the model's prediction by an assessing if the equation over- or under- estimates the Housing Production infinitesimal. The ideal state is a model in which the residual error remain in a tight (e.g., constant) band along the fitted line. If you recall in the section 6.2.6 on Estimating Equation, I displayed the transformation of Housing Production in Figure 31 and I displayed the Residual Errors plots for the LEAPS models using Housing Production infinitesimal and square root transformations in Figure 34.

To test for an equal variance, I employed a Spread Level which test consists of two components: a Non-Constant Error Variance test, and a Spread Level plot. With the former, the Non-Constant Error Variance conducts a hypothesis test with constant error variance as the null hypothesis (Kabacoff, pp. 197-198). With the latter, the Spread Level plot illustrates the standardized residual values on the fitted line and superimposes a line of best fit—with a horizontal line as the goal. The direction of the superimposed line suggests the level of the transformation of the response value.

The results of the Non-Constant Error Variance test is a statistically significant Chi-square statistic (X^2= 26.14849, |p< .001|). This statistic indicates that the LEAPS/HPi model statistically does not meet the constant variance assumption. In Figure 38, I provide the Spread Level plots for both the advanced LEAPS/HPi, LEAPS/HP (No LAX), and LEAPS/HP (No LAX/SAC) models. I provide the additional models as a continuation of the "right-sized team" discussion.

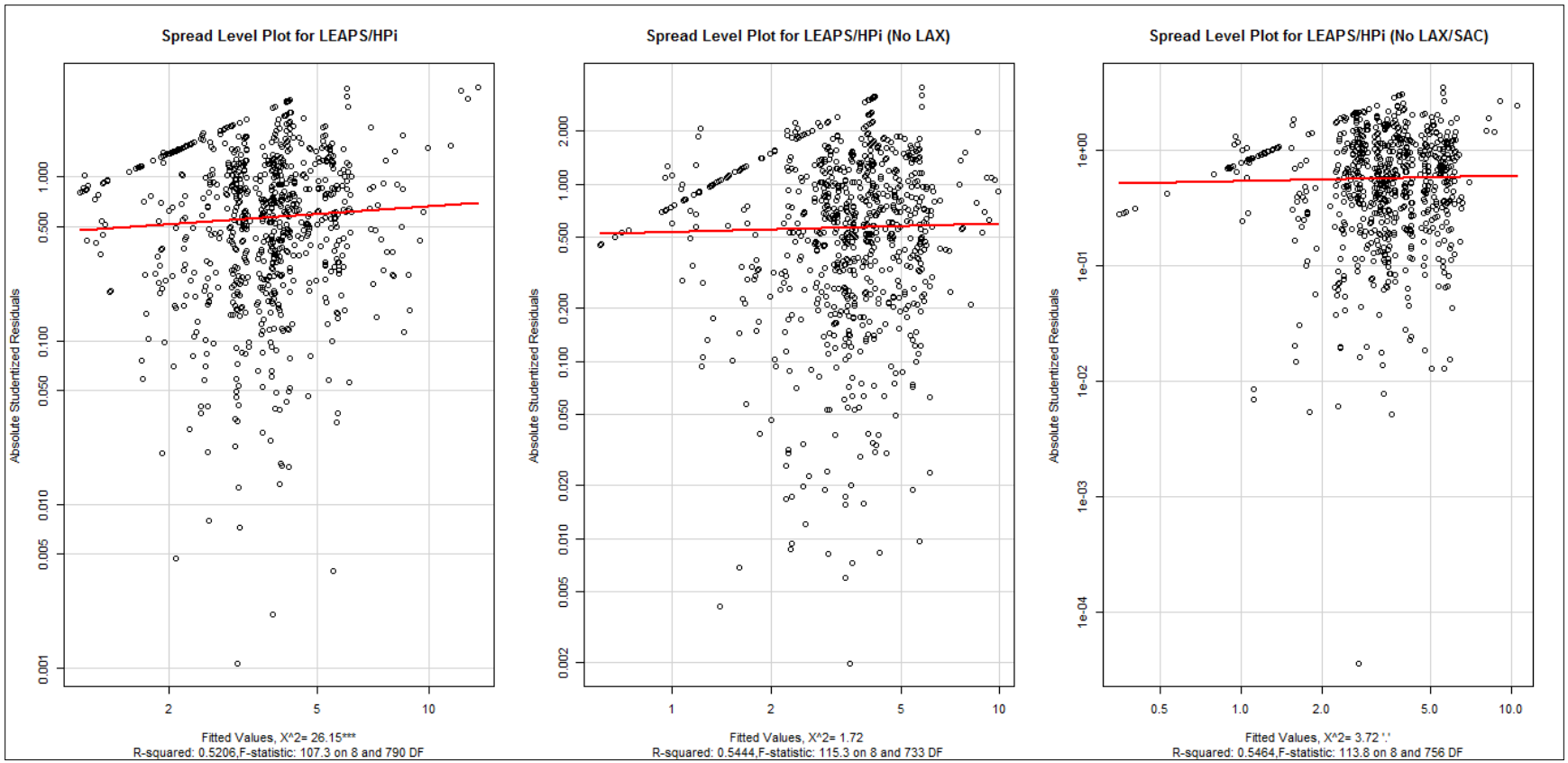


Figure 38: Spread Level plots: LEAPS/HPi, "No LAX", and "No LAX/SAC" models

This figure illustrates the Spread Level plots for the advanced LEAPS/HPi, the LEAPS/HPi (No LAX), and LEAPS/HPi (No LAX/SAC) models. For all plots, further transformation of Housing Production is not necessary as the horizontal line remains flat. However, it is apparent that municipal dynamics play an important role in the fitting of the model. The advanced LEAPS/HPi model violates equal variance, whereas models without Los Angeles and/or Sacramento maintain an equal variance.

In essence, the "No LAX/SAC" fits the data better as the municipal dynamics are comparable.

In Figure 38, the Spread Level plots indicate that further transformation of the response variable, is not necessary. However, the dispersion of the studentized residuals indicates three important points. First, the advanced LEAPS/HPi violates the equal variance assumption with its long tails of over-estimated points. Second, the removal of Los Angeles or Los Angeles and Sacramento restores equal variance, as the municipalities are similar in municipal dynamics. And lastly, my basketball metaphor has been confirmed as future research that examines similar municipalities may result in a better explanatory model and understanding of the HEL phenomena.

In summary, does the LEAPS model maintain a constant variance? No, the advanced LEAPS/HPi does not maintain an equal variance due to the inherent municipal dynamics of the comparison group.

6.1.10C INDEPENDENT ERRORS

Are the residual errors of the Leap model independent? In essence, does this model produce residual errors that influence other residual errors (e.g., autocorrelation). In any equation in which data is observed over a uniform series of time, it makes sense that Year 1 may influence Year 2 and Year 2 may influence Year 3, etc. For example, in the vector of Municipal Finance data, many financial directors base a future budget on the present budget. In addition, the intent of a municipal housing element is to influence housing production over a 5-year period. Thus, the presence of correlated residual errors in an estimating equation is reasonable given the data examines the HEL phenomena from the previously noted sources.

To formally test error independence, I employed the Durbin-Watson test to determine error correlation. In the previous NCSH analysis, I hypothesized that I may have introduced bias into this model when I concatenated the predicting data to align with the response data. In the present LEAPS/HPi analysis, the data is not transformed by year, and therefore, I can better determine if there is autocorrelation in my model/data. The critical Durbin-Watson (k=8, df =800) values are $D_{L,\ .05} = 1.86365$ and $D_{U\ .05} = 1.90404$. In Table 41, I provide the methodology of the Durbin-Watson test. In Table 42, I provide the Durbin-Watson statistics for the LEAPS/HPi model w/ a seven-year lag--reflecting the expanded effective period of the housing element.

Table 41: Durbin Watson Test methodology

D-W Formula	D-W Statistic	D-W Interpretation
$DW\ statistic < D_L$	$DW\ statistic < 1.86365$	Statistical Positive Autocorrelation
$DW\ statistic > D_U$	$DW\ statistic > 1.90404$	No Statistical Positive Autocorrelation
$D_L < DW\ statistic < D_U$	$1.86365 < DW\ statistic < 1.90404$	Inconclusive
$(4 - DW\ statistic) > D_U$	$(4 - DW\ statistic) > 1.90404$	No Statistical Negative Autocorrelation
$(4 - DW\ statistic) < D_L$	$(4 - DW\ statistic) < 1.86365$	Statistical Negative Autocorrelation

Table 42: Durbin Watson Test of LEAPS/HPi model with 7-year lags

Lag	Autocorrelation	D-W Statistic	D-W Interpretation
1	0.6520122	0.6951447	Statistical Positive Autocorrelation
2	0.5367022	0.9241726	Statistical Positive Autocorrelation
3	0.4478653	1.0986549	Statistical Positive Autocorrelation
4	0.3431415	1.3040830	Statistical Positive Autocorrelation
5	0.3189190	1.3475257	Statistical Positive Autocorrelation
6	0.2723840	1.4349203	Statistical Positive Autocorrelation
7	0.2558652	1.4654247	Statistical Positive Autocorrelation

In summary, are the residual errors of the LEAPS/HPi model independent? According to a Durbin Watson test, the statistical answer is no. The errors are positively correlated over a seven-year time period. Due to the conditions of both housing elements and financial data, this result was not unexpected.

6.1.10D NORMALITY

Do the residual errors in the LEAPS/HPi model resemble a normal distribution? In essence, does the model distribute the residual errors randomly around a mean of zero, as opposed to being skewed with a left or right tail? To demonstrate normality, I shall present two graphics: Distribution of Errors, Q-Q plot.

The Distribution of Errors is essentially a histogram that illustrates whether or not the distribution of these errors appears normal. In Figure 39, I illustrate the error distributions for the FULL, AIC, and LEAPS/HPi models to demonstrate that the distribution shifts with parsimony. The Full Model resembles a “narrow” distribution with two exaggerated positive values. The AIC model resembles a normal distribution, but it center is slightly bi-model. Yet, the LEAPS/HPi model resembles a full normal distribution, even with the exaggerated infinitesimal values. I make this statements by noting how well a) the Kernel Density Curve (e.g., dashed representing the observed values) matches the Normal curve (i.e., the ideal state), and b) the convergence of the “rugs” short vertical lines (e.g., representing the observed values) around zero. In Figure 40, I also provide the Distribution of Errors plots for the LEAPS/HPi, “No LAX” and “No LAX/SAC” models as a continuation of the “right-sized team” discussion.

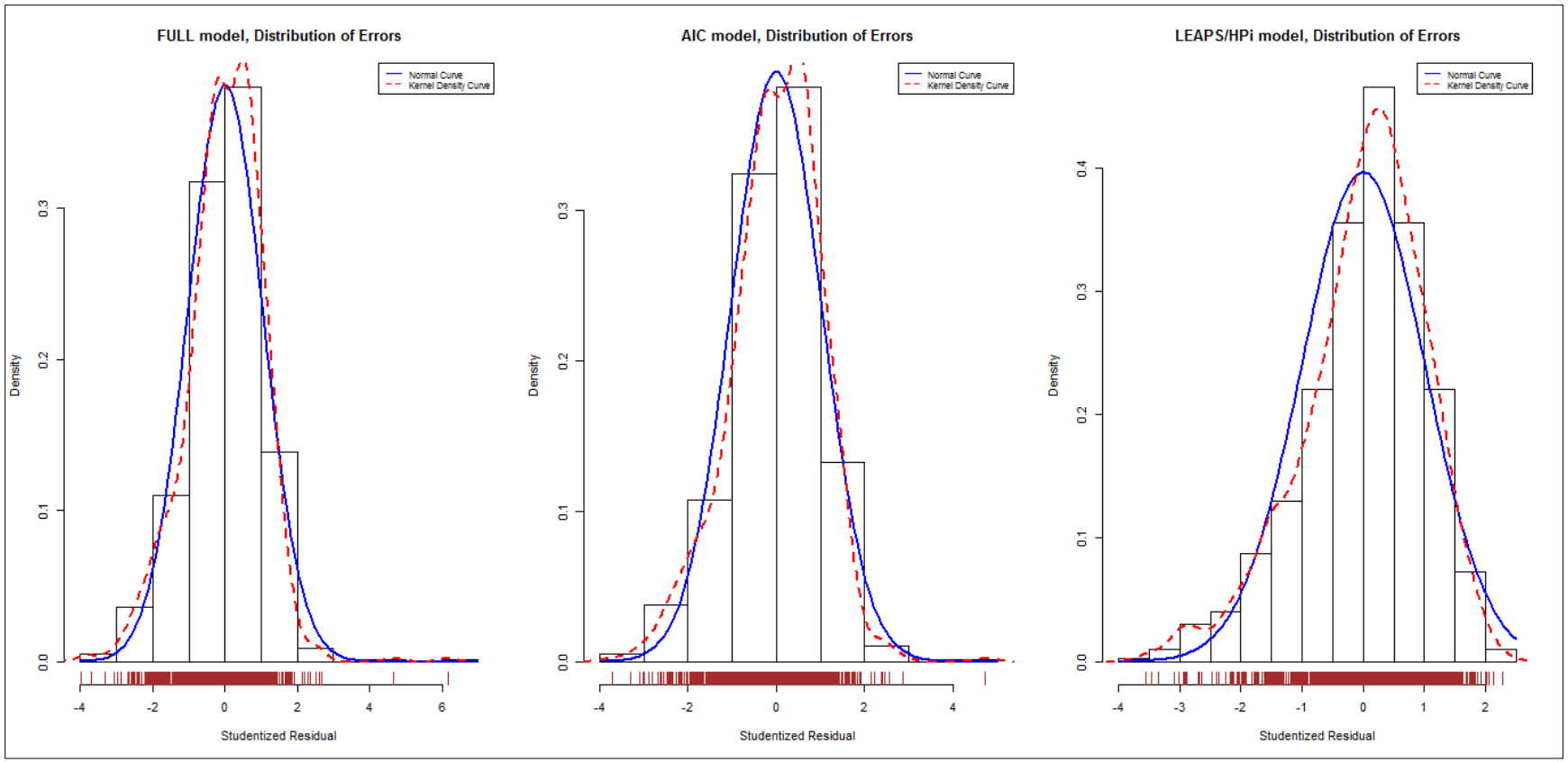


Figure 39: Distribution of Errors plots: FULL, AIC, LEAPS/HPi

In this figure, I present the error distributions for the FULL, AIC, and LEAPS models. Please note that as the models reduce in estimating parameters (e.g., 42, 30, 8, respectively), the error distributions shift with the right tail moving closer to center. However, all models display the overestimation of the infinitesimal values (e.g., 0 to -4).

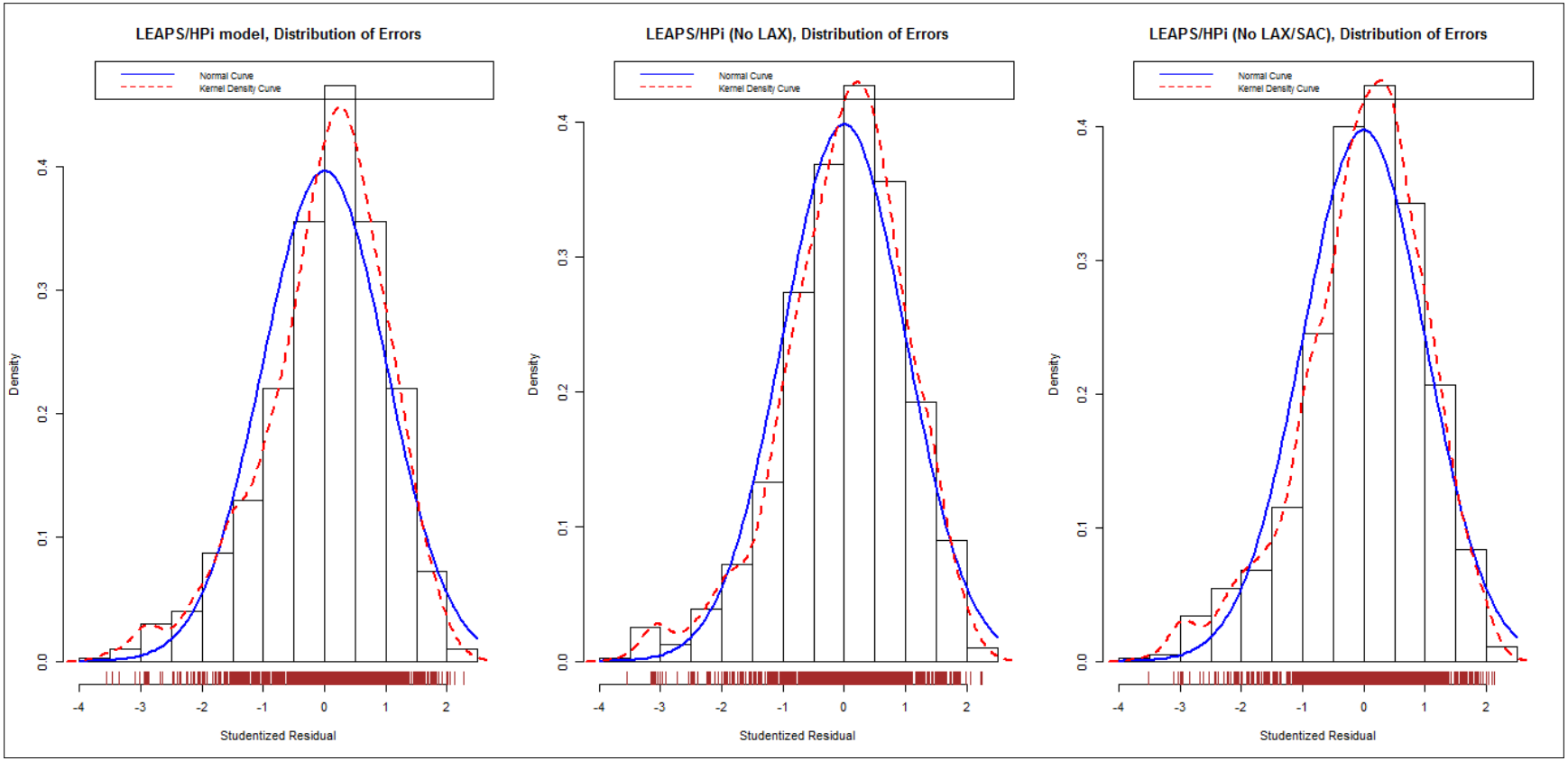


Figure 40: Distributions of Errors plots: LEAPS/HPI, "No LAX," "No LAX/SAC"

In this figure, the plots of the three LEAPS/HPi models essentially have the same shape. However, as the models reduce from "No LAX" to "No LAX/SAC," the number of negative studentized reduces as the bars containing values between 0.0 and − 1 increases and the bars containing the values between −3 and − 4 decreases.

In my second graphic, I present a Q-Q plot. A Q-Q plot assesses normality by plotting the studentized residuals against an estimating equation's degrees of freedom. In essence, do the errors fall on the line? Furthermore, this graphic contains a 95% confidence interval. Therefore, the more complete Q-Q test assesses how well the errors fall on the line, and how well the errors stay within the interval boundaries. In Figure 41, I provide the Q-Q plot for the LEAPS/HPi model.

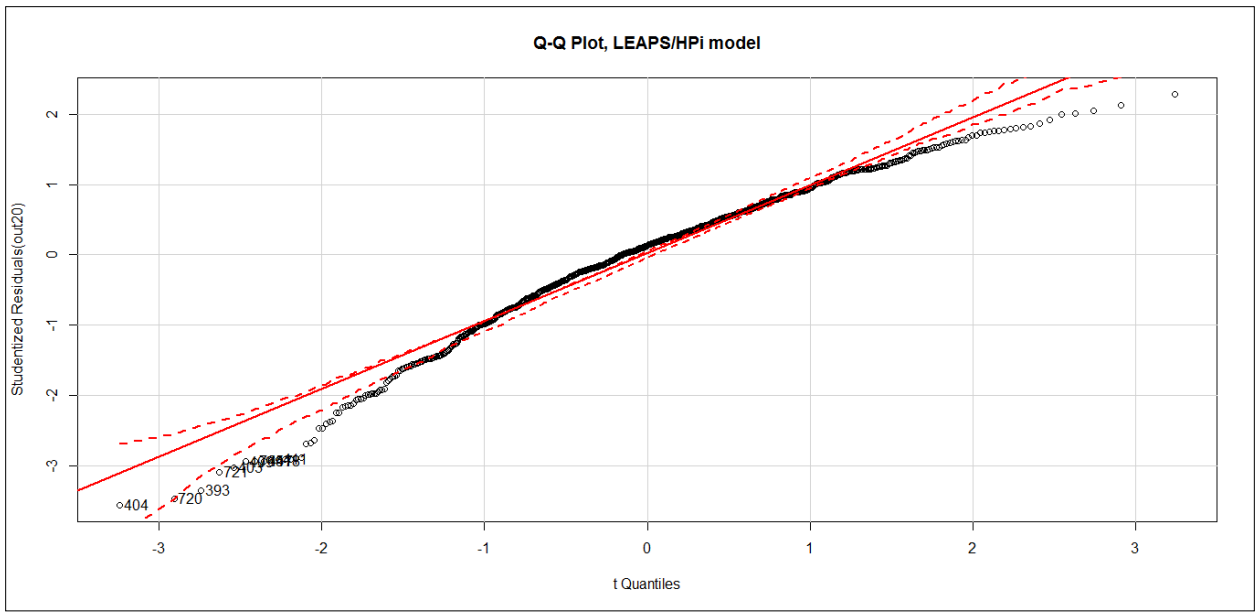


Figure 41: Q-Q plot: LEAPS/HPi model

In this figure, the residual errors of the LEAPS display a curved relationship. This curve suggests that a quadratic or weighted term may be necessary for fitting correction.

Visually, the residual errors the LEAPS/HPi plot fall outside of the 95% confidence interval and display a curvilinear relationship. This curve would suggest that a quadratic or weighted term in necessary to correct the linear fit. Because the response variable has infinitesimal values inserted for the zero observations, I hypothesized that these values may exaggerate the fitting and removing such observations may increase linearity. When I ran such tests on the FULL, AIC, and LEAPS/HP models, I obtained 49 case wise deletions and the Q-Q and Distributions of Errors plot still displayed curvilinear relationships. In addition, the "No LAX" and "No LAX/SAC" models exhibited the same curvilinear relationships.

In summary, do the residual errors in the LEAPS/HPi model resemble a normal distribution? Based on the figures for the Distribution of Errors and Q-Q-Plot, the answer is no.

6.2.11 SUMMARY

In this last analysis of the advanced LEAPS/HPi model, I discuss the standardized coefficients in order to determine which of these partial regression slope coefficients is the most influential on the natural log of Housing Production. For this analysis, I provide Figure 42 that orders the coefficient by absolute value then synthesizes size and direction in a bar plot, and Table 43 that lists the coefficients, t-values, and statistical significance.

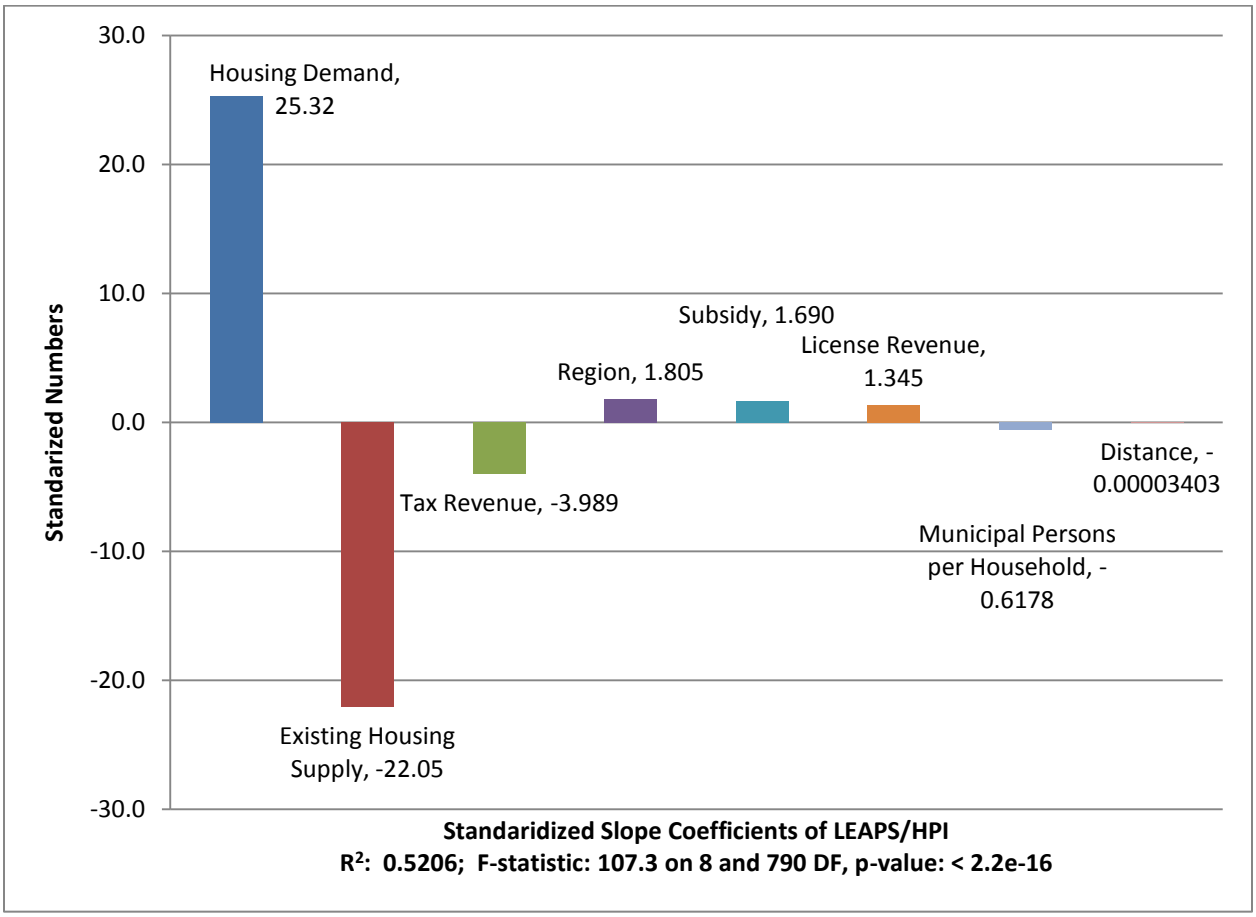


Figure 42: Standardized Partial Slope Coefficients: LEAPS/HPi model

Table 43: Standardized Partial Slope Coefficients of the LEAPS/HPi model
This table presents the standardized LEAPS/HPi model: its variables, estimates, t-values, p statistics—ordered by their absolute value.

Row	Variable	Estimate	T-value	Pr(>|t|)
1	Housing Demand	25.32	10.26	< 2e-16 ***
2	Existing Housing Supply	-22.05	-10.005	< 2e-16 ***
3	Tax Revenues	-3.989	-9.837	< 2e-16 ***
4	Region	1.805	13.049	< 2e-16 ***
5	Subsidy	1.69	8.939	< 2e-16 ***
6	License Revenues	1.345	8.31	4.16e-16 ***
7	Municipal Persons per Household	-0.6178	-9.535	< 2e-16 ***
8	Distance	-0.00003403	-9.488	< 2e-16 ***

Significance codes: '***' 0.001; '**' 0.01; '*' 0.05; '.' 0.1
LEAPS model R^2: 0.5206, $\bar{R}^2$: 0.5158
F-statistic: 107.3 on 8 and 790 DF, p-value: < 2.2e-16

From the aggregate data in Figure 39 and Table 42, it is clear that Housing Demand is the most influential variable of the LEAPS/HPi model. Housing Demand's direction is positive and the absolute value of the coefficient and the t-value are slightly larger than the next largest coefficient. Unfortunately, I have detected that Housing Demand is collinear with Existing Housing Supply and therefore, I cannot state Housing Demand's independent effect. Even still, Housing Demand's large and positive direction confirms a portion of the conceptual model.

The second most influential parameter is Existing Housing Supply. There are three interesting points about this parameter. First, its large and negative direction contradicts with Lewis finding in which he found that housing growth had a positive relationship (|p<.001|) with the percentage increase in housing units (2003, p. 122). Second, Existing Housing Supply large size partially confirms the conceptual model, but I hypothesized a positive, not negative direction. Lastly, Existing Housing Supply is collinear with Housing Demand, but their relationship (e.g., large sizes and opposite directions) seems to cancel each other's effect. In essence, population growth positively drives housing production, but the existing residential supply tempers that production.

For the urban municipalities in the Los Angeles region, the "cancelling estimates" appears to be the case. However, for those municipalities located in the Sacramento region, the "cancelling estimates"

may also explain their phenomena. If you recall in Table 15 in section 5.5, I discussed how the central city population grew at much faster rate than the suburbs, but the suburbs had a higher production of housing units. In this case, the availability quantity of vacant, indicated in the Sacramento suburb housing elements, may not have indicated that housing supply had not reached its maximum capacity. Therefore, the Multicollinearity of Housing Demand and Existing Housing Supply makes a very strong case for the inclusion of an "available land" inventory.

This potential parameter would ideally separate the effects of these variables as they differentiate between regions and municipalities. Unfortunately, the housing elements do not provide a concise annual or treatment period measure for such a variable. While HEL does require municipalities to identify sites for future housing, the sites do not have to be vacant. In addition, vacant and/or "underutilized" land in one municipality (e.g., Duarte) may be regarded as "intense" in another (e.g., Bradbury). This potential "vacant land" parameter could also reference Goetz et al.'s study in which the authors assessed the change in multi-family land-use on various parcels between 1976 and 2000, but succumbed to history and periodicity threats (2003). Finally, to comb through the housing elements and document this data requires that a research team complete the following:

a) Locate the housing element,
b) Input the municipality's site analysis data into a database,
c) Indentify the tax assessor's parcel number,
d) Link the data to a GIS database,
e) Geo-code the parcel's street address,
f) Establish the parcel's existing density and land-use,
g) Calculate the parcel's future density and land-use, as specified in the housing element, or use HCD's minimum density for multi-family residential (e.g., 30-, 20, or 10-dwelling unit per acre in urban, suburban, and rural areas, respectively) and then
h) Survey annual data to determine either density change or parcel consolidation in one of three methods:
    a. For density change,
        i. The team needs annual access to the municipalities GIS data,
        ii. The teams needs access to the municipalities land-use entitlements and/or building permits.

b. For parcel consolidation,

    i. The teams needs access to the county's tax assessor records for parcel changes.

c. Or, obtain the RHNA methodology inputs from the COG that created the allocation.

Under this scenario, a research team could examine a fifty-three municipality sample. If it was a sole researcher, then the sample is constrained by researcher time and available data. Until another method of capturing "available land" arises, the LEAPS/HPi model is constrained by the Multicollinearity of its two largest parameters.

The third most influential parameter is Tax Revenues. Unlike the previous NCSH analysis, Tax Revenues is not collinear with any of the parameters of the LEAPS/HPi model. Therefore, we can estimate its independent effects. Furthermore, Tax Revenues continues to be statistically significant and negative in its relationship to residential housing production as it was to NCSH. The finding is important as California operates under Proposition 13's constraining property tax regime. Moreover, the relationship of Tax Revenues and Housing Supply— as mediated by exclusionary zoning—speaks to Tiebout assessment of taxes and public choice, as noted in the discussion below.

Since Proposition 13 places a ceiling on property tax assessment (e.g., 1% of property valuation), there are only three ways for property taxes to increase. First, the municipality can elect, by a 2/3^{rds} majority, to raise taxes. Second, when a property sells and transfers ownership, the tax assessor reassesses the property at the current sale's price. Or lastly, all properties increase in value by either 2% or CPI. In my view, the second method is in operation because communities with high-value homes (e.g., Bradbury, La Cañada, San Marino, and South Pasadena) maintain such high value due to limited supply and exclusionary land-use practices.

According to San Marino's 2009 Housing Element, the total number of single-family residential units increased by 16 units from 4,437 units in 2000 to 4,453 units in 2007. At the same time, the median value of a single-family residential unit increased from $690,800 in 2000, to $1,457,736 in 2007. In essence, San Marino's housing inventory increased by only .03%, but its median property tax increased by

52.6% (or nearly $7.7K) (*City of San Marino Housing Element Update, Adminstrative Final*, 2009). Hence, increasing Tax Revenues can have a negative relationship on Housing Production.

In close, the LEAPS/HPi model is the correct model, given the aims of the research and values of the researcher. However, due to the structure of the data (e.g., 17 years of municipal data) and the dynamics of the sample (e.g., Los Angeles and Sacramento), the LEAPS/HPi does not maintain and equal variance, independent errors, or a normal distribution of errors. Therefore, this model may not true, but it has been useful.

First, as the first statistical analysis that has attempted to determine associative relationships to Californian municipal annual Housing Production using annual data, the LEAPS/HPi model had demonstrated that an OLS based regression is clearly insufficient. From these results, I would also rule out the Singer Willett method because plotting Housing Production over time may reveal trends, but not growth. Also, time-series analysis would not be sufficient as this method requires at least 100 observations of the response variable, not 17. This leaves Zero-Inflated Poisson regression as the next potential approach.

Second, the LEAPS/HPi equation has partially validated the conceptual model. In this regression test, I conceptualized that the change in a municipality's annual Housing Production is a function of its housing demand, growth, political will, existing housing supply, subsidy, and HCD compliance. I found that Housing Demand, Subsidy, and Existing Housing Supply maintain statistically significant relationships to Housing Production. While the other operationalized concepts did not move past the FULL and AIC models, the LEAPS/HPi has directed future research agenda.

Third, the parameters that maintained statistical relationships with not only Housing Production, but also NCSH were Tax Revenue and License Revenue. Both variables were free of Multicollinearity in the LEAPS/HPi analysis and both variables maintained their covariance. As Tax Revenues increased, NCSH and Housing Production decreased. As License Revenues increased, NCSH and Housing Production increased. In addition, both variable represent municipal decisions on what, who, and how much an entity (e.g., property, businesses, respectively) is taxed by a municipality.

And lastly, size matters. The LEAPS/HPi model has demonstrated that the analysis of unlike or highly dynamic cases may lead to skewed results as documented by the “No LAX” and “No LAX/SAC” models. This finding has been helpful as it sets the agenda and basis for my next statistical analysis of housing production (e.g., the 15 largest municipalities within California, comparison of the 15 largest municipalities in the western United States).

7.0 CLOSING DISCUSSION

In this dissertation concerning the provision of housing for all economic segments, I examined California's Housing Element Law to determine if it had any effects on the "new construction" of low-income housing and on the annual housing production for a subset of Northern and Southern California municipalities during the years of 1990 to 2007. I argued that not only does HEL operate with an Achilles heel (e.g., criteria based, housing opportunities not units, no penalty), but also, compliance to HEL has specific administrative, fiscal, and technical costs for municipalities. I premised this argument on the following research questions.

First, I asked how has a municipality's inventory of "new construction" subsidized changed between the RHNA allocation and the subsequent Review of the Previous Housing Element? I found that despite increasing annual compliance during the period of study (e.g., 1990-2007), the sample's collective construction rates and percentage achieved for low-income housing were low, flat, or negligible, while the sample's collective construction rates and percentage achieved for market-rate housing were positive and exceeded its categorical goal. Thus in this sample, compliance negatively affected low-income housing production and positively affected market-rate housing production. Therefore, Landis et al.'s call for the annual construction of 220,000 housing units may not be realized for California. In essence, the proportion of low-income housing to market-rate housing has exacerbated over time and consequently, too many low-income households were chasing too few units.

Second, I asked what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, and its inventory of "new construction" subsidized housing? I found that none of these concepts obtained a statistical relationship to a municipality's inventory of NCSH. However, other concepts such as Tax Revenues, State Transfers of funds, Sacramento location, and Municipal Area (e.g., square meters) influenced the new construction of subsidized housing. For example, as a municipality's Tax Revenues increased (e.g., property taxes), then the inventory of NCSH decreased. In addition, as monies transferred from the State increased (e.g., Motor Vehicle In-Lieu Tax, Gasoline taxes, Homeowners Property Tax Relief), the inventory of NCSH increased. The same positive statistical relationship held for municipalities located in the Sacramento region, and a municipality's total area.

Third, I asked what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, compliance, and its annual Housing Production? I found that Housing Demand and Existing Housing Supply maintained significant collinear relationships to annual Housing Production, while the other concepts failed to do so. Owing to this multicollinearity, I can state that as Housing Demand increased, annual Housing Production increased. Conversely, as the Existing Housing Supply increased, annual Housing Production decreased. Also, it would appear that their collinear relationship between Housing Demand and Existing Housing Supply might have "canceled" each other's effect. Yet, the direction and strength of these concepts addressed conditions found in the Los Angeles urban municipalities and the Sacramento suburban municipalities.

In addition, I also found that Tax Revenues maintained a negative relationship to Housing Production (e.g., when Tax Revenues increased, annual Housing Production decreased). Not surprising, I found that municipalities located in the Sacramento region could expect to have higher annual Housing Production than those located in the Los Angeles region. This statistical finding was supported by the Sacramento region's abundance of land that is either vacant or subject to annexation. Similarly, municipalities containing Redevelopment Agencies (e.g., subsidy) would also have higher annual Housing Production than municipalities lacking such an agency. However, now that California has dissolved these agencies, the finding may serve as a historic reminder of the role of Tax Increment Finance on land development. In essence, municipalities with Redevelopment Agencies were subsidizing private capital and risk.

And lastly, while compliance did not remain in either of my advanced estimating equations due to the "exhaustive" sub-setting, I did find that compliance maintained a statistical relationship with NCSH under certain conditions. Those conditions required that (a) the Full Model contain only a limited vector of Financial Data (e.g., only Total Net Revenues and Total Net Expenditures), and (b) the response variable was transformed to a natural log with 1.00e-8 inserted for infinity values. In essence, compliance remains influential only if the full complement of municipal financial decisions are excluded from the model. If these financial decisions are included, then compliance ceases to matter. These conditions reflect municipal effort as an extension of Basolo's finding's on intercity competition and Tiebout's public

choice in which municipal decisions are beholden to the social, financial, and economic interests of their residents.

Collectively, these findings not only demonstrate that municipal tax policy had a consistent and greater impact on housing production, but also support my argument that compliance has non-trivial administrative, fiscal, and technical costs for municipalities. Furthermore, the findings also imply that prescriptions to mitigate housing inequity require comprehensive evaluation that assesses criteria (i.e., process) and proportion (i.e., units constructed) in order to determine program success. Without such comprehension, any future reform may unnecessarily exacerbate housing inequity for low-income households.

7.1 REFORM

If given an audience with the State, I would advise four simple reforms that would not only improve municipal compliance, but may also transform more housing "opportunities" into housing units and reduce municipal resistance to compliance. First, I suggest a revision to the Housing Element Law that "mends it, but doesn't end it." At present, the law rewards municipalities for completing a process without determining if the process has any tangible results. Instead, process (i.e., criteria) must be coupled with units (i.e., proportion), therefore, compliance means that a municipality has not only followed the process (by satisfying certain legal criteria), but also produced the housing units on an annual basis. I believe that waiting until the end of a now 8-year cycle is a chaotic and haphazard method for to assess the provision of low-income housing units. With unified process and unit assessment, the State, the region, and the municipalities will know how well or how badly the law is working on an annual basis. And a result, each agency would be required to amend their process in order to improve the production of housing.

Second, in its "mend it, but don't end" revision, the process for completing a housing element update should be simple enough so that one senior planner and one assistant planner can handle all tasks in-house. At present, most housing elements are sent via RFPs to private planning firms for completion. Therefore, the Housing Element Law operates as a State mandated fiscal expenditure to private consultants. Furthermore, since many municipalities have had no hand in document's creation, then it stands to reason that municipalities have no vested interest in upholding any of the policies, programs, and outcomes specified in the document. In short, if the State wishes to implement the law's intent, the law must be understandable, accessible, and manageable to the municipal agents who must follow the law's dictates and implement housing element's technical prescriptions.

Third, HCD should require every housing element include a table that compares the RHNA allocation to total residential construction. In Figure 43, the City of Diamond Bar provides a simple, yet highly informative table that detailed both the RHNA Allocation and the subsequent housing production. This information was important as Diamond Bar was unable to locate their T1 housing element for my dissertation, but the T2 housing element provided the necessary evaluation documentation.

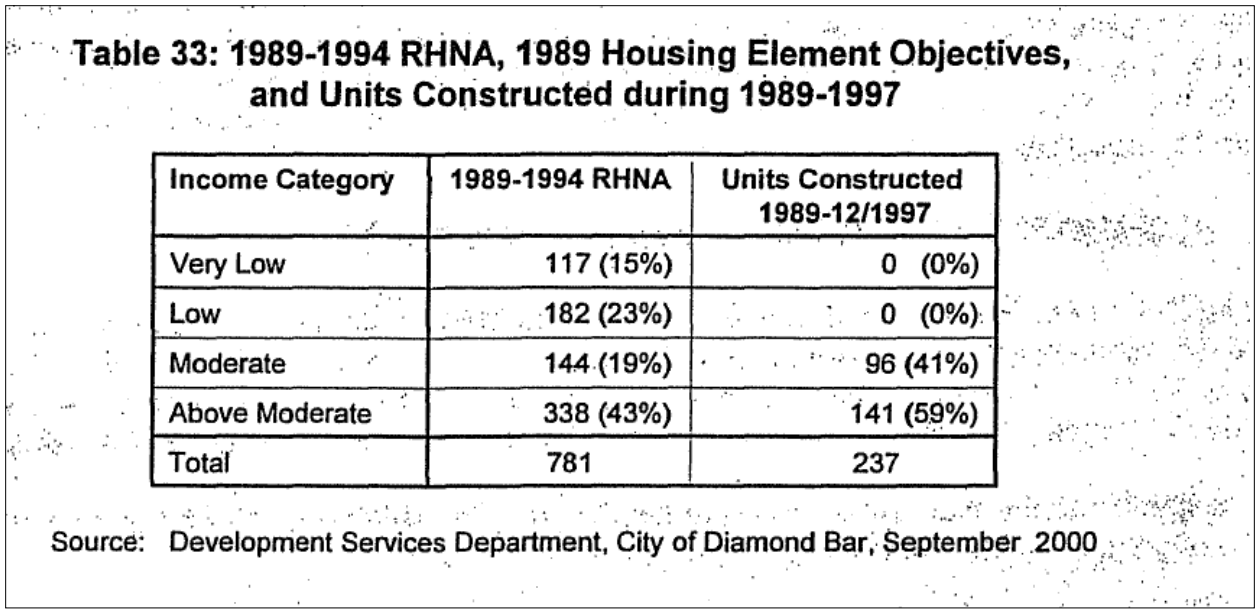


Table 33: 1989-1994 RHNA, 1989 Housing Element Objectives, and Units Constructed during 1989-1997

Income Category	1989-1994 RHNA	Units Constructed 1989-12/1997
Very Low	117 (15%)	0 (0%)
Low	182 (23%)	0 (0%)
Moderate	144 (19%)	96 (41%)
Above Moderate	338 (43%)	141 (59%)
Total	781	237

Source: Development Services Department, City of Diamond Bar, September 2000

Figure 43: Comparison of Diamond Bar's T1 RHNA allocation to units constructed

In this table, it is clear that Diamond Bar constructed 30.3% (or 237 / 781) of its total allocation, and 0% of its no low-income housing production.

This is a simple administrative decision that would answer the question of law's effectiveness. In some documents, such a table was produced. However, the majority of documents included units outside of the effective period, did not state in quantitative terms how badly their policies performed, omitted information regarding rehabilitated or preserved housing units, or just ignored all housing production—quantitatively. To their credit, the agency does oversee over 400 municipalities and 58 counties, but why this simple table is not consistently required is a procedural mystery. In addition, HCD should measure housing elements as dichotomous values (e.g., IN or OUT) and circulate widely (e.g., to housing developers, non-profit housing advocates, State Attorney General's office) a list of municipalities OUT of compliance in order to place legal pressure on municipal agents.

Fourth, a penalty should be enacted for non-compliance. During the period of study, Montebello, San Marino, South Pasadena, Isleton, Temple City, Glendora, La Cañada maintained dismal rates of compliance; yet, their market-rate residential construction continues unabated. Therefore, I advocate the use an existing method of payment, as a penalty: State Transfers/Taxes. For municipalities that do not comply with the law, in terms of process and units, simply withhold their sales tax and a portion of their

property taxes. If municipality's are completing their annual reports to HCD, then stellar and/or poor performance is neither a mystery to the municipality nor HCD. Furthermore, HCD can issue a warning prior to tax withholding that alerts the municipality to modify its process.

Fifth, fair-share must be fair. Fair share must not grandfather-in exclusionary land-use. When I began to form the focus of this dissertation, I came across a quote by Baer's on fair-share's inequity:

> In effect the 'sins' of the older, 'built out' communities are 'grandfathered' in, while the newer communities have to 'pay' for those sins (Baer, 1988, p. 274).

I then examined the 1990 SCAG RHNA allocation for Los Angeles County municipalities to understand its components. Out of curiosity, I obtained the Census 1990 Median Household Incomes for each municipality and then plotted its RHNA allocation of low-income and market-rate housing. Hence, high-income communities such as La Cañada, San Marino, and South Pasadena are given a pass on providing low-income housing while low-income communities such as South El Monte, Duarte, and Azusa have reduced allocations for market-rate housing. Please see Figures 44 and 45 as a synthesis of the 1990 RHNA allocation on Median Household Incomes. While there are some critics that advocate placing low-income housing in communities where it is needed, I am hesitant on concentrating the poor in poor neighborhoods. This "re-concentration" due to economics appears to be the antithesis of HUD's efforts to deconcentrate poverty and encourage mixed-income communities.

And lastly, the State should implement a statewide inclusionary housing policy in which the in-lieu fee is based on a regional prevailing rate on per square foot construction costs. This measure would create a permanent subsidy that is based not only on construction activity, but also takes into account the differences in land/housing costs, and removes the financial tinkering that is so often found in municipalities.

In close, I offer these reforms as a means to improve the delivery of housing in all economic segments, not to bash the high-income communities. If our democratic society wishes to view itself as such, then all members of all means must contribute their fair-share. Consequently, the State, planners, and analysts must also address the administrative, fiscal, and technical costs that compliance, or any

redistributive policy incurs on municipalities or any other party. Otherwise, rising inequity will undermine our social progress, and we should then remove democratic from our self-identification.

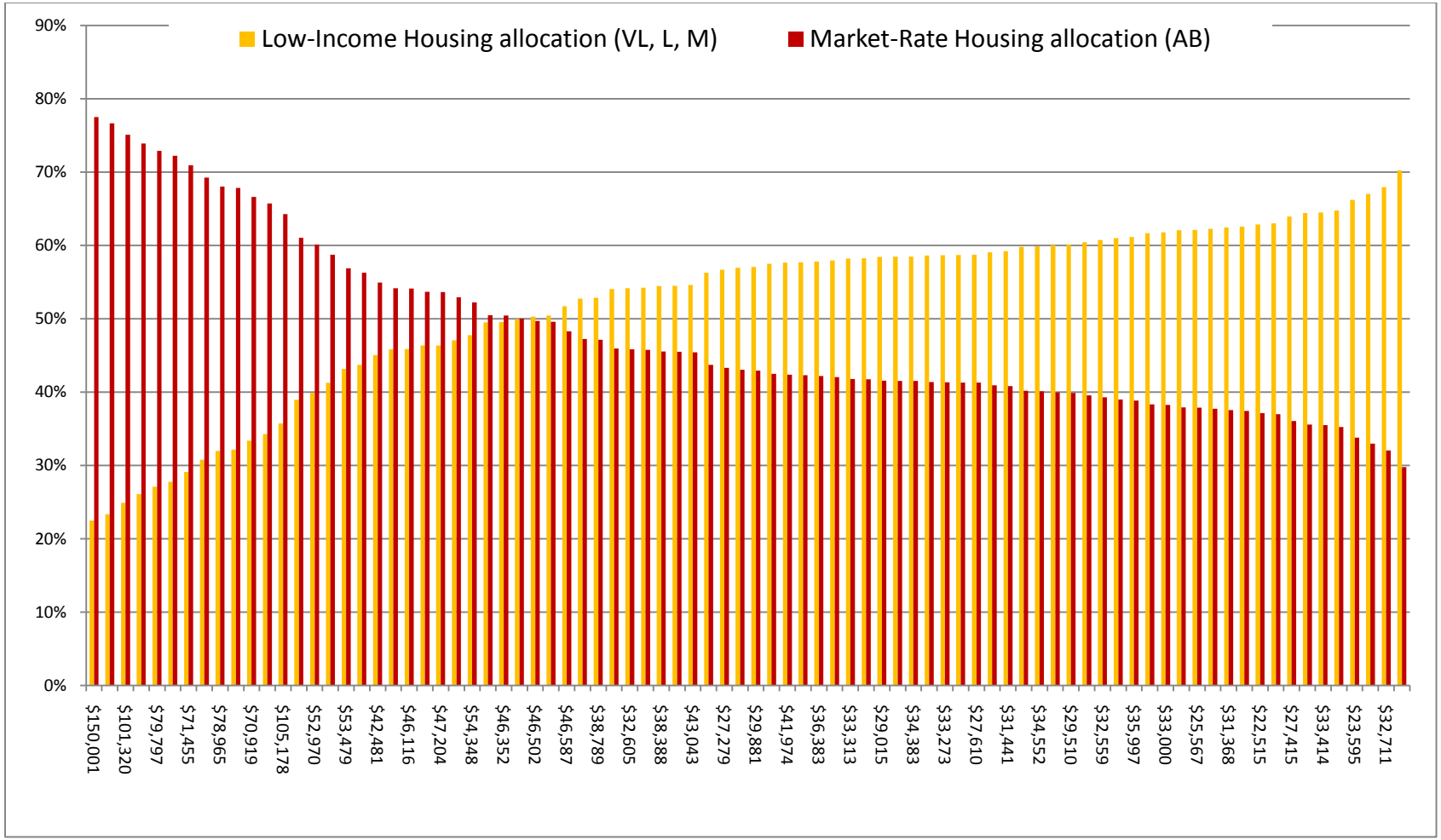


Figure 44: 1990 RHNA allocation for Los Angeles County and Municipal MHI

Please note that as the Median Household Income increases, the allocation for low-income housing decreases.

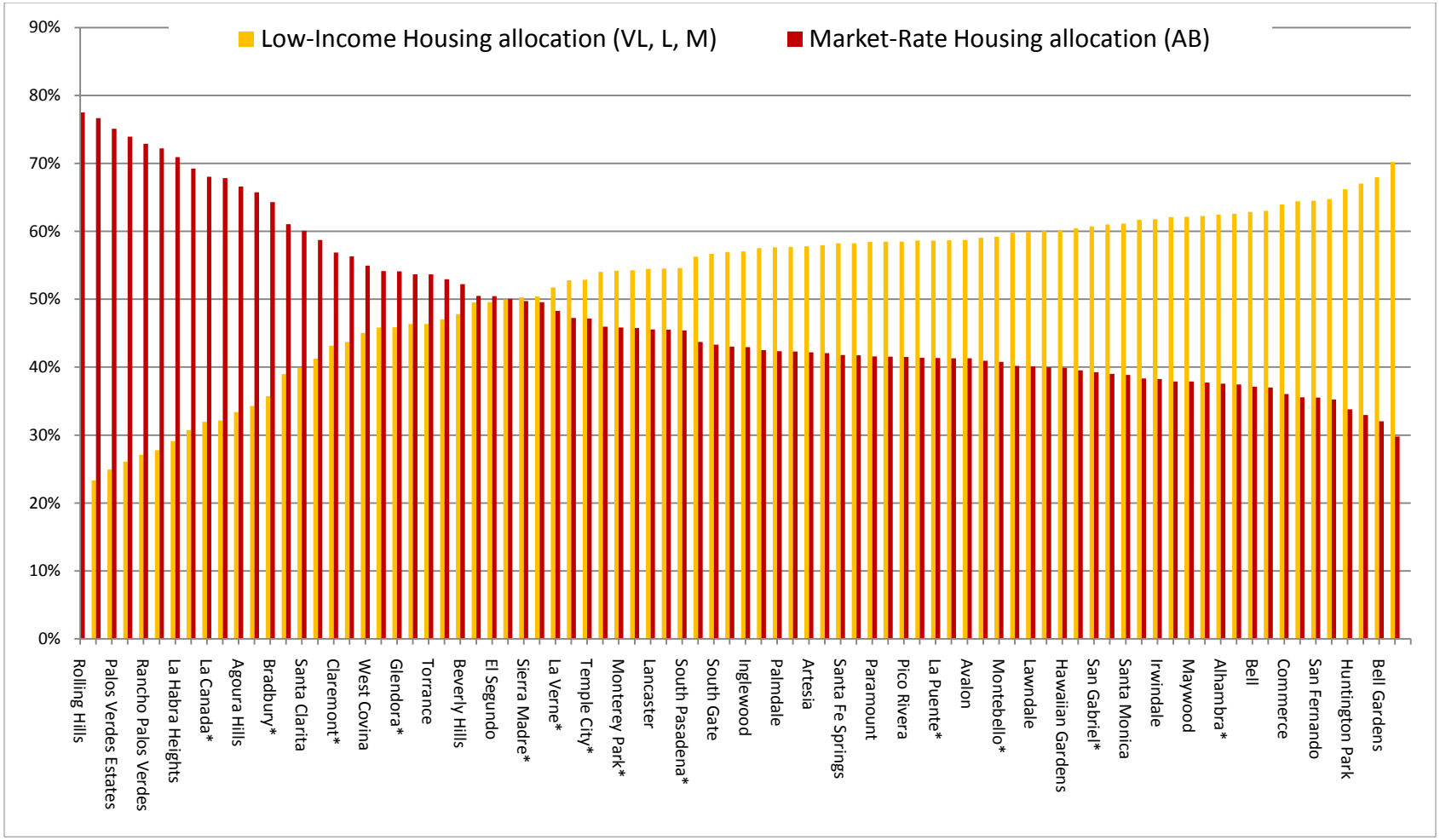


Figure 45: 1990 RHNA allocation for Los Angeles County and Municipal names

* = Municipalities that were included within the sample.

7.2 THREATS

When I proposed this dissertation, I identified that Testing, Instrumentation, and Differential Subject Loss as threats to the Content Analysis research. During the execution of this dissertation, missing documents did occur and that reflected the impotence of the Housing Element Law's compliance status. For example, Covina, Loomis, San Marino, South Pasadena maintained zero compliance with Housing Element Law during the period of study. La Cañada, Sierra Madre, Montebello, and South Pasadena failed to produce at least one of the treatment period housing elements, and Loomis produced un-compliant documents. For these missing documents, I assigned NCSH = 0 and this did not constrain the analysis, but deepened my understanding compliance's folly. Furthermore, because of the proposed sample size (n=53), I was able to obtain enough documents in order to make findings based on the research focus.

Regarding the Regression Analysis, I omitted six municipalities from the statistical analysis. I omitted Citrus Heights and Elk Grove due to their incorporation dates as neither municipal existed during the full period of study. I also omitted Isleton, Loomis, Placerville, Sierra Madre because of their continued non-submission of financial data. Even with these municipal omissions, I obtained a statistical conclusion. I had also speculated that R may have been a hindrance because it is an open source software program with no "official" help desk. If anything, I found R to be more invigorating because the package requires that researchers operationalize their curiosity, rather than relying on a graphic-user-interface. Furthermore, the internet provides tested and documented references for university-level researchers using regression and R (e.g., Cornell University,[147] UCLA,[148] and Cross Validated[149]).

In addition, I found that the OLS regression will not tell you anything that different from the underlying descriptive shape of the data. Chapter 6's statistically analysis mostly confirmed Chapter 5's descriptive findings. Therefore, when I found that Los Angeles and Sacramento were large producers of housing units (e.g., Table 15 of Chapter 5 on Groups), the regression tests' simply confirmed that finding in the Influence and Leverage plots. When I also found that the Sacramento region constructed more

[147] Cornell Statistical Consulting Unit http://www.cscu.cornell.edu/news/archive.php

[148] UCLA Statistical Consulting http://www.ats.ucla.edu/stat/r/dae/zipoisson.htm

[149] Cross Validated: http://stats.stackexchange.com/

housing units than the Los Angeles region (e.g., Figure 15 of Chapter 5 on Regions), the LEAPS/HPi estimating equation confirmed the descriptive findings. Both examples taught me to better specify the samples with similar units of analysis (e.g., Kareem and Walt). Furthermore, if the descriptive shape is not normal, then a statistical test requiring normality is an inappropriate test. I look forward to understanding Poisson distribution regression and/or Mixed-Models.

7.3 FUTURE RESEARCH

Now that I understand how municipal dynamics can skew statistical results, I shall pursue additional municipal information that focuses on the 10 most populous cities within California. At this time, I have the full data from the Departments of Finance, State Controller's Office, and HCD (e.g., 1991-2008). I would need to obtain more housing elements and apply a more appropriate statistical analysis. In addition, I would also need to obtain an "available land" variable. The significance of this future research lies in Table 15 in Section 5.5, more people may have moved to the central cities, but more housing was produced in the suburban communities. Therefore, what types of housing at what economic levels are produced in the 10 most populous municipalities in California? Does this housing production confirm or refute Glaeser's three-ring urban model?

In addition, now that I have documented that compliance does not matter to municipalities (e.g., La Cañada, San Marino, Montebello, Isleton, South Pasadena, and Sierra Madre), I intend to reframe my examination to include the most populous cities within the western United States. The unit of analysis would be building permits and compliance would be a dichotomous measure against cities/states that do not operate under a statewide-unfunded mandate pertaining to low-income housing. The significance of this research is to provide documented evidence that state mandated housing programs that do not evaluate Criteria (e.g., did one follow the process?) and Proportion (e.g., were the expected housing unit created?) are legislatively impotent.

And lastly, that HCD has allowed San Marino and Bradbury to utilize unregulated granny flats as low-income housing is really outrageous. For all we know, granny may have a net worth of $2 million. Therefore, I am interested in surveying the low-income housing policies of high-income communities (1 standard deviation above the State average) and document the frequency of granny flats as a policy, document their production in those cities, and interview the COGs and HCD regarding this potential misappropriation of public policy.

7.4 REFLECTIONS

Of all the books that I read on dissertation research, or research in general, many extol the virtues of confirming established results. Other books speak of reframing an old problem in a new light with either new data or a different perspective. In addition, other books speak of exploratory research. In my examination of the California's Housing Element law, the path was exploratory as I spent three years looking for prior established, replicable, and valid paths to follow. Yet, no guide has ever stated that exploratory is the hardest for one simple reason: there is no established stopping point.

It had never been my point to boil the ocean, but in the quest for significant findings, I had to turn up the heat. Similar to this is my conceptual model/theory debate in chapter 3. Now that my conceptual model has not been completely proven with the data I specified, a new quandary arises. Do I abandon the conceptual model? Do I find different data? I am still committed to understanding this phenomenon under the guise of social studies and with endogenous concepts. This persistence is unlike borrowing some other discipline's theory, finding it does not work, and then marking "return to sender." I created the model. It did not completely work. Now, in my future research, I may reframe the model, use different data, and try again.

Surprisingly, I have a newfound respect for HCD. This is not to say that I ever held them in contempt. Quite simply, they have a hard challenge as they have very little power. For me, it was a challenge to obtain all of the documents and the data. It was also a challenge to consistently apply the same method of documentation over 100-times. I found only a few documents were similar, and I looked forward to documents by Cotton/Bridges/Associates as they were the masters of "templating" policies, programs, and data.

I am also eternally grateful for the receipt of the HUD Doctoral Dissertation Research Grant as it gave the financial assistance to complete this dissertation in time and space that it required. The receipt of these funds has made a world of difference in my dissertation, my future research, and most importantly the confidence that I have within myself. Simply spending two-weeks in the Sacramento region opened my eyes to its variation in land-use. Two years ago, Kelly Owens, Carrie Makarewicz, and I completed an ACSP Doctoral workshop together. Therefore, when the three of us won a HUD grant, it was special peer

recognition. I proposed and will moderate an APA National Conference session (April 2013) that will present this dissertation's findings—along with the dissertation's findings from Owens and Makarewicz.

In the end, I found that does Housing Element Law compliance does not matter. Just ask the municipalities La Cañada, San Marino, Montebello, Isleton, South Pasadena, Sierra Madre, Temple City, Glendora, Monterey Park, San Dimas, South El Monte, Rocklin, and Folsom. During the 18-year period of study, these municipalities attained compliance for 4-years or less. And as such, low-income households in those communities that wish to spend no more than 30% of the income on housing, may need to look elsewhere.

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APPENDIX A: HOUSING ELEMENT INDEX

1. Alhambra

   (*Alhambra General Plan, Housing Elment*, 1989; *City of Alhambra, 2000-2005 Housing Element*, 2001; *City of Alhambra, 2008-2014 Housing Element*, 2009)

2. Arcadia

   (*City of Arcadia 2000-2005 Housing Element*, 2001; *City of Arcadia 2008-2014 Housing Element Technical Background Report*, 2010)

3. Auburn

   (*City of Auburn 2003-2004 Housing Element*, 2004; *City of Auburn 2008-2013 Housing Element*, 2008; *City of Auburn, Housing Element*, 1993)

4. Azusa

   (*City of Azusa 2000-2005 Housing Element, Final*, 2001; *City of Azusa 2008-2014 Housing Element*, 2010)

5. Baldwin Park

   (*City of Baldwin Park 2008-2014 Housing Element (HCD Submittal Draft)*, 2008; *City of Baldwin Park 2020 General Plan Housing Element*, 2000; *City of Baldwin Park Housing Element*, 1994)

6. Bradbury

   (*City of Bradbury Housing Element 2000*, 2000; *City of Bradury Housing Element 2008*, 2008)

7. Citrus Heights

   (*City of Citrus Heights 2006-2016 Housing Element*, 2008; *City of Citrus Heights, General Plan Amendment (Housing)*, 2002)

8. Claremont

   (*City of Claremont 1989-1994 Housing Element*, 1993; *City of Claremont 2000-2005 Housing Element*, 2001; *Claremont General Plan, 2006-2008 Housing Element*, 2006)

9. Colfax

   (*City of Colfax Housing Element 2003-2008*, 2004; *City of Colfax Housing Element Update, final draft*, 2009; *City of Colfax Housing Element, Chapter 11*, 1993)

10. Covina

    (*City of Covina Housing Element*, 1994; *City of Covina Housing Element Update, draft*, 2010)

11. Davis

(*City of Davis 2002 Housing Element*, 2004; *City of Davis Adopted Housing Element*, 2010; *City of Davis Housing Element Update*, 1993)

12. Diamond Bar

    (*City of Diamond Bar 2008-2014 Housing Element, revised draft*, 2010; *City of Diamond Bar Housing Element*, 2000)

13. Duarte

    (*City of Duarte 1993-1999 Housing Element*, 1994; *City of Duarte 2008-2014 Housing Element*, 2011; *City of Duarte General Plan 2005-2020 Housing Element*, 2004)

14. El Monte

    (*City of El Monte 2000-2005 Housing Element*, 2001; *City of El Monte Housing Element Technical Report*, 2007)

15. Elk Grove

    (*City of Elk Grove General Plan, Housing Element*, 2003; *City of Elk Grove General Plan, Housing Element*, 2009)

16. Folsom

    (*City of Folsom, General Plan*, 1993; *City of Folsom, Housing Element Background Report*, 2002; *City of Folsom, Housing Element Background Report, final draft*, 2009; *City of Folsom, Housing Element Policy Document*, 2002; *City of Folsom, Housing Element Policy Document, final draft*, 2009)

17. Galt

    (*City of Galt, Housing Element 2002-2007*, 2003; *City of Galt, Housing Element 2002-2007, appendix B*, 2003; *City of Galt, Housing Element 2008-2013*, 2003)

18. Glendora

    (*City of Glendora 1989-1994 Housing Element*, 1992; *City of Glendora 2000-2005 Housing Element*, 2002; *City of Glendora 2008-2014 Housing Element*, 2009)

19. Industry

    (*City of Industry 1990-1994 Housing Element, Draft*, 1992; *City of Industry 2000-2005 Housing Element*, 1999; *City of Industry 2006-2014 Housing Element*, 2007)

20. Irwindale

    (*City of Irwindale 2020 General Plan, Housing Element*, 2000; *City of Irwindale General Plan, Housing Element*, 2011)

21. Isleton

    (*City of Isleton General Plan*, 1991)

22. La Cañada-Flintridge

(*City of La Cañada Flintridge 1989-1994 Housing Element*, 1993; *City of La Cañada Flintridge 2008-2014 Housing Element*, 2009)

23. La Puente

    (*City of La Puente 1998-2005 Housing Element*, 2000; *City of La Puente 2008-2014 Housing Element*, 2008)

24. La Verne

    (*City of La Verne 2000 Housing Element*, 1997; *City of La Verne 2008-2014 Housing Element*, 2010; *City of La Verne General Plan, Housing Element*, 1998)

25. Lincoln

    (*City of Lincoln Housing Element*, 1996; *City of Lincoln Housing Element*, 2003; *City of Lincoln Housing Element, Background Report*, 2010; *City of Lincoln Housing Element, Policy Document*, 2010)

26. Live Oak

    (*City of Live Oak Housing Element 2002-2007*, 2002; *City of Live Oak Housing Element 2008-2013, final*, 2010)

27. Loomis

    (*Town of Loomis Housing Element 2001-2008*, 2006; *Town of Loomis Housing Element 2006-2013, public review draft*, 2010; *Town of Loomis Housing Element Update*, 1993)

28. Los Angeles

    (*City of Los Angeles 1989-1994 Housing Element*, 1993; *City of Los Angeles 1998-2005 Housing Element*, 2002; *City of Los Angeles 2006-2014 Housing Element*, 2009)

29. Marysville

    (*City of Marysville Housing Element*, 1992; *City of Marysville Housing Element 2003-2008*, 2003)

30. Monrovia

    (*City of Monrovia 1989-1994 Housing Element*, 1993; *City of Monrvia 2000-2005 Housing Element*, 2003)

31. Montebello

    (*City of Montebello General Plan Housing Element (1989 Update)*, 1993)

32. Monterey Park

    ("City of Monterey Park 1989-1994 Housing Element," 1992; "City of Monterey Park 2000-2005 Housing Element," 2000; *City of Monterey Park 2008-2014 Housing Element*, 2009)

33. Pasadena

(*City of Pasadena 1989-1994 Revised Housing Element of the Comprehensive General Plan* 1989; *City of Pasadena 2000-2005 Housing Element*, 2002; *City of Pasadena 2008-2014 Housing Element, draft* 2009)

34. Placerville

(*City of Placerville Housing Element*, 1993; *City of Placerville Housing Element 2003-2009*, 2004; *City of Placerville Housing Element 2008-2013, draft*, 2010)

35. Pomona

(*City of Pomona Housing Element of the General Plan 1998-2005*, 2001; *City of Pomona Housing Element of the General Plan, 2008-2014*, 2011; *City of Pomona Revised 1989 Housing Element of the General Plan*, 1994)

36. Rocklin

(*City of Rocklin Housing Element*, 1992; *City of Rocklin Housing Element 2002-2007*, 2004; *City of Rocklin Housing Element 2008-2013*, 2009)

37. Rosemead

(*City of Rosemead 2008-2014 Housing Element*, 2010; *City of Rosemead General Plan, Housing Element*, 1996; *City of Rosemead General Plan, Housing Element*, 2000)

38. Roseville

(*City of Roseville CHAS, Housing Needs Assessment*, 2007; *City of Roseville Housing Element 2002-2007*, 2002; *City of Roseville Housing Element 2008-2013*, 2009)

39. Sacramento

(*City of Sacramento Housing Element, 1989-2002*, 1993; *City of Sacramento Housing Element, 2002-2007*, 2003; *City of Sacramento Housing Element, 2008-2013*, 2008)

40. San Dimas

(*City of San Dimas 2008-2014 Housing Element*, 2008; *City of San Dimas General Plan Housing Element 2000*, 2002; *City of San Dimas General Plan, Housing Element*, 1991)

41. San Gabriel

(*City of San Gabriel 1989-1998 Housing Element*, 1997; *City of San Gabriel 2000 Housing Element*, 2002; *City of San Gabriel 2008-2014 Housing Element*, 2010)

42. San Marino

(*City of San Marino General Plan Housing Element, Final*, 1991; *City of San Marino Housing Element Update*, 2001; *City of San Marino Housing Element Update, Adminstrative Final*, 2009)

43. Sierra Madre

(*City of Sierra Madre 2000-2005 Housing Element*, 2003; *City of Sierra Madre 2008-2014 Housing Element, draft*, 2009; *City Sierra Madre General Plan, 1989-1996 Housing Element*, 1996)

44. South El Monte

    (*City of South El Monte General Plan Housing Element*, 2000; *City of South El Monte Housing Element, Final*, 2010)

45. South Pasadena

    (*City of South Pasadena 2006-2014 Housing Element, draft*, 2009; *City of South Pasadena General Plan, Housing Element*, 2001)

46. Temple City

    (*City of Temple City Revised Draft Housing Element*, 2009; *Temple City Housing Element*, 2000)

47. Walnut

    (*City of Walnut 2000-2005 Housing Element*, 2001; *City of Walnut 2008-2014 Housing Element*, 2009)

48. West Covina

    (*City of West Covina 2002 Housing Element*, 2003; *City of West Covina 2008-2014 Housing Element*, 2012; *City of West Covina General Plan, Housing Element*, 1995)

49. West Sacramento

    (*City of West Sacramento General Plan, Background Report*, 1990; *City of West Sacramento General Plan, Policy Document*, 1990; *City of West Sacramento Housing Element*, 2003; *City of West Sacramento Housing Element 2008-2013*, 2008)

50. Wheatland

    (*City of Wheatland Housing Element, Background Report*, 2005; *City of Wheatland Housing Element, Policy Report*, 2005)

51. Winters

    (*City of Winters General Plan, Housing Element*, 1994; *City of Winters Housing Element*, 2004; *City of Winters Housing Element Update, final draft*, 2009)

52. Woodland

    (*City of Woodland Housing Element Update*, 2003; *City of Woodland Housing Element Update 2008-2013*, 2009)

53. Yuba City

    (*City of Yuba Housing Element*, 1992; *City of Yuba Housing Element*, 2003; *City of Yuba Housing Element*, 2009)

APPENDIX B: ANNUAL COMPLIANCE DATA

To print the data for each municipality's annual compliance status would require 7 discombobulated pages. Post-dissertation, this data will be available in the University of Wisconsin Digital archives.

APPENDIX C: RESEARCH QUESTION 2 DATA

To print the data for question 2 would require 50 pages. Post-dissertation, this data will be available in the University of Wisconsin Digital archives.

APPENDIX D: RESEARCH QUESTION 3 DATA

To print the data for question 3 would require 200 pages. Post-dissertation, this data will be available in the University of Wisconsin Digital archives.

APPENDIX E: RESEARCH QUESTION 2 GRAPHICS

The following graphics reflect the distribution of observations for the data employed in research question 2 (e.g., *what is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, and its inventory of NCSH?*). I present the dichotomous data in histograms by treatment group, and I present the continuous data in box plots by treatment group and region. For each variable, there are two observations per municipality (e.g. 47 municipalities, 94 observations).

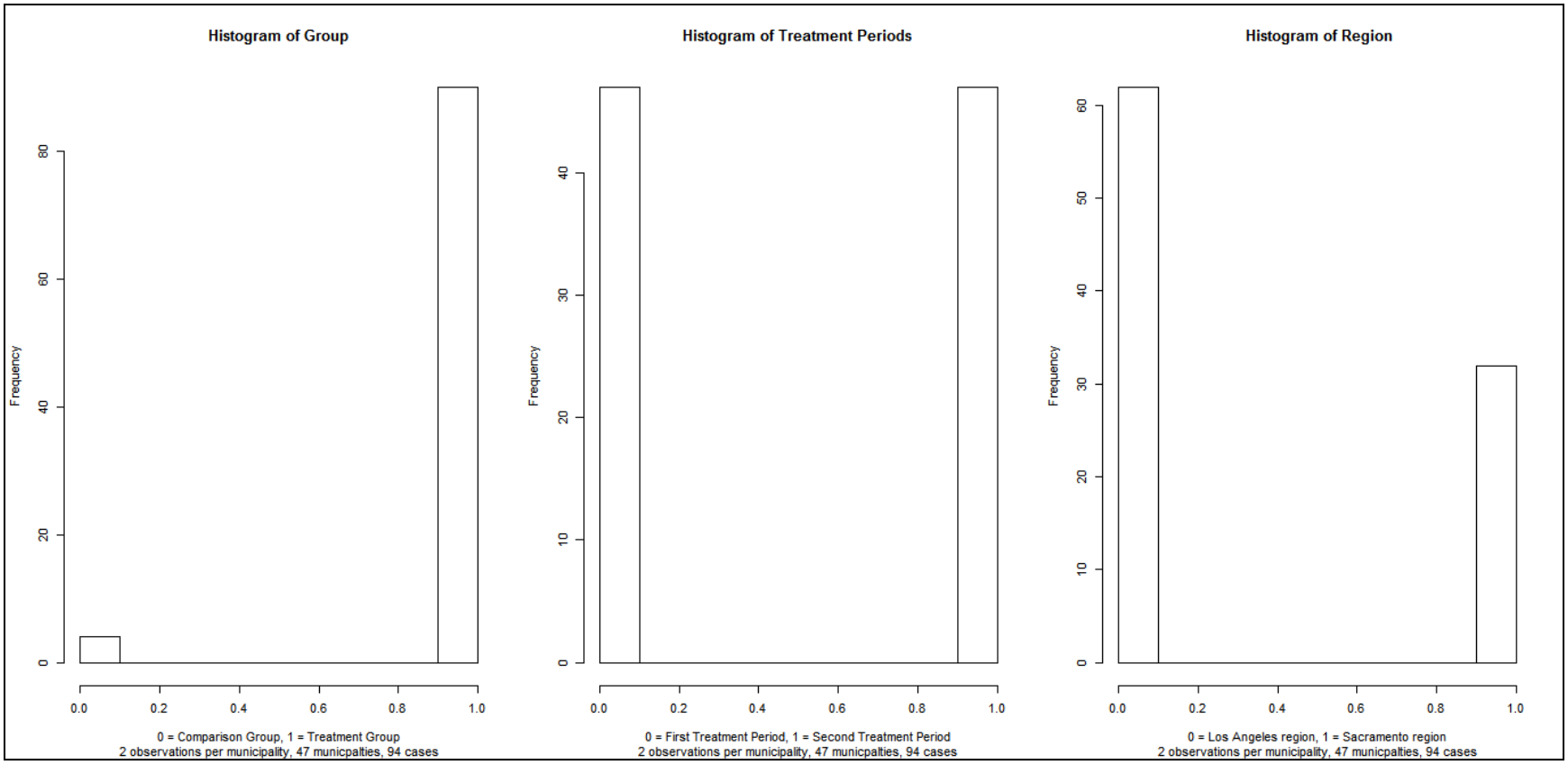

Figure 46: Histograms: Adjacent Group, Treatment Periods, and Region

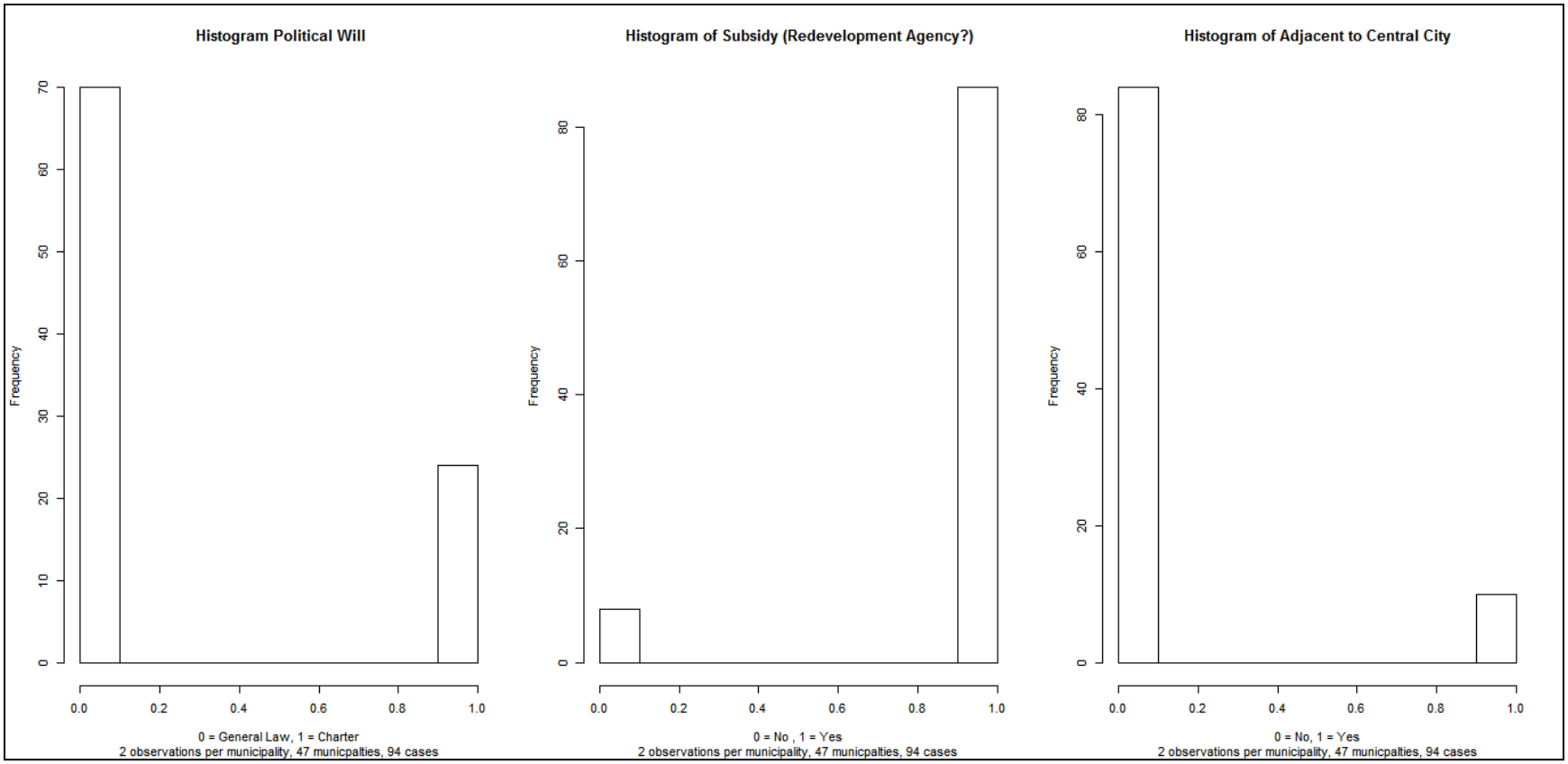

Figure 47: Histograms: Political Will, Subsidy, Adjacent to Central City

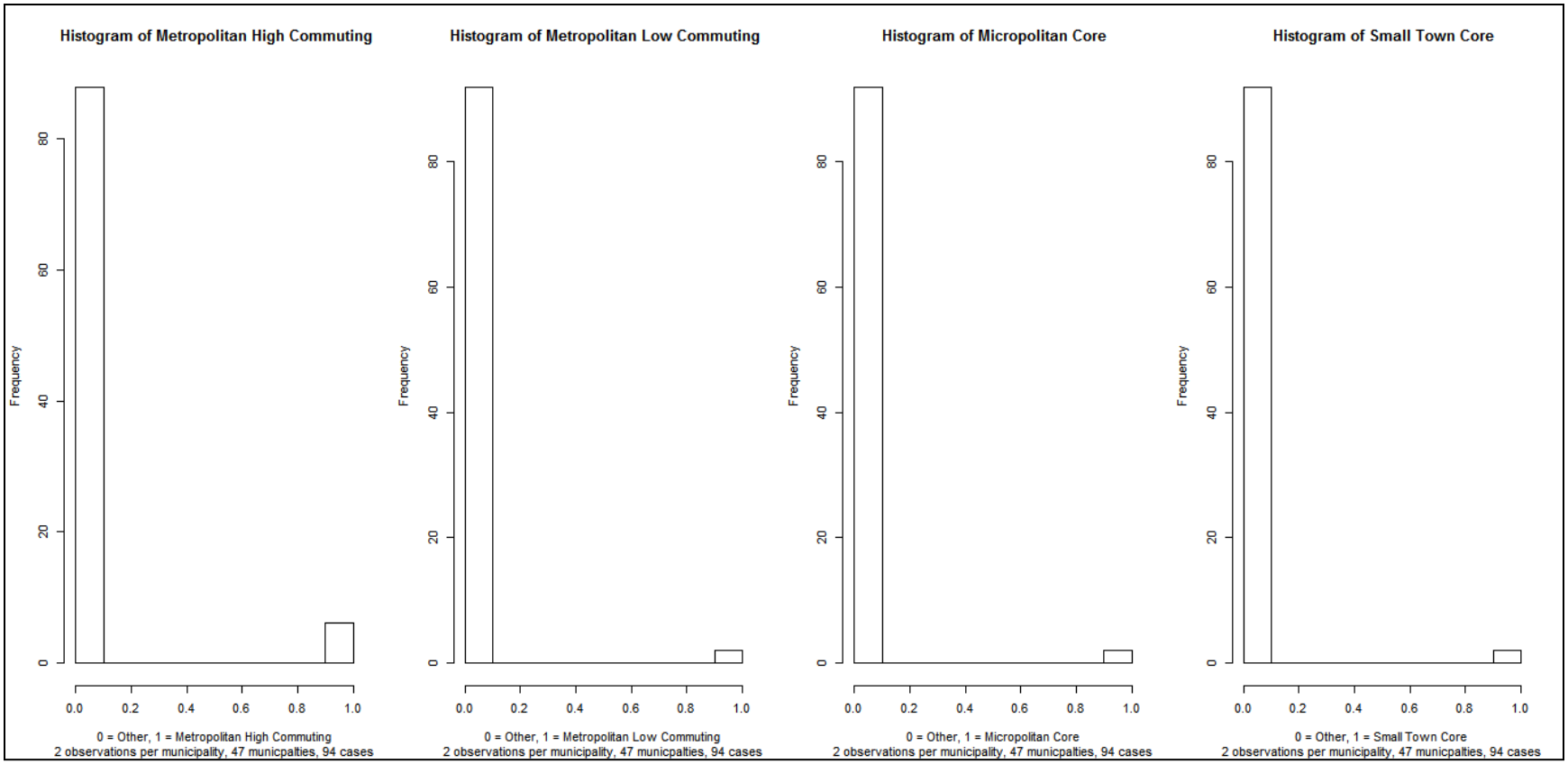

Figure 48: Histograms: RUCA Codes (four variables)

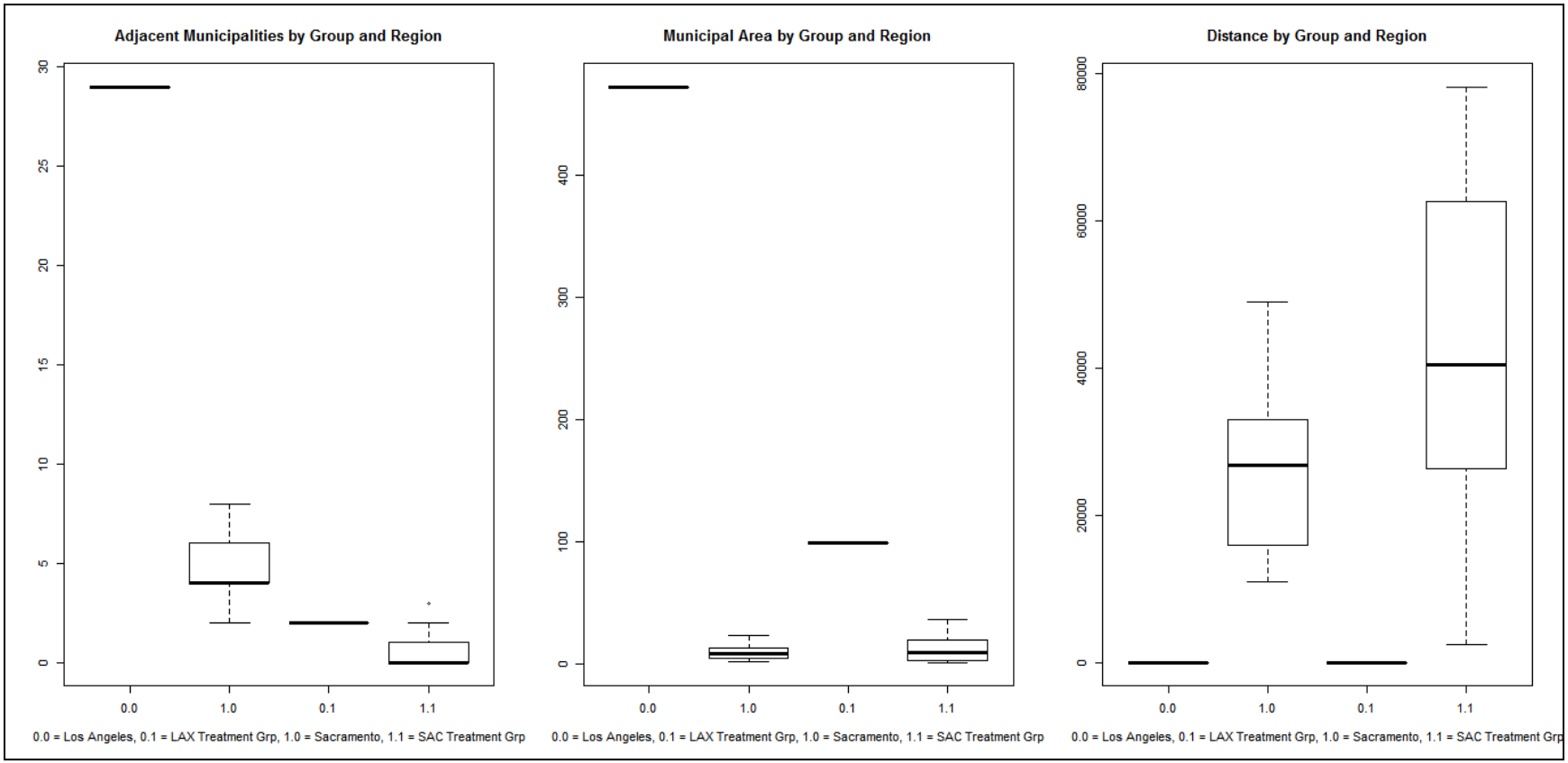

Figure 49: Box plots: Adjacent Municipalities, Municipal Area, and Distance

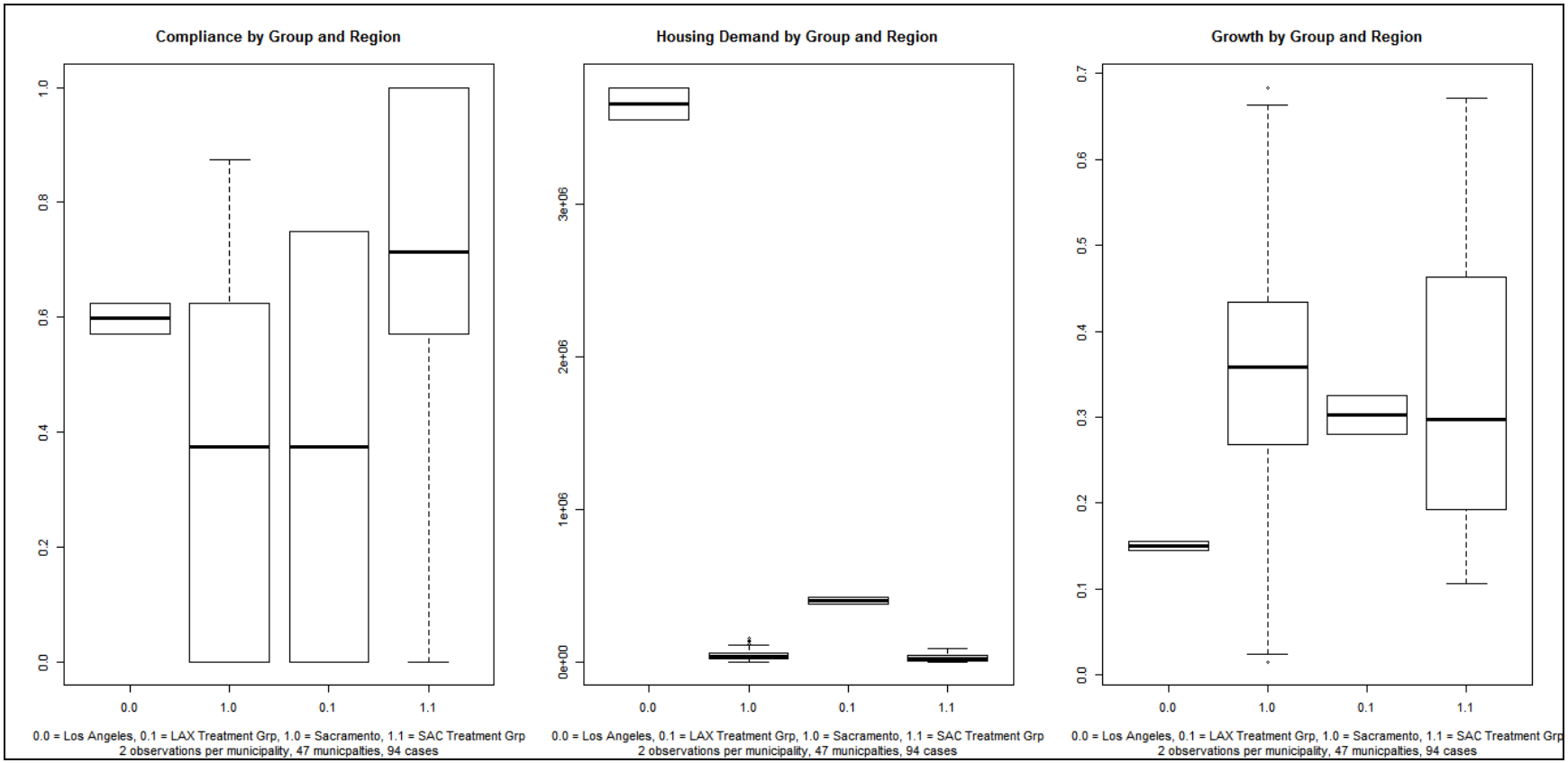

Figure 50: Box plots: Compliance, Housing Demand, and Growth

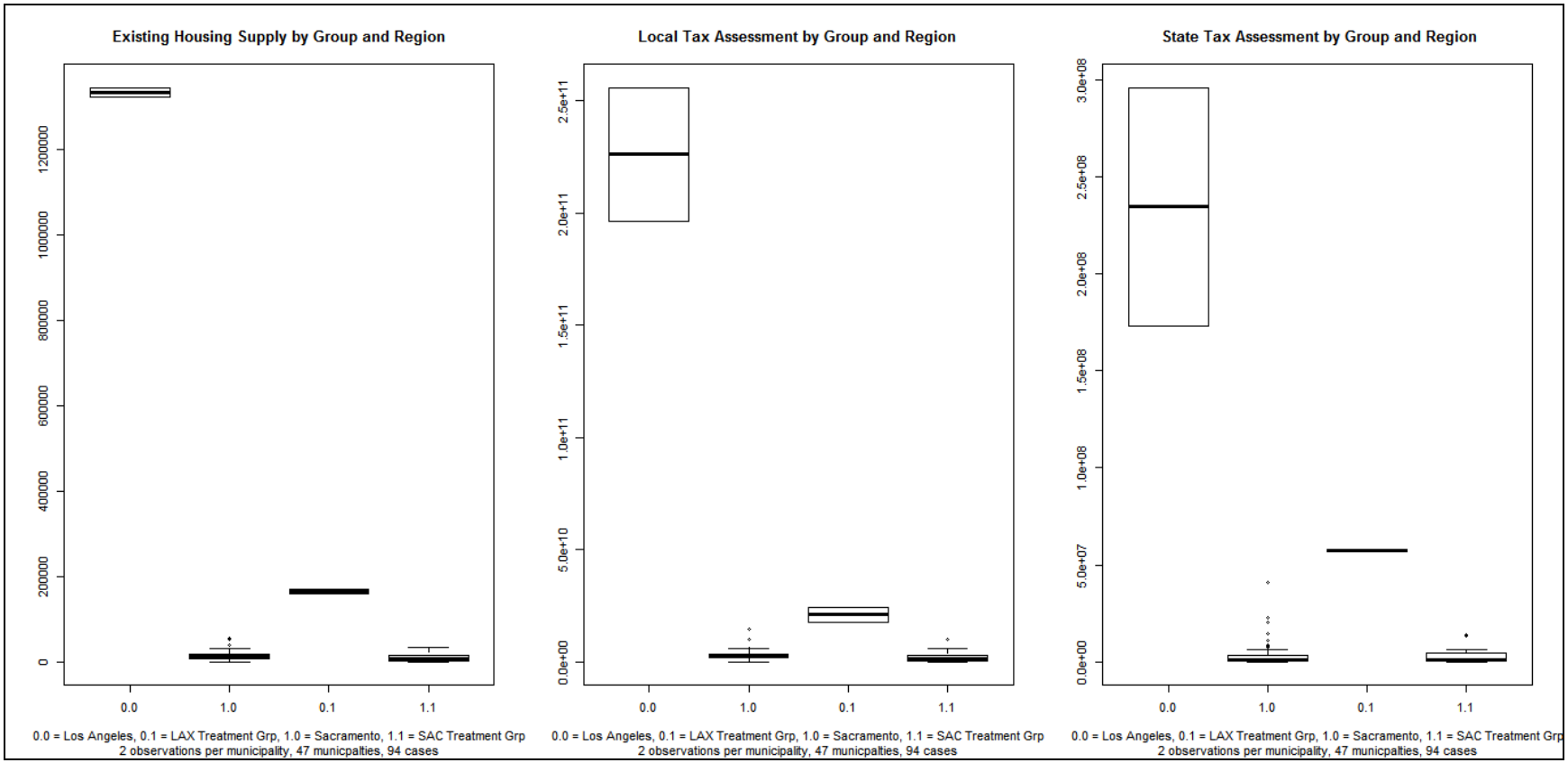

Figure 51: Box plots: Existing Housing Supply, Local Tax Assessment, and State Tax Assessment

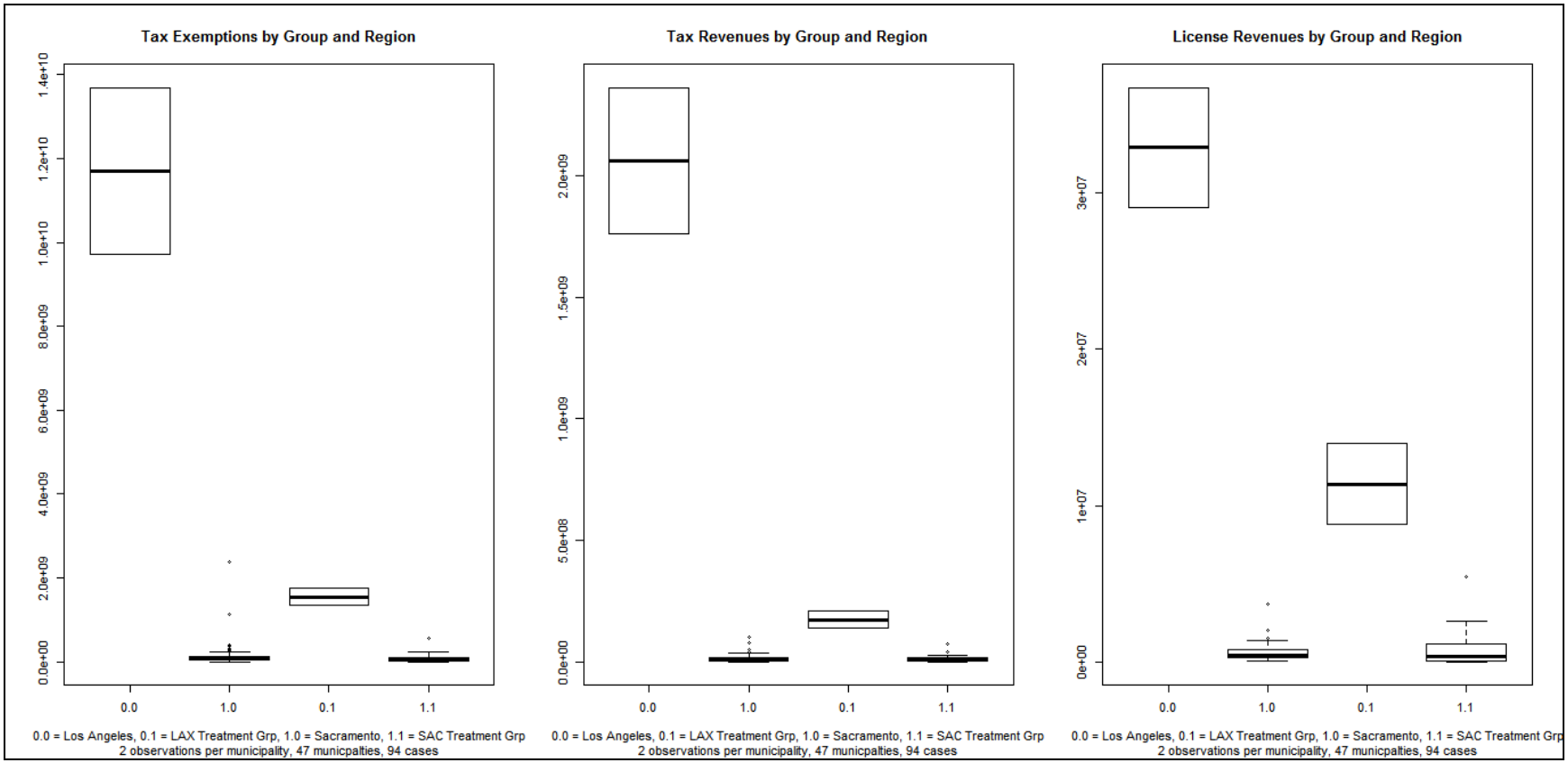

Figure 52: Box plots: Tax Exemptions, Tax Revenues, and License Revenues

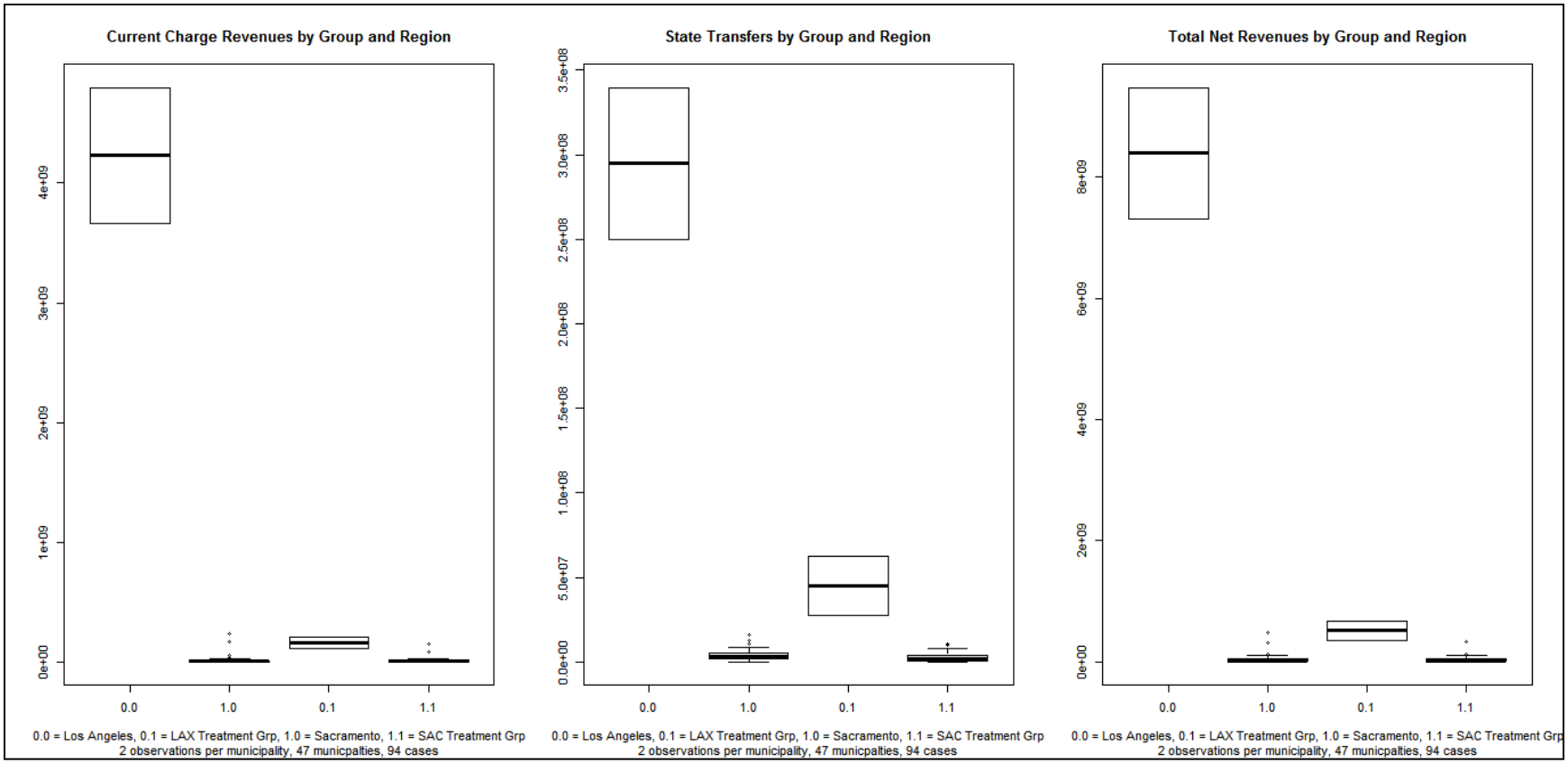

Figure 53: Box plots: Current Charge Revenues, State Transfers, and Total Net Revenues

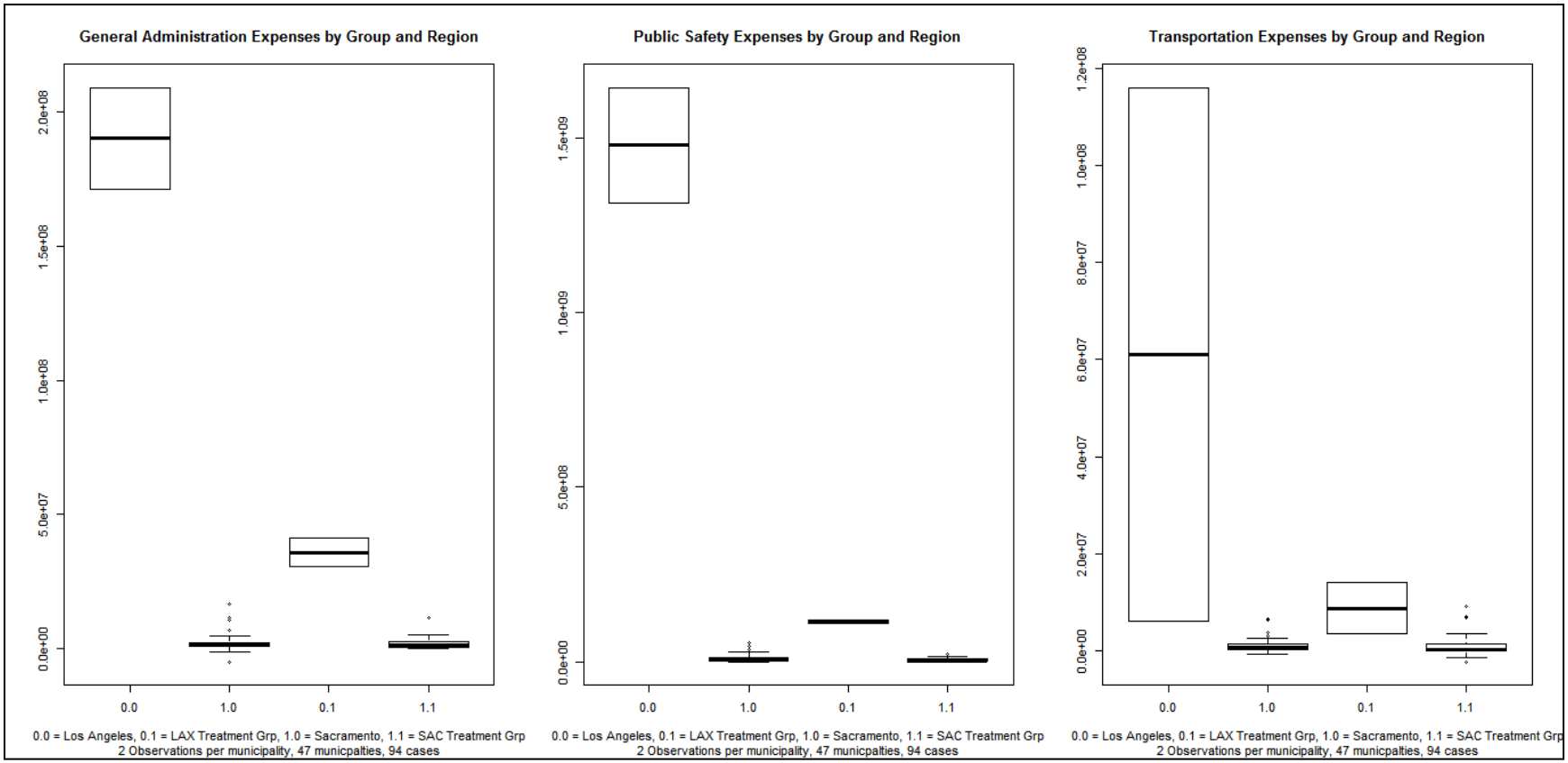

Figure 54: Box plots: General Administration, Public Safety, and Transportation Expenses

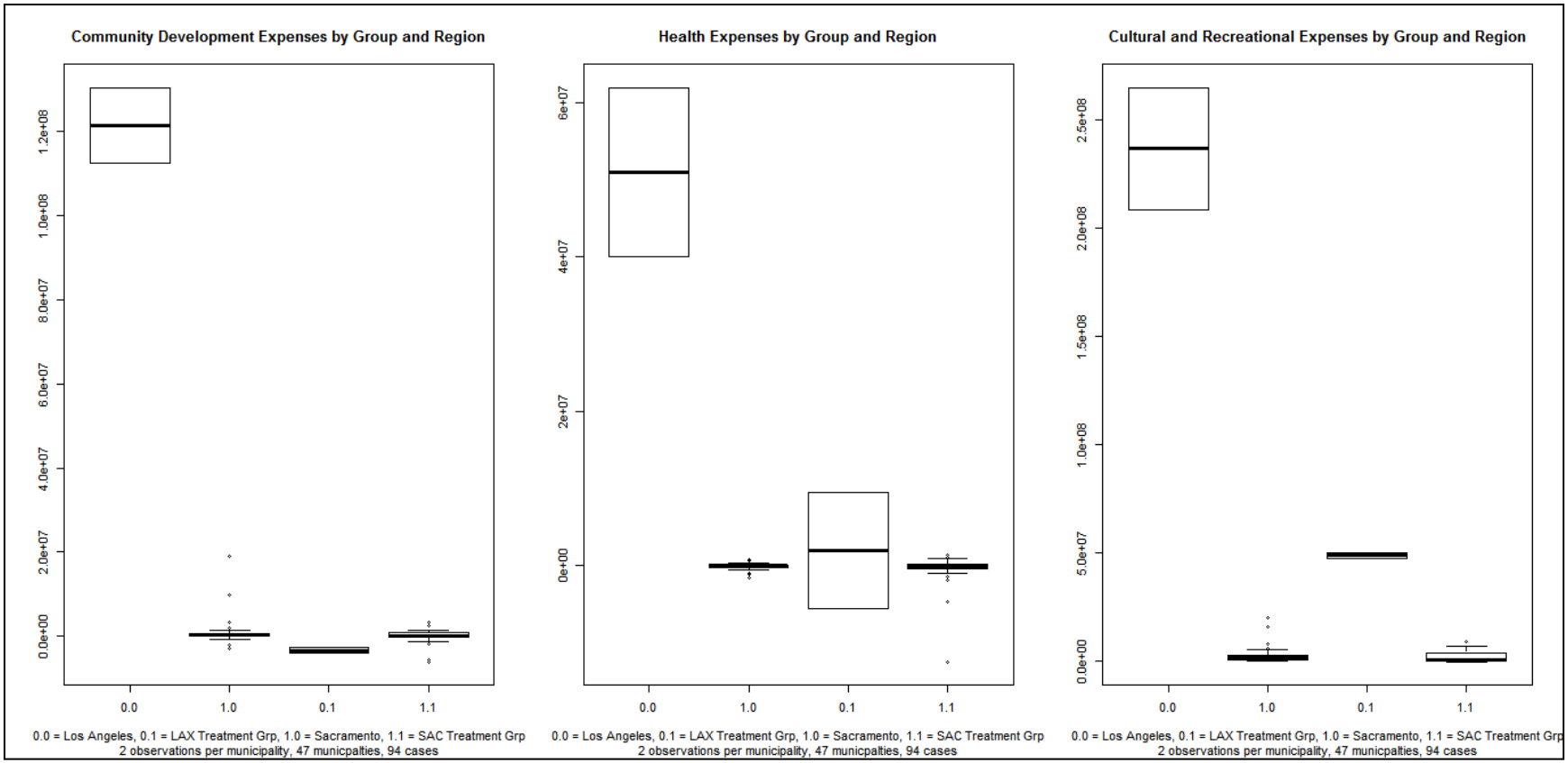

Figure 55: Box plots: Community Development, Health, and Cultural and Recreational Expenses

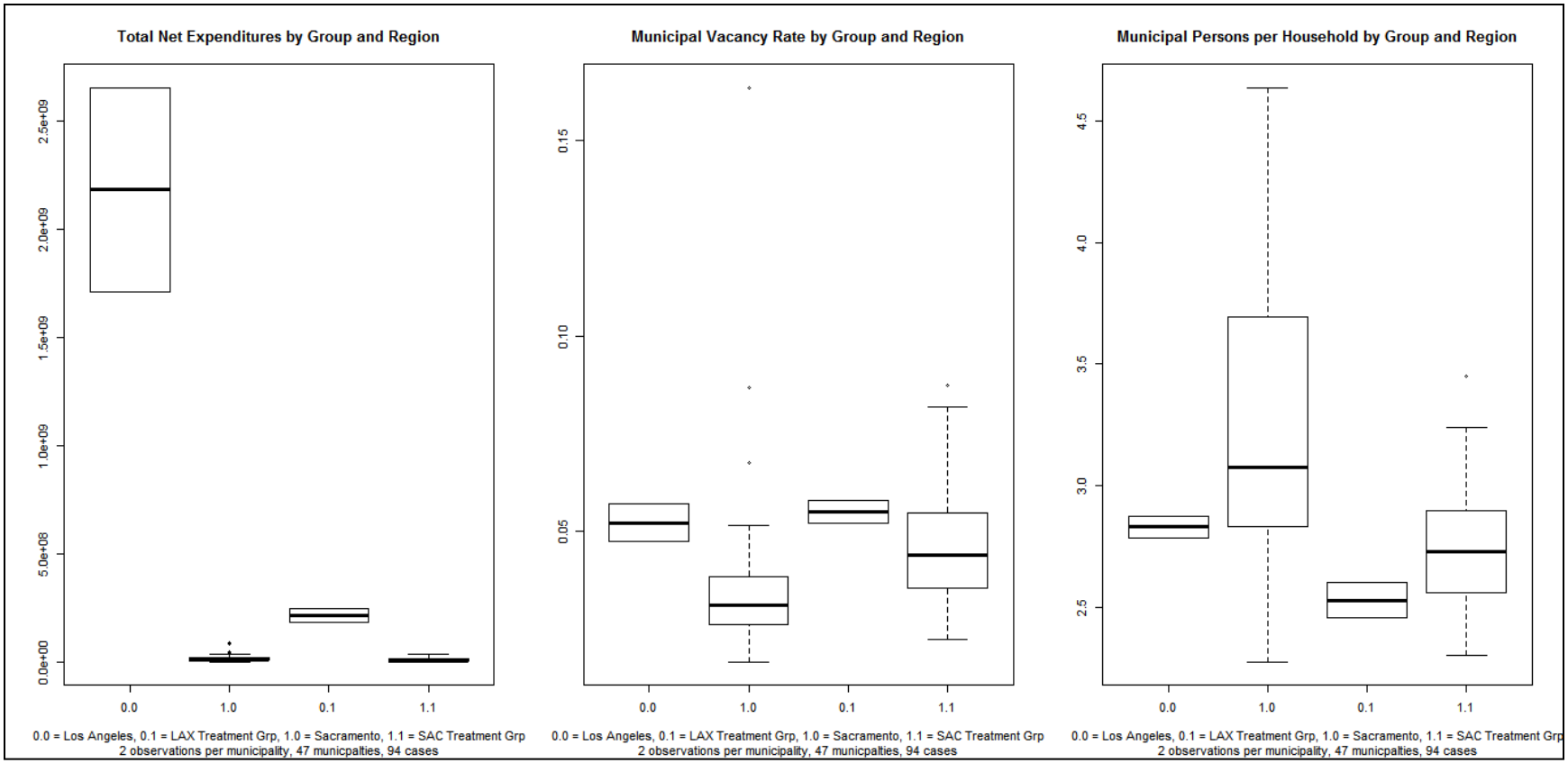

Figure 56: Box plots: Total Net Expenditures, Municipal Vacancy Rate, and Municipal Persons per Households

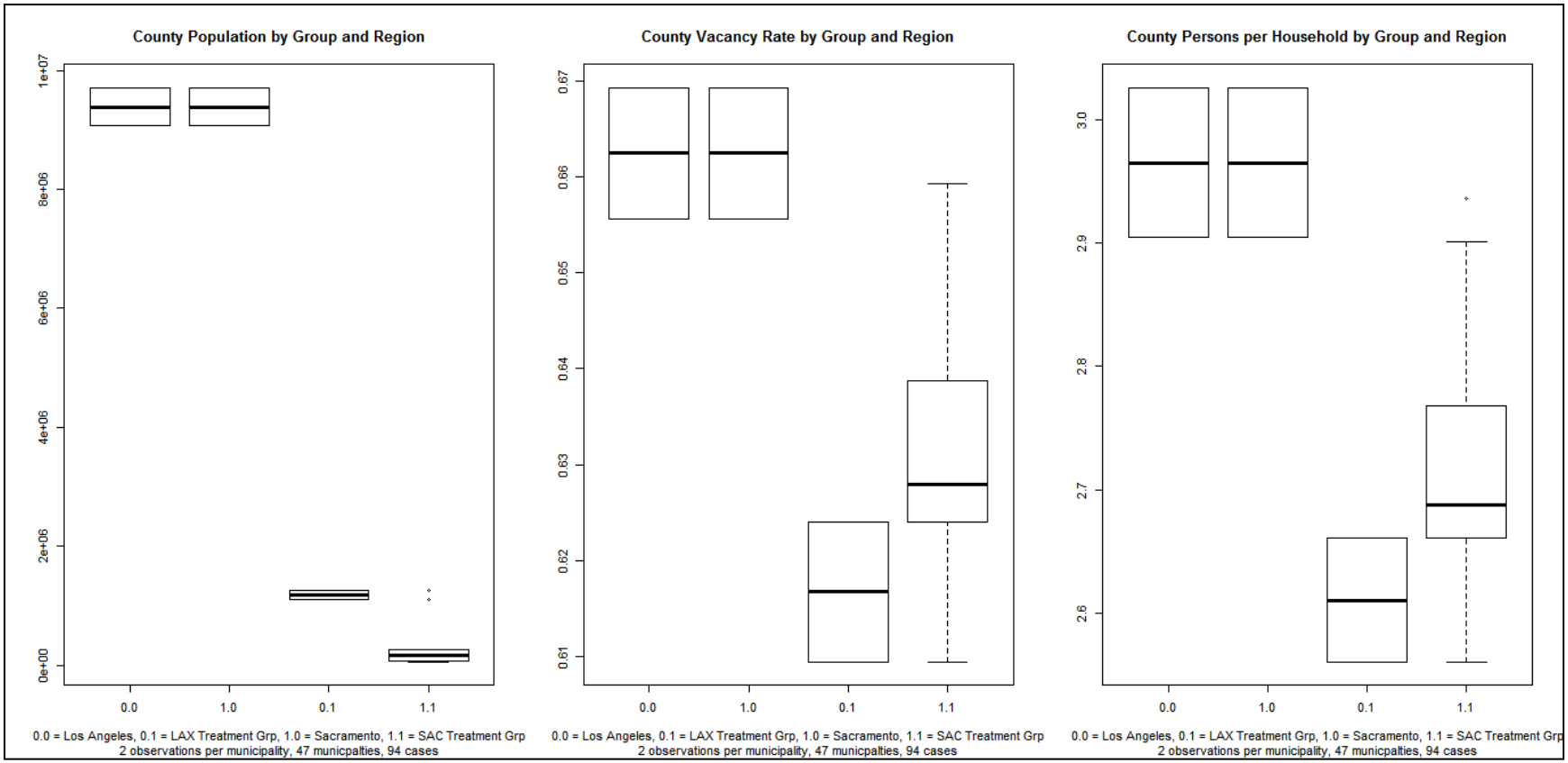

Figure 57: Box plots: County Population, County Vacancy rate, and County Persons per Household

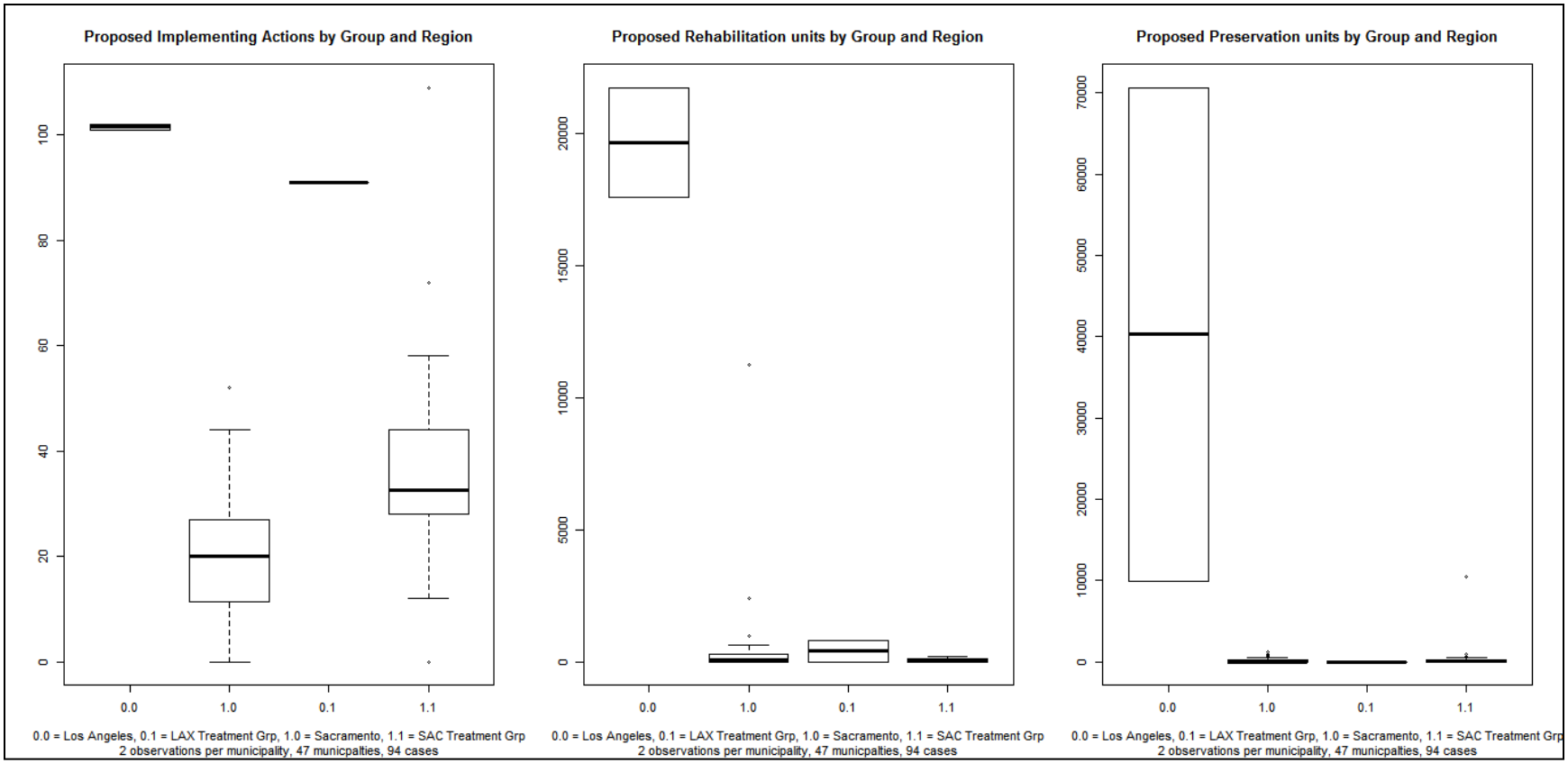

Figure 58: Box plots: Proposed Implementing Actions, Proposed Rehabilitation, and Proposed Preservation

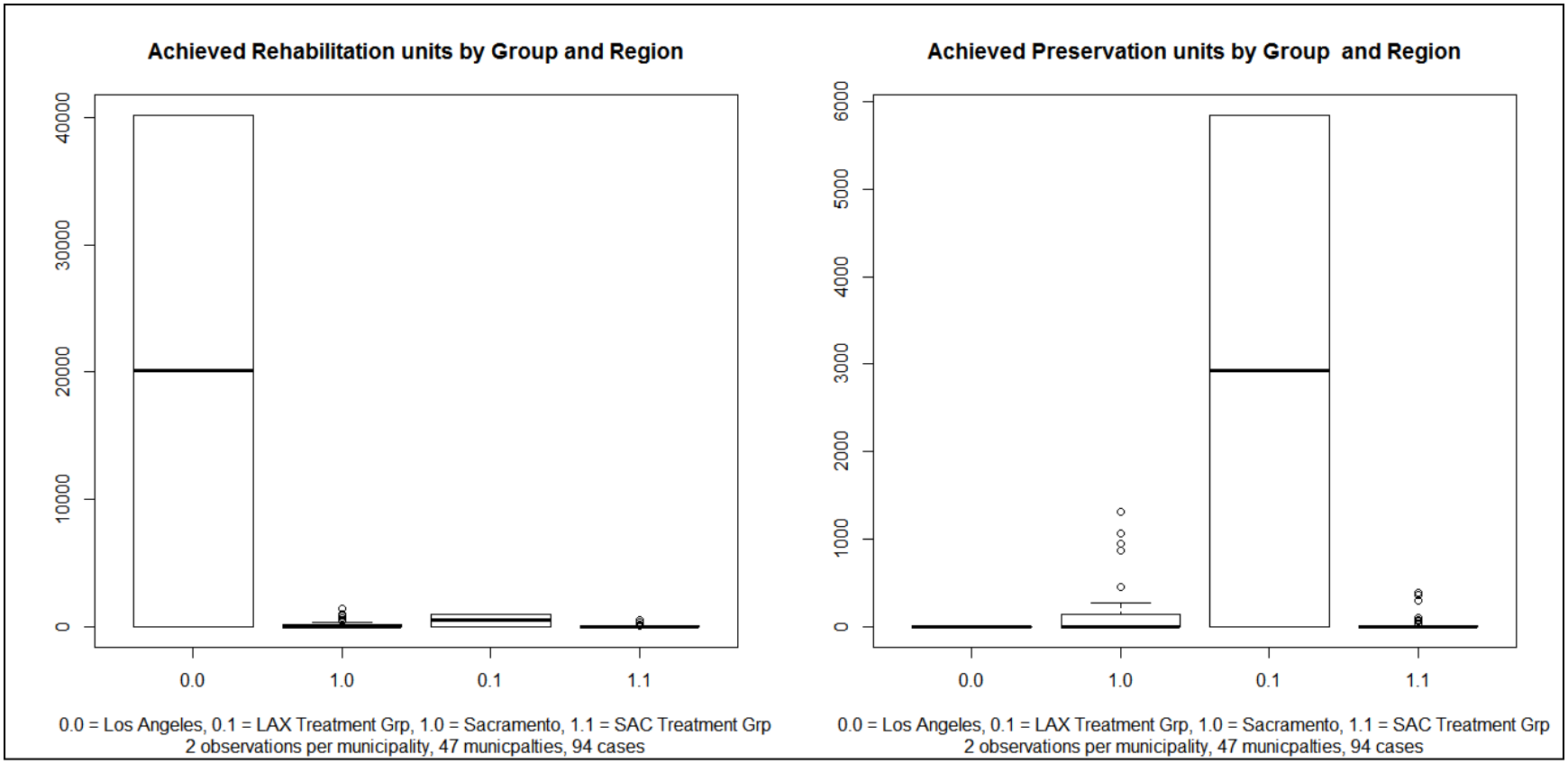

Figure 59: Box plots: Achieved Rehabilitation units and Achieved Preservation units

APPENDIX F: RESEARCH QUESTION 3 GRAPHICS

The following graphics reflect the distribution of observations for the data employed in research question 3 (e.g., w*hat is the relationship between a municipality's housing demand, growth, political will, existing housing supply, subsidy, HCD compliance, and its annual housing production?*). I present the dichotomous data in histograms by treatment group, and I present the continuous data in box plots by treatment group and region. Please note that the dichotomous data is illustrated in its raw form. Also, please note that the ratio data has been standardized. For each variable, there are 17 observations per municipality (e.g. 47 municipalities, 799 observations).

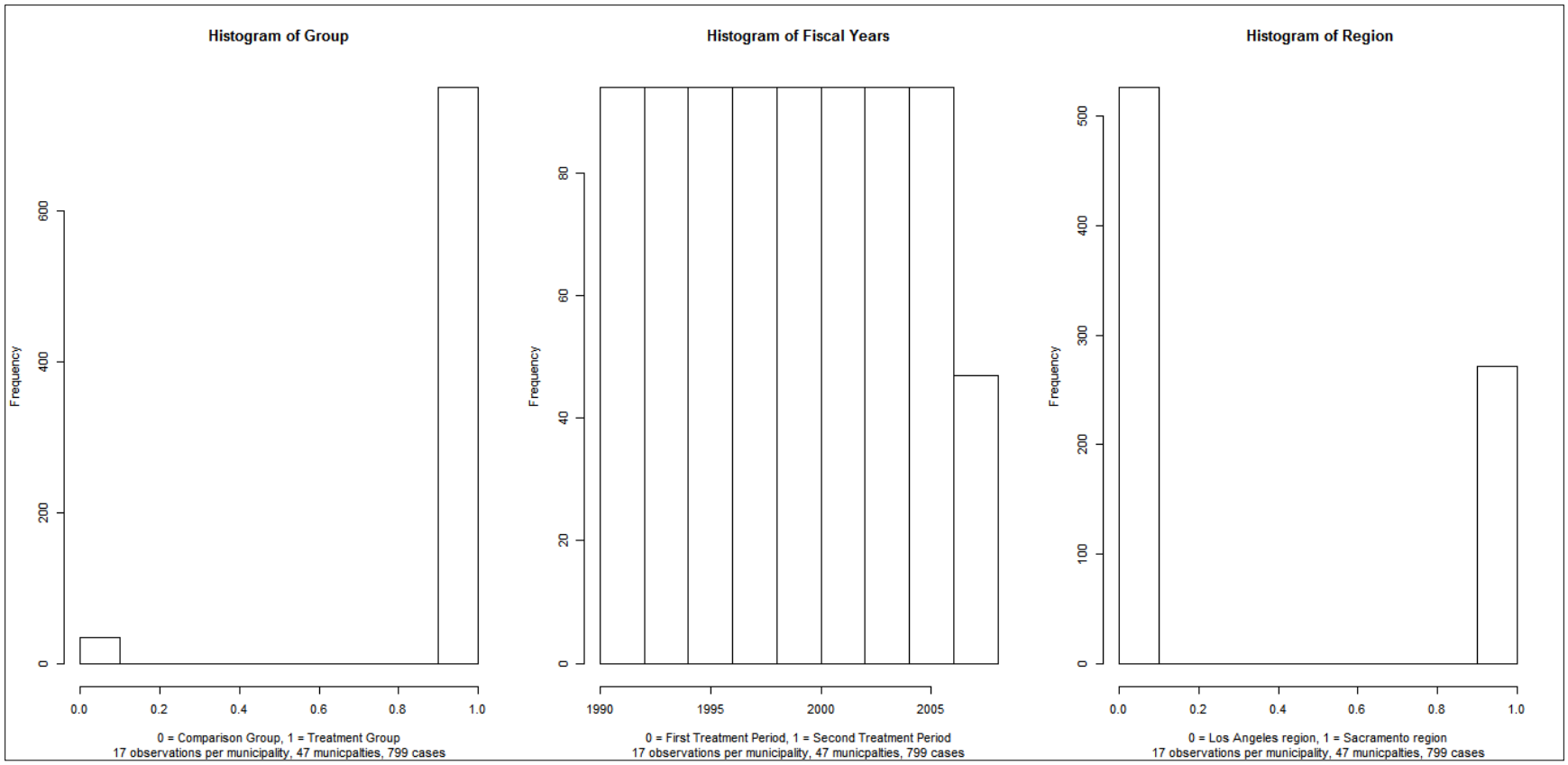

Figure 60: Histograms: Group, Fiscal Years, Region

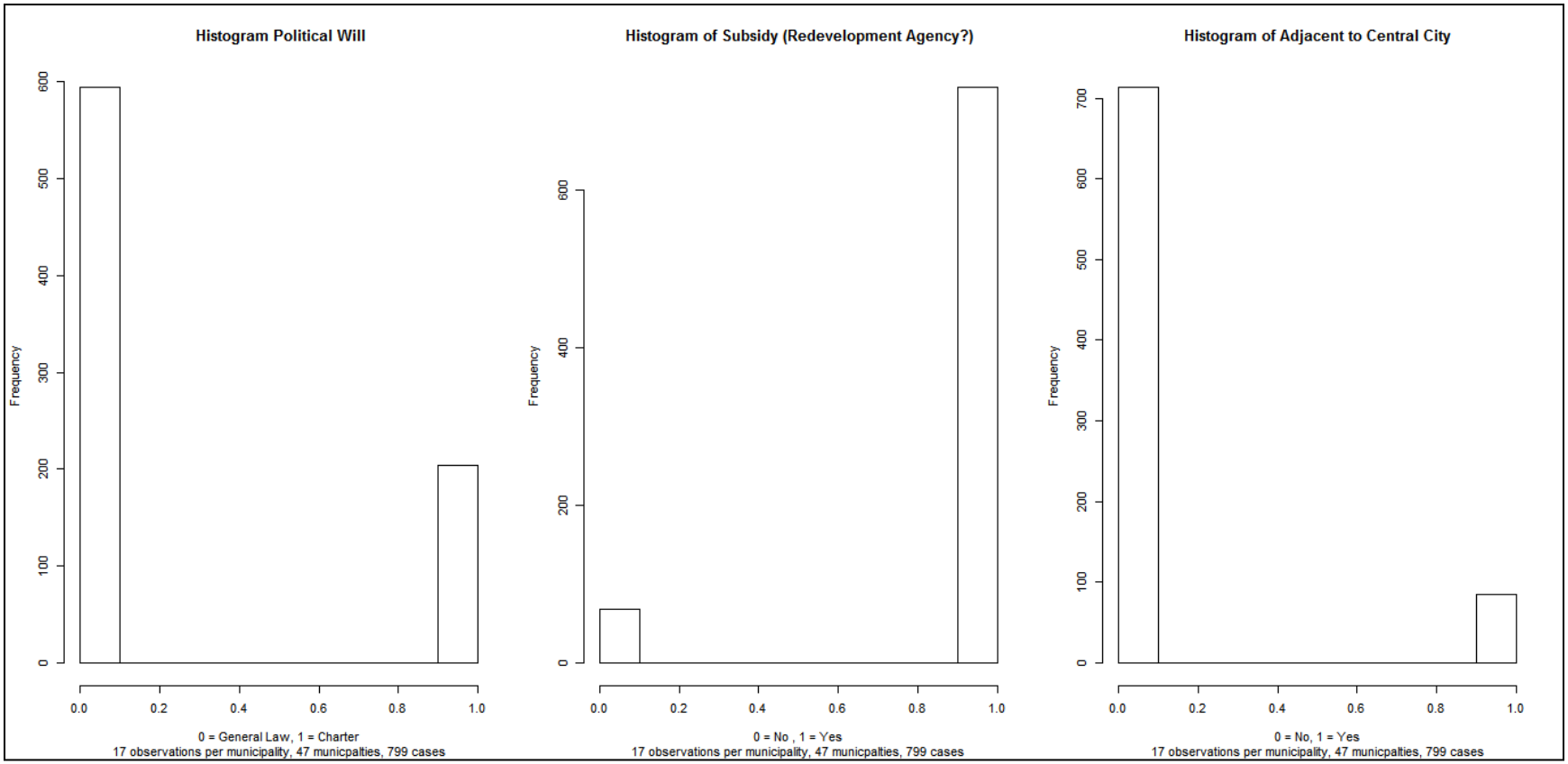

Figure 61: Histograms: Political Will, Subsidy, Adjacent to Central City

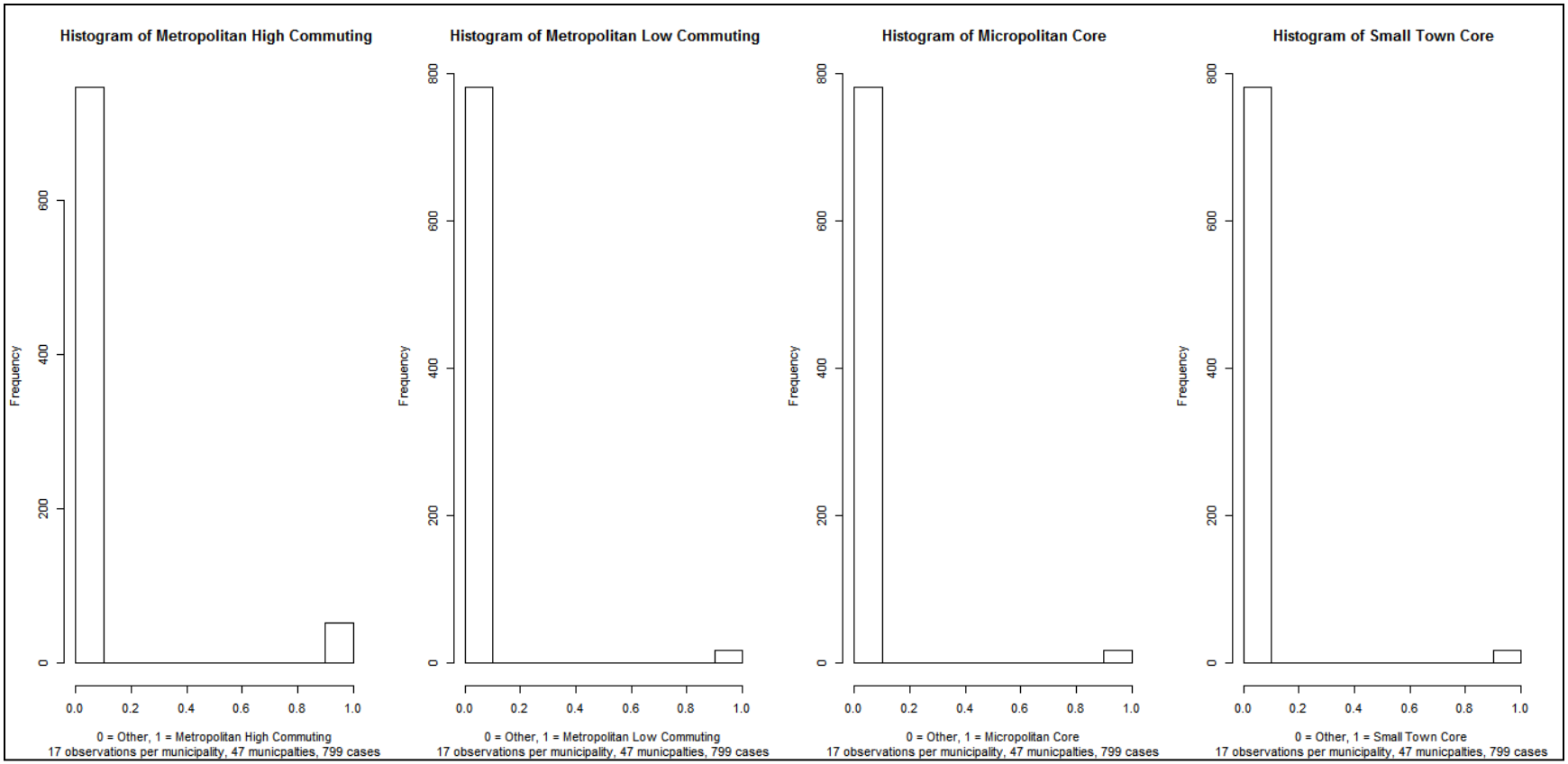

Figure 62: Histograms: RUCA Codes (four variables)

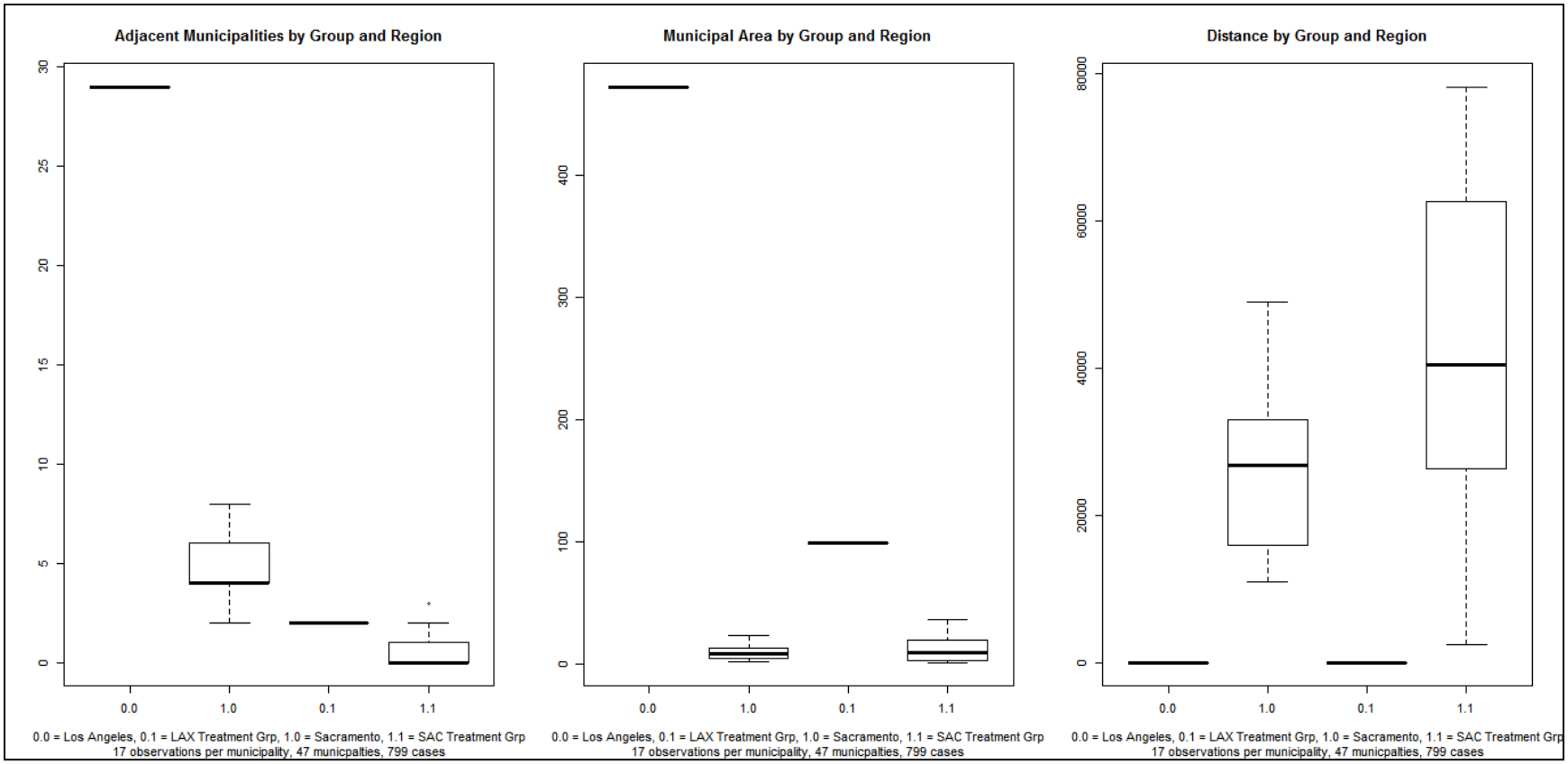

Figure 63: Box plots: Adjacent Municipalities, Municipal Area, Distance

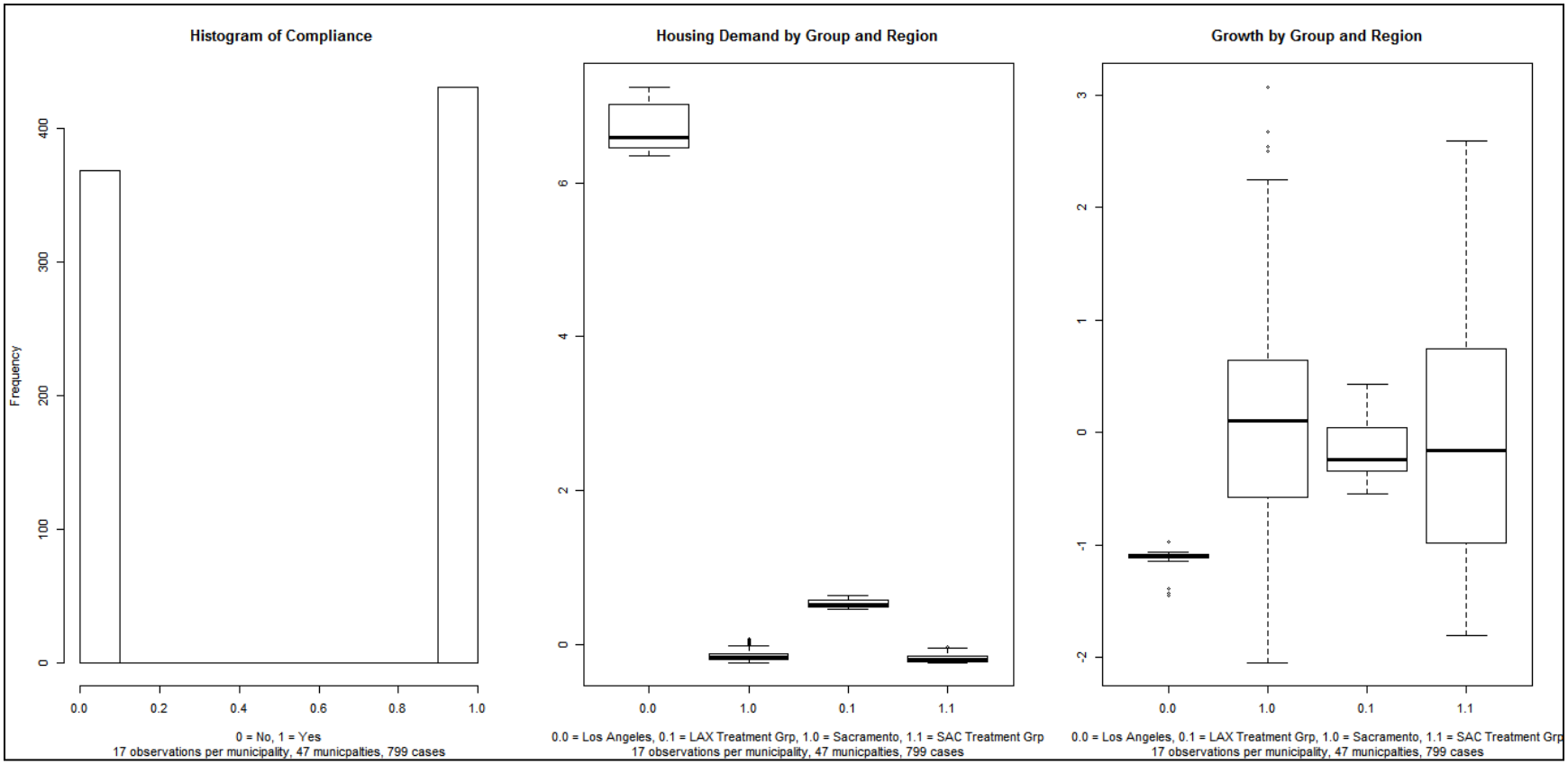

Figure 64: Histogram of Compliance; Box plots: Housing Demand, Growth

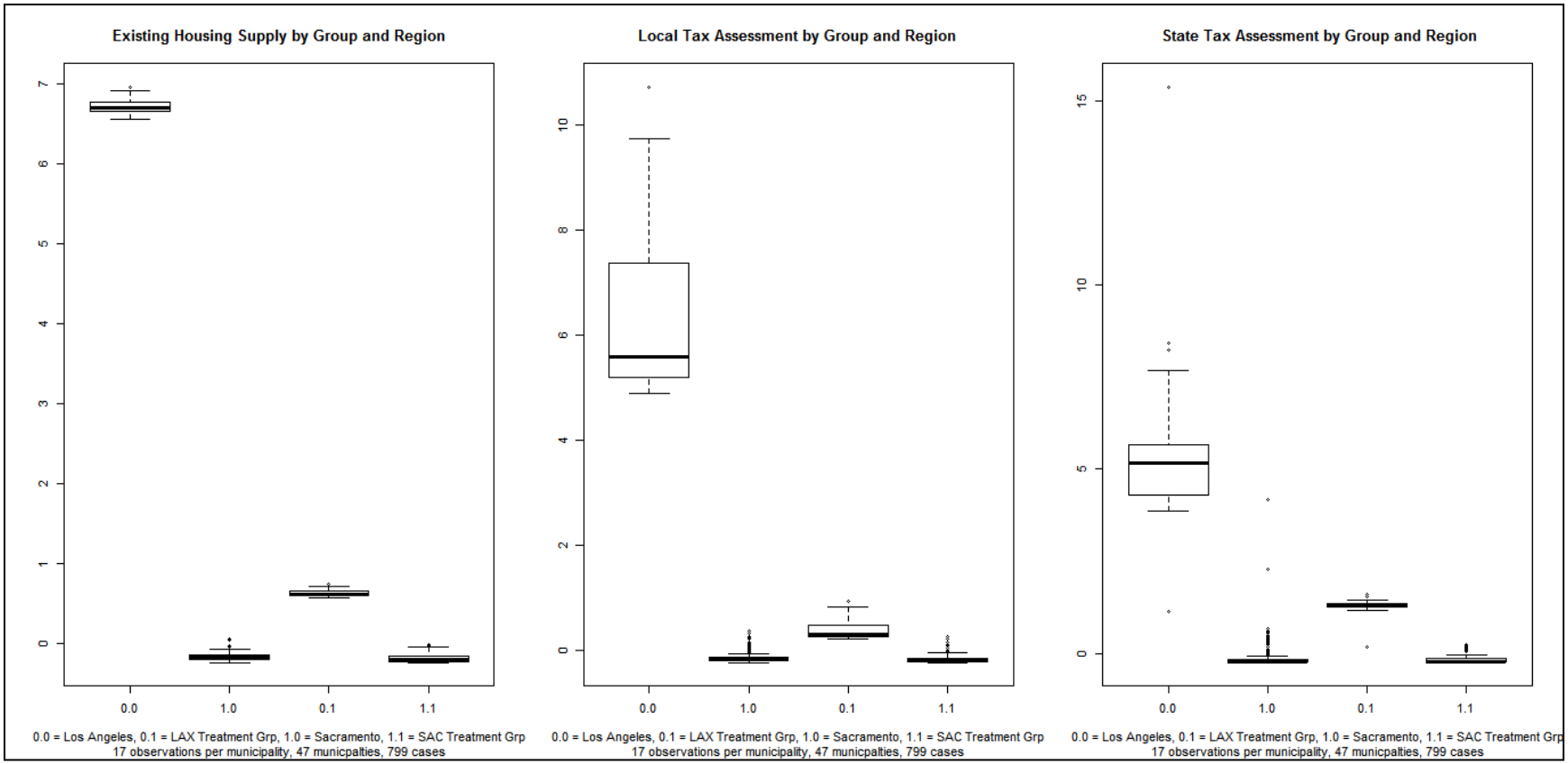

Figure 65: Box Plots: Existing Housing Supply, Local Tax Assessment, State Tax Assessment

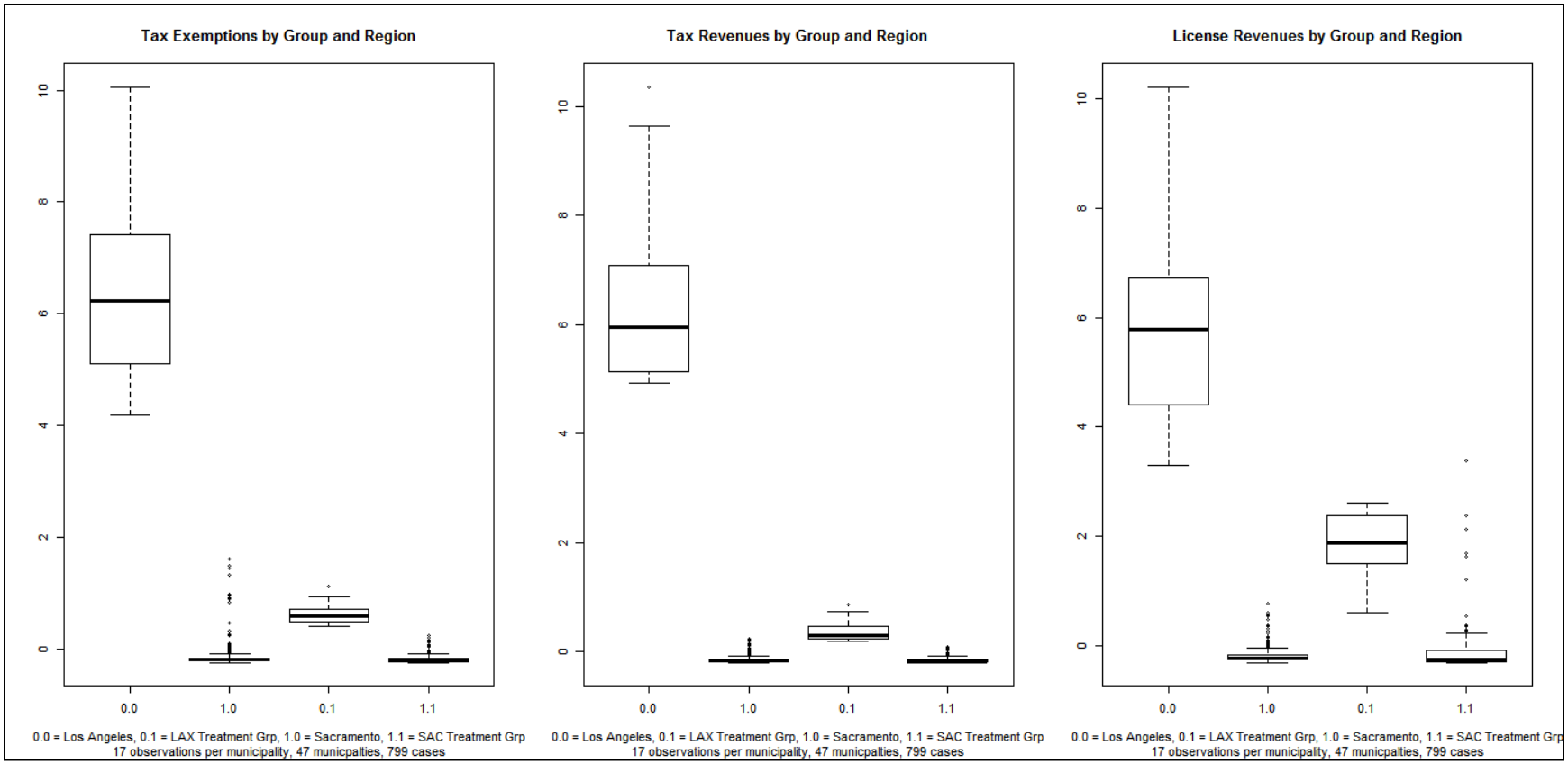

Figure 66: Box plots: Tax Exemptions, Tax Revenues, License Revenues

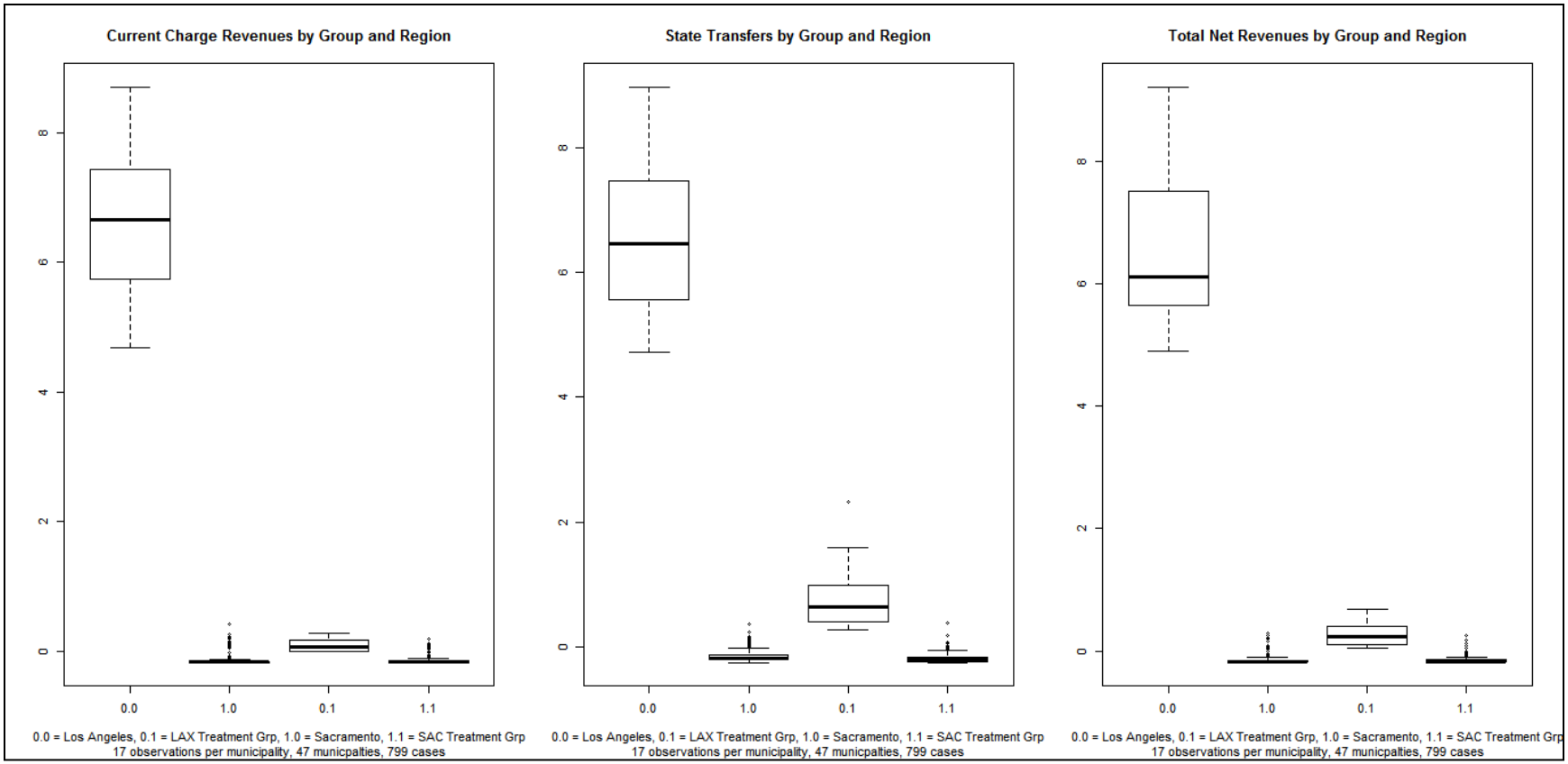

Figure 67: Box plots: Current Charge Revenues, State Transfers, Total Net Revenues

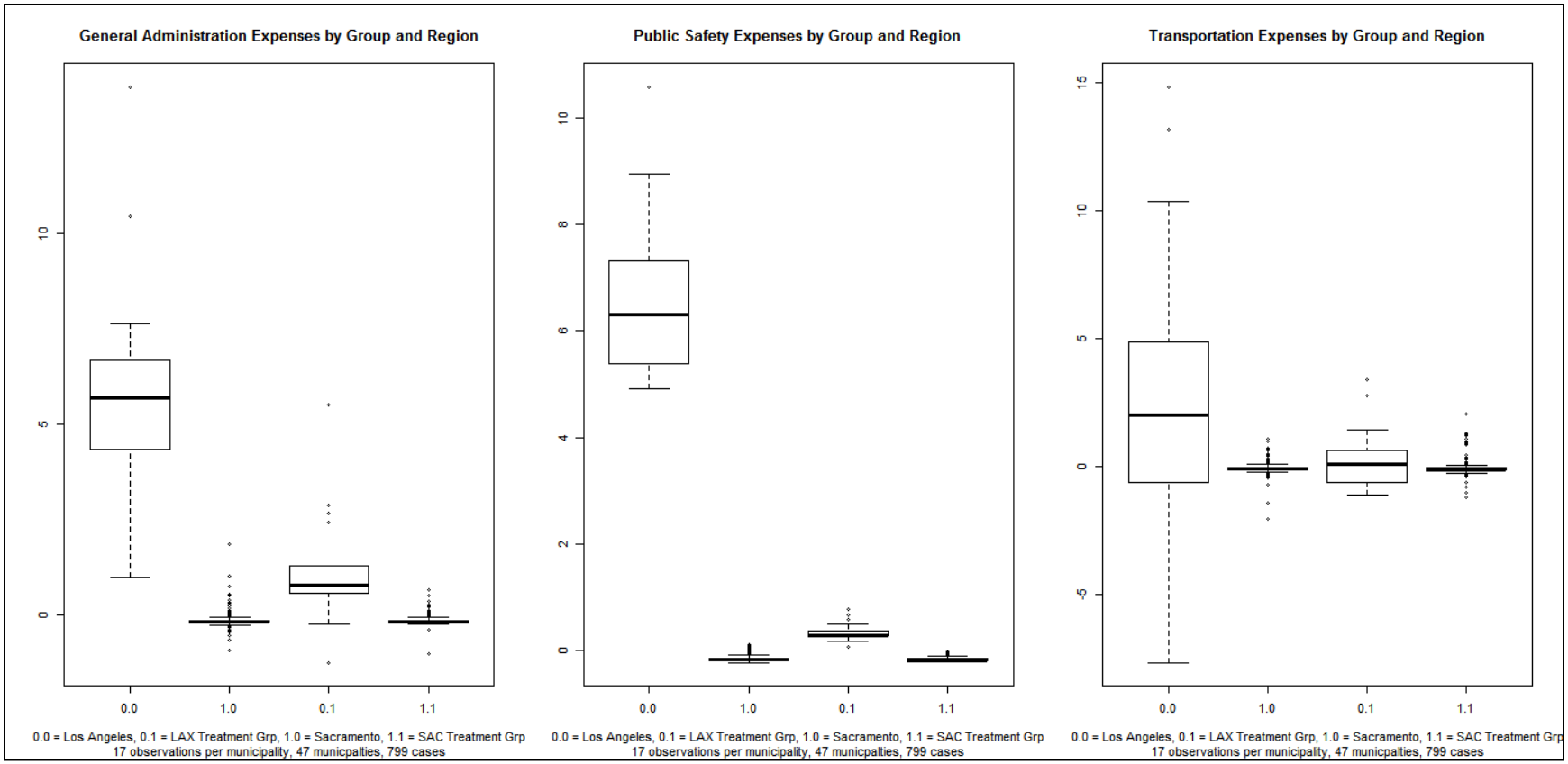

Figure 68: Box plots: General Administration, Public Safety, and Transportation Expenses

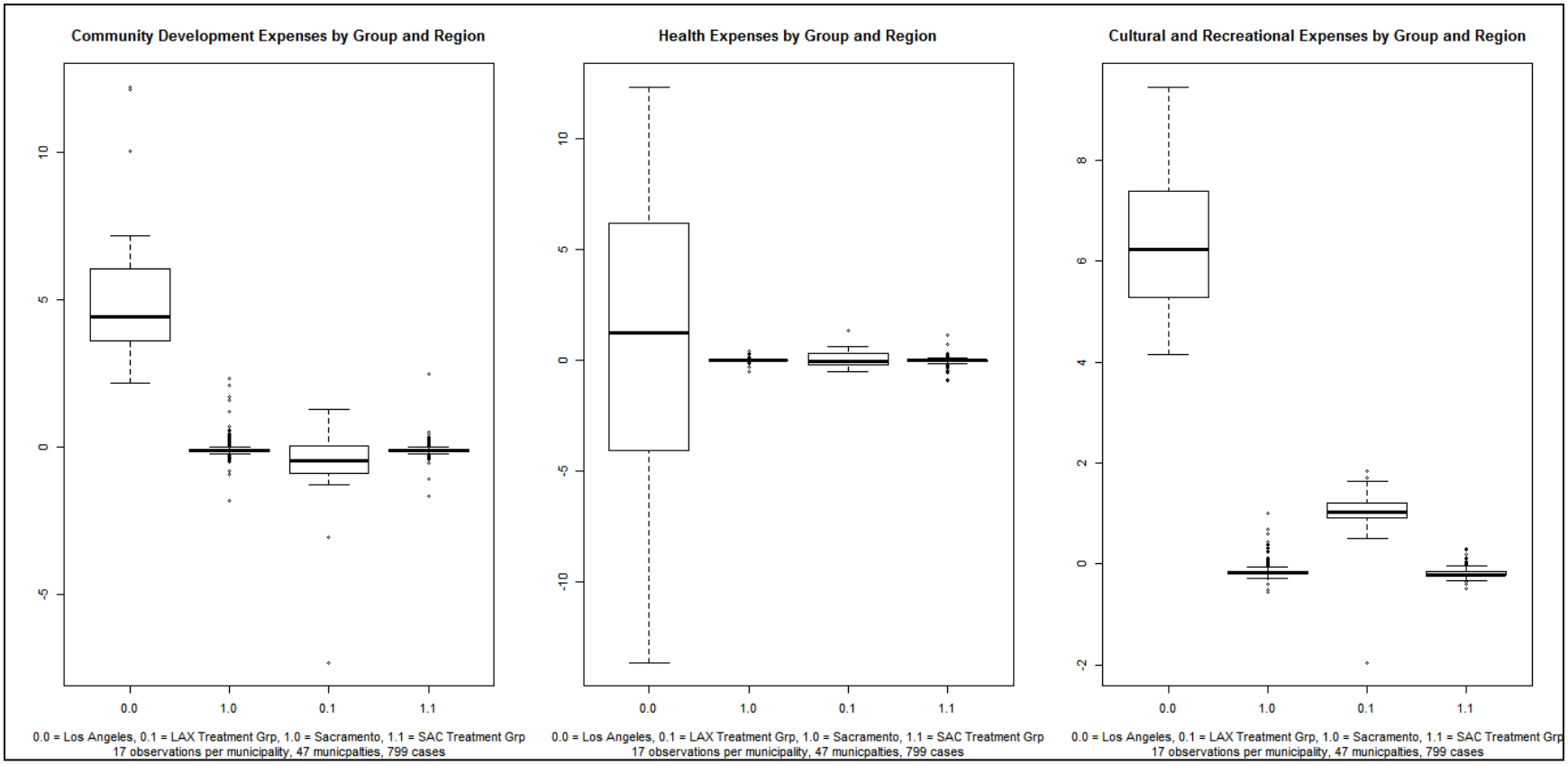

Figure 69: Box plots: Community Development, Health, Cultural and Recreational Expenses

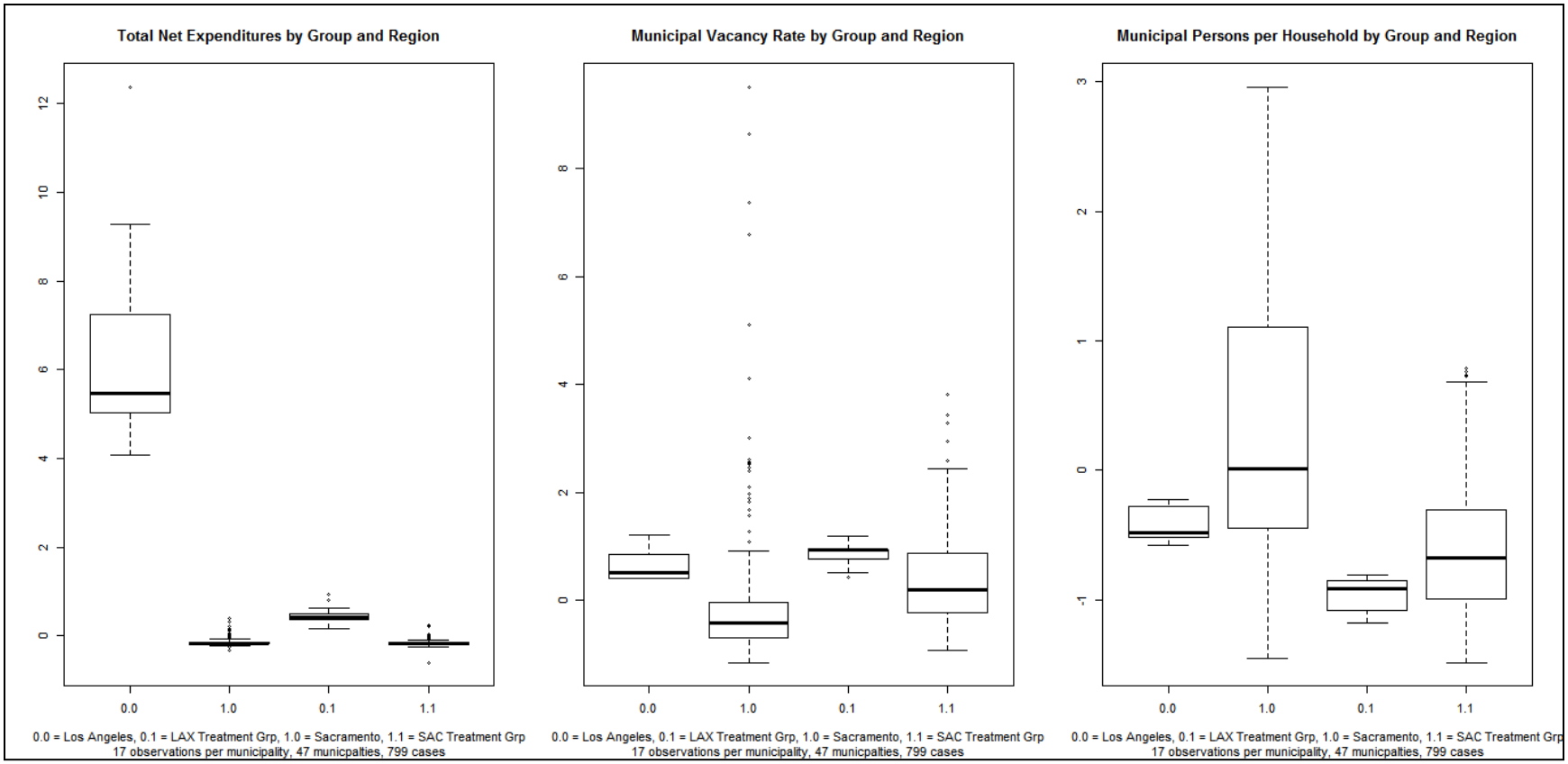

Figure 70: Box plots, Total Net Expenditures, Municipal Vacancy rate, Municipal Persons per Household

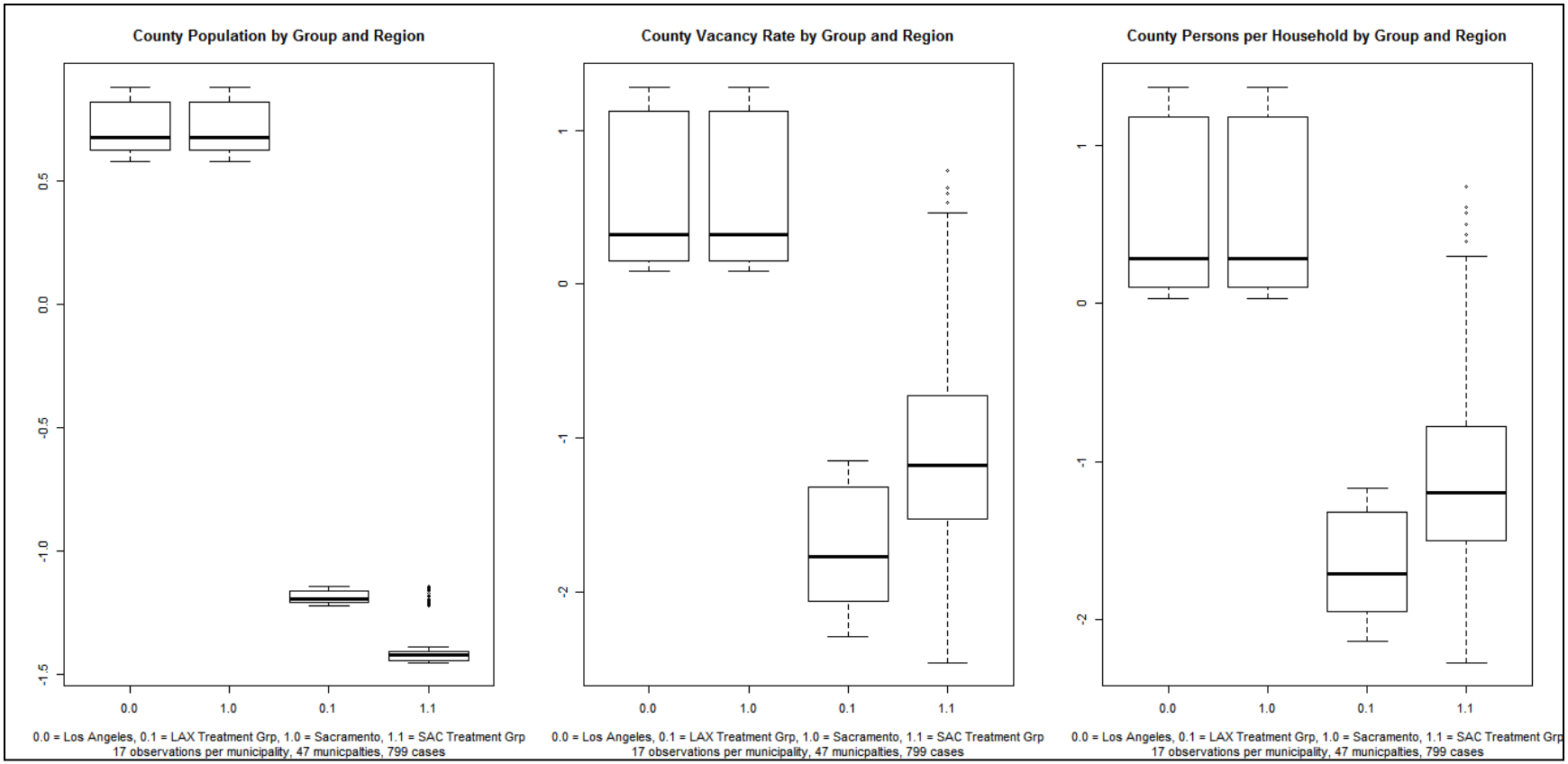

Figure 71: Box plots: County Population, County Vacancy Rate, County Persons per Household

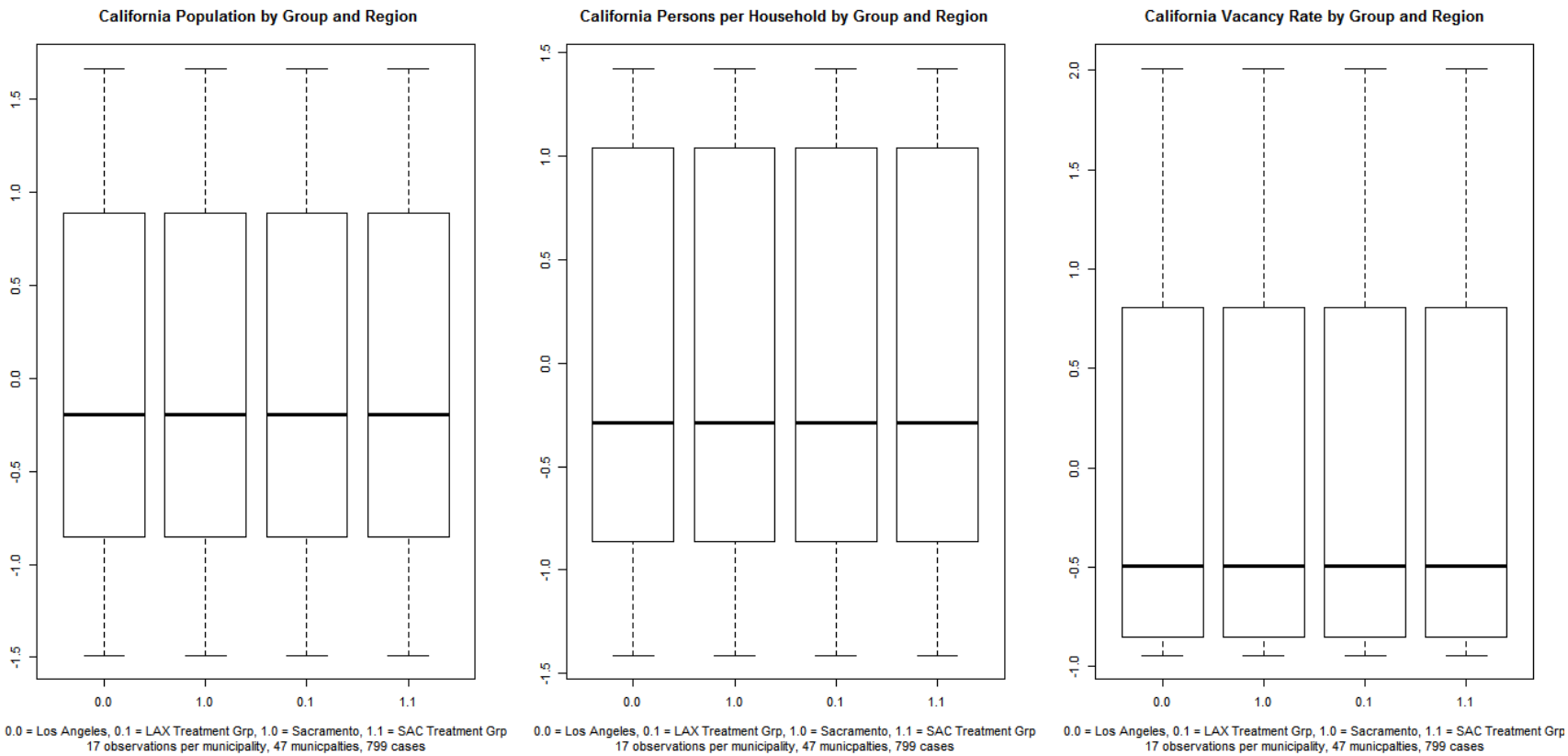

Figure 72: Box Plots: California Population, California Persons per Household, California Vacancy Rate

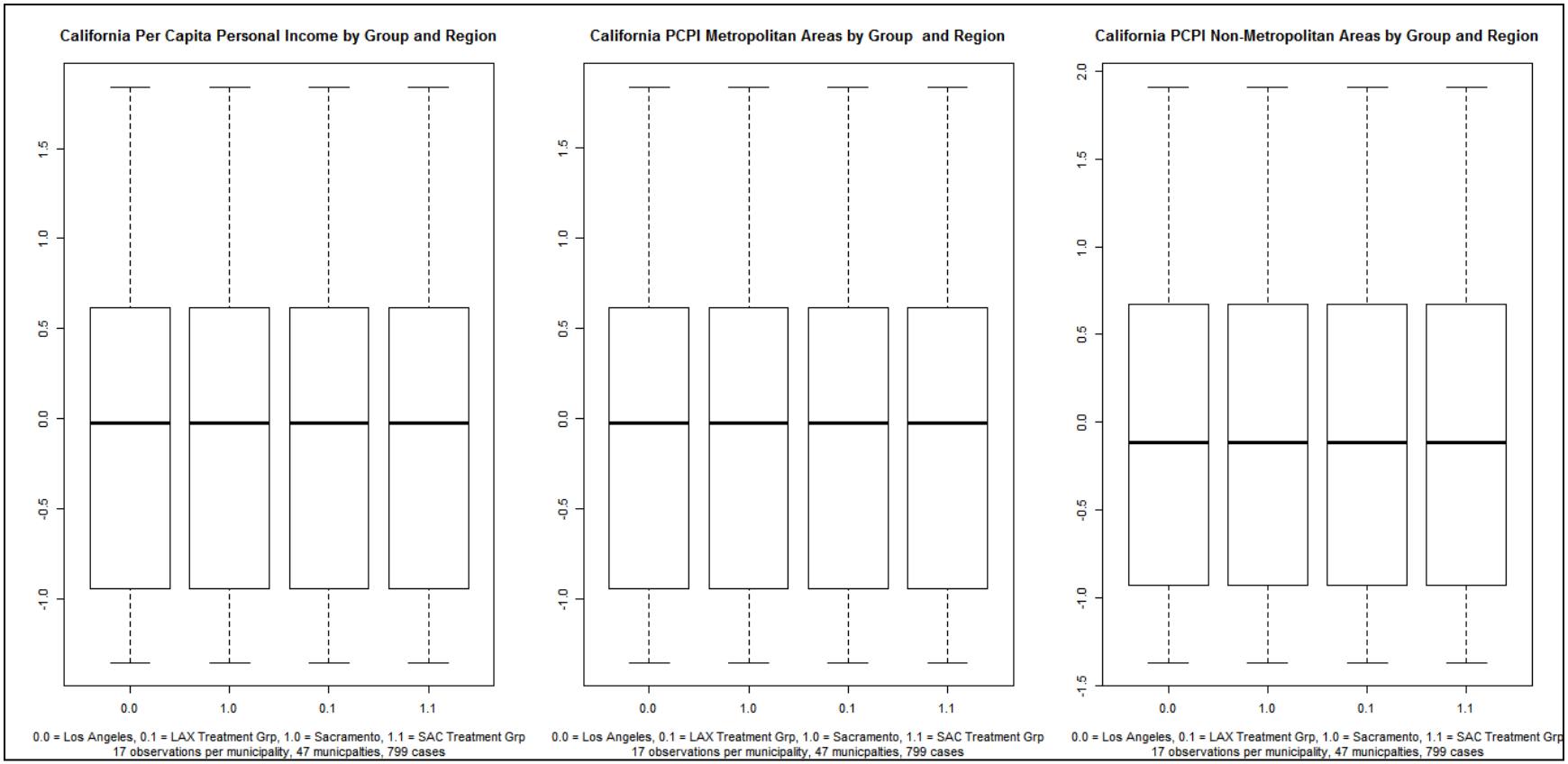

Figure 73: Box plots: California Per Capita Personal Income, California PCPI Metropolitan Areas, California PCPI Non-Metropolitan areas

APPENDIX G: REGIONAL GOVERNANCE ESSAY

Regional Governance, Subsidized Housing and Municipalities in the US: a review of the literature

Darrel Ramsey-Musolf
Monday, December 13, 2010
Preliminary Exam

Abstract:

This review examines the municipal actions associated with the production of subsidized housing. This article is framed by California's Housing Element Law where state, regional, and local agencies share program responsibility for providing housing that is affordable to households in all income ranges. This law employs a regional governance approach to produce the necessary housing units. The author suggests that planners advance regional governance when participating actors have parity in agency and resources; yet, he argues, regional governance also abets municipal dissent and intransigence. To better understand municipal action, this article surveys the literature on regionalism, political will, and municipal decision-making in order to understand how municipalities respond to internal and external demands for subsidized housing and closes with recommendations for planners, theorists, and researchers.

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Introduction

When solving a problem, many would agree that two heads are better than one. Likewise, when states are faced with regional issues such as transportation, waste management, or air quality, one could argue that regional unity would be more efficient than any incremental implementation of uncoordinated effort (Anthony, 2003; Baldassare, Hassol, Hoffman, & Kanarek, 1996; Basolo & Hastings, 2003; Etzioni, 1967; Lindblom, 1973). In California, for example, housing is a regional issue of statewide importance ("Housing Element Law," 2010).

In California, housing near the central city may be too expensive or of lower quality (Cutler, Glaeser, & Vigdor, 1999, pp. 457, 476). If a unit is affordable, then it may be too far from job centers or too small (Ewing, 1997; Schuetz, 2009, p. 296). For households that rent, there is a shortage of multi-family units priced for low-income households with children (Landis, Reilly, Corley, & Jerchow, 2000). For households who qualify for home ownership, the choices can be limited—owing to inventory and income constraints (Ong & Haselhoff, 2005). Compounding this crisis are municipal zoning restrictions that affect housing type, quantity, and the minimum sizes of residential lots and units—further decreasing housing inventory (Beitel, 2007, p. 745; Danielson, 1976; Fischel, Hale, & Hale, 2006; Quigley & Rosenthal, 2005). To solve its housing crisis, the California legislature adopted a Housing Element law to coordinate the efforts of state, regional, and local agencies.

Passed in 1967, the law intends to increase housing inventory by assigning cities targets for both market rate[1] and subsidized housing units within a Housing Element.[2] By taking this approach, the legislature envisioned that a mandatory doctrine would force cities to remove *local* housing constraints

[1] Market rate housing is priced as an "arm's length" transaction between buyers and sellers.

[2] In California, a Housing Element is a locally prepared government document that assesses the current and projected housing needs for all economic segments of the municipality and region. It identifies local housing policies and the programs that implement those policies (*California Planning Guide: An Introduction to Planning in California*, 2005, p. 7).

and increase their *local* supply of housing. And as a corollary, the legislators anticipated that the state's regional supply of housing in all price ranges would increase, reflecting the diverse socio-economic characteristics of cities. Unfortunately, this unfunded mandate did not provide any subsidies linked to the compliant Housing Elements, planned housing units, deficiencies in household incomes, increases in housing prices, or desired levels of production. Subsequently, municipal response to the twin conditions of encroachment and compliance has been hostile and reflected in low percentages of compliant cities (*Analysis of the 2003-04 Budget Bill, General Government Chapter.*, 2003; Baer, 1988, 2008; Meck, Retzlaff, & Schwab, 2003; Peterson, 2007; Sheyner, 2009; Tanenbaum, 2007; Trout, 2007).

In this literature review, I intend to survey the literature to understand how municipalities respond to internal and external demands for subsidized housing. My discussion will focus on the municipal actions associated with the production of subsidized housing within an arena of competing municipal choices and limited capital. I do this in order to determine if the municipal resistance found in California is any different from the resistance found in municipalities that do not operate under a regional governance approach. Lastly, I shall use the term "subsidized housing" to emphasize the fiscal deficit that low-income households experience when consuming housing as opposed to the term "affordable housing," which includes not only low-income households, but also the middle and upper classes.

Why should we care about California's problem?

This review is relevant to persons interested in subsidized housing in four ways: federal retreat, policy innovation, regionalism, and planning praxis. After Reagan's election in 1980, his administration pursued a dual strategy of cutting taxes and slashing federal government expenditures (Connerly, 1992). Subsequently, the Department of Housing and Urban Development's budget authority fell from roughly $60 billion in 1980 to $12 billion in 1989. At the same time, the construction rate of new public housing units decreased from roughly 120,000 units per year in 1980 to 9,000 units per year in 1989, forcing ill-

equipped state and local agencies to fill regional public housing needs (Kleit & Page, 2008; Mueller & Schwartz, 2008; Schwartz, 2006, pp. 41-42, Figures 2.6 and 2.7). California is recognized as an innovative land-use state and policies administered in California (i.e. density bonus criteria, environmental regulations, general plan requirements, accessory dwelling units, transit oriented design, inclusionary zoning ordinances, etc.) are often replicated nationally (Calavita, Grimes, & Mallach, 1997, p. 137; Dalton & Burby, 1994; Mueller & Schwartz, 2008, p. 127; Wheaton, 2008). Researchers aver that regional planning and regional governance are the best bureaucratic remedy for local intransigence and NIMBYism[3] (Basolo, 2003; Basolo & Hastings, 2003; Calthorpe & Fulton, 2001; Corney, 1940; Courchesne, 2004; Mogulof, 1971; Perloff, 1968; Veazey, 2008; Wheeler, 1993). Planning theorists have explicated rationality, advocacy, incrementalism, transaction, equity, mediation, collaboration, and communication to argue that plans and planning have been misguided efforts to reduce uncertainty, and each successive, theoretical iteration has attempted to improve planning profession and theory (Christensen, 1985; Dalton, 1986; Davidoff, 1965; Healey, 2003; Innes, 1996; Klosterman, 1980; Krumholz, 1982; Lindblom, 1973; Susskind & Ozawa, 1984). In spite of this withering theoretical criticism, enrollment in planning schools continues to increase. Why? Perhaps the increase is because students as well as theorists recognize that planners are creative agents who can be instrumental to the resolution of "wicked problems" (Rittel & Webber, 1973).

Methodology and Overview

When compiling this material, I used the following methodology to limit the analysis to articles that addressed the legislative intent to produce public goods and the failure of subsidized housing production. First, I ran searches for relevant material by inputting the terms, "regional housing," "housing policy," "affordable housing," and "regional governance" in the Web of Knowledge database.

[3] NIMBY (Not In My Back Yard) is usually a person who objects to the siting of something perceived as unpleasant or potentially dangerous in their own neighborhood, such as a landfill or hazardous waste facility, especially while raising no such objections to similar developments elsewhere. http://oxforddictionaries.com/view/entry/m_en_us1271528#m_en_us1271528.003

The results were then limited to peer-reviewed articles to increase the validity of content. In order to ground the review in a capitalist framework of limited municipal finance, I selected only those articles that focused on subsidized housing within the United States. Finally, I chose articles that had been published since 1980—reflecting the retreat of federal public housing expenditures and the currency of debate. From this document search, themes emerged. The most prevalent were governance, political will, exclusionary practices, and planners.

Following this introduction and in the second section, I shall define "regionalism" and "governance" to provide the foundation for the subsequent review of regionalism literature. It is here that I address regional governance, as it has a special meaning, and I shall refer to it as the California model. In the third section, I present literature that discusses municipal political will and its interaction with land-use. In the fourth section, I present literature that discusses municipal choices in the decision-making process when subsidized housing is one of the considered options. Within each section, I comment on planners' agency when appropriate to the discussion. Finally, I conclude with a discussion that speaks to the implications of regional governance in order to question if this approach is the optimal resolution of a contested good, and I provide new areas for future research.

Regional Governance

In this section, I intend to answer the following: What is regionalism? What is governance? Why did the California model merge these concepts into regional governance? What are the theoretical and empirical views on regional governance via regionalism? What conditions are required for regionalism's successful implementation?

What is Regionalism?

Historically regionalism has been defined as a government response intended to strategically enhance natural and human resources for the purpose of improving the social, economic, and political

welfare of a location that has distinct, but not cohesive, administrative units (Wolcott, 1945, pp. 368-371). Levine, in her review of regionalism, tracks the discipline's development in three movements. First, as a 1930s reform movement "dealing with… equity, race, taxation, education, and economic development" (Levine, 2001, p. 183). At that time, the federal government responded with a hierarchal approach exemplified by the Tennessee Valley Authority, Area Development Plans, and the Appalachian Redevelopment Act (Friedmann & Bloch, 1989).

Second, as the 1990s "new regionalism" movement in which the role of lead agency shifted to the "state rather than federal government… [focusing] heavily on considerations of economic growth and competitiveness" due to global restructuring and decreasing federal cash transfers (Levine, p. 184). Similarly, Bollens noted that states advanced regionalism when "competition in an international economy… [cannot] afford the costs of internal division (such as central-city-suburbs)" and when "infrastructure deficiencies and gridlock produced by local government NIMBYism" stymied the production of highway, airport, and sewage facilities ("Wallis, 1994; Kaplan & Cuciti, 1993" cited in Bollens, 1997, pp. 105-106). In Bollens' investigation, California responded by creating regional administrative units (e.g. the Los Angeles County Metropolitan Transportation Authority, the South Coast Air Quality Management District, and the Transportation Corridor Agencies) that operated as state adjuncts that not only fostered municipal compliance to federal and state regulations, but also increased the commercial attractiveness of the Southern California region (Bollens, 1997, p. 106).

Third, as the burgeoning discipline of urban economics where "the region, not the individual city, and [the region's] sources of growth, development, and expansion" are of primary importance (Levine, 2001, pp. 183-184). This can be seen in regions where dominant central cities, such as Singapore, Shanghai, Vancouver, London, Frankfurt, and Los Angeles provide the anchor for urban agglomeration, that promote the interaction of migration, markets, and social networks. In turn, this

agglomeration encourages existing cities and states to form cross-border regions that rely on economic activity to promote trans-border growth (Hurrell, 1996, p. 40; Scott & Storper, 2003, pp. 581-585).

In summary, depending on an agency's position in the taxonomy of federal, state, and municipal agencies, "regionalism, then, is a tool of administration that can be used with equal facility by tyrant and democrat" because regionalism shifts the foci of power and intent from municipalities to higher units of government. As such, municipalities may then view the regional implementation of such policies with acceptance, ambivalence or hostility (Wolcott, p. 371).

What is Governance?

In simple terms, governance is cooperation among equals without coercion. In their examination of regional transportation planning in the dual-state, nine-county region of Louisville, KY, Vogel and Nezelkewicz defined governance as "a system of cooperation that may take the form of a policy network" (2002, p. 108). They also noted that governance is "coordination without hierarchy… in multi-organizational settings" . Governance, in their view, is distinctly different from government, which is a "coercive power and command-and-control process embedded in hierarchal organization" . While recent literature may suggest that governance may be an extension of collaborative planning (Feiock, Lee, Park, & Lee, 2010, pp. 245-247; Morgan, 2010, p. 681; Swanstrom & Banks, 2009, p. 357), I disagree. As defined by Healey, collaborative planning is:

> A social-constructivist and relational approach to urban and regional dynamics and government process… [that recognizes the] multiplicity of social worlds, 'rationalities' and practices that coexist in urban contexts and the complexity of the power relations within and between them, resulting in typically dispersed or diffuse power contexts (Healey, 2003, p. 107).

While collaboration and governance may bring actors together that operate from diverging points of view, the key difference, as denoted by Healey's emphasis on multiplicity, social worlds, rationalities, and disperse power, is actor agency. I suggest that planners advance collaborative approaches when

there are power imbalances between the actors, and the political equilibrium achieved by such administrative transference is temporary.

The following recent investigations highlight both the power imbalance and temporal nature of collaboration. Prins examined a partnership between a high-level university and an low-income minority community and found that conflict was "about what… [power] represents, such as the experience of disrespect or the illegitimate exercise of authority" and suggested that planners "discover what others care about and expect from each other" because "unequal interests, power, and status… structure our actions in unconscious, unintended ways" (Prins, 2005, pp. 57, 71). In a similar study, Lowe research on the partnership between a low-income community and a HBCU[4] revealed similar tensions regarding power (bottom-up vs. top-down) and intent (the community needs of housing, employment, commerce vs. the university needs of campus revitalization, financial resources, and prestige) (Lowe, 2008). Genskow examined the relationship between a state environmental agency and NGOs and noted that the purpose of the collaboration was to extend the agency program reach, but over time he found that shifts in NGO personnel, funding, and mission reduced program efficiency and led to reduced environmental benefits (Genskow, 2009). Innes and Gruber examined ISTEA[5] implementation in the San Francisco region and found that the conflicts in planning styles (technical/bureaucratic, political influence, social movement, collaborative) did not allow for cohesion among agency staff, NGOs, and elected officials since planners used collaboration to minimize changes to the agency's agenda (Innes & Gruber, 2005). Blair et al. examined regional economic development in Northern Ireland and noted that "place" meant "something different from either side of the sectarian divide… [and dependent] on political perspective" and they cautioned that collaborative planning should

[4] Historically black college or university

[5] ISTEA is the Intermodal Surface Transportation Efficiency Act of 1991 that authorized federal highway funding for fiscal years 1992 through 1997.
http://www.fhwa.dot.gov/publications/publicroads/01novdec/legacy.cfm

only be considered "as a tool to be deployed when society becomes more stabilized" (Blair, Berry, & McGreal, 2007, pp. 441-443).

In summary, these examples highlight that planners implement collaboration in order to distribute agency and decision-making capability; yet, this is not a permanent transference of power, but a temporary resolution. Planners advance governance approaches when there is parity in actor agency, resources, and the power to refuse to participate. Governance is based on the actor's agency and while it may carry the patina of cooperation, governance is not temporal, but a complicit agreement not to encroach on agency territory. This complicity is central to California's Housing Element.

California's implementation of Regional Governance

Recognizing regionalism's potential tyranny, the California legislature revised the Housing Element law and adopted a governance approach. In 1987, the legislature eliminated the hierarchal command of the state housing agency, elevated the agency of municipalities, and inserted a mediating regional federal agency. Baer explained that this revision implemented "new procedures to be used by existing governments" in order to clarify "a long-ranging controversy in California over the exact roles between state and local" agencies "regarding the planning and implementation of housing" programs (Baer, 1988, pp. 263-264). In other words, who has domain over local housing issues? Under regional governance, everyone and no one (see figure 1 in the Appendix).

In this regional governance housing program, the California Department of Housing and Community Development (HCD) forecasts statewide housing demand. Second, a regional Metropolitan Planning Organization[6] (MPOs) allocates the housing demand to municipalities. Third, municipalities create a Housing Element that anticipates the forecasted housing demand. Fourth, HCD certifies the municipal Housing Elements as compliant or non-compliant. I argue that regional governance

[6] Metropolitan Planning Organizations are agencies that administer, as a condition federal transportation financial assistance, transportation projects in urbanized areas of 50,000 or more in population. http://www.ampo.org/content/index.php?pid=15

conditionally charges these agencies with responsibility for housing production. The conditions that emphasize agency parity, maintain the model's political equilibrium, and lack hierarchal accountability are as follows. First, no agency is under the direct control of another agency. Second, all agencies maintain their existing administrative and procedural structures; and most importantly, process and program accountability flows endogenously to the individual agency, not to any external entity.

Mogulof, in an earlier assessment of Councils of Governments (COGs),[7] argued that the use of COGs, "is the mildest of all approaches, building on the status quo without disturbing its formal organizations… [since this] approach does not create an areawide government" with accompanying command and control (Mogulof, 1971, p. 418). While the Housing Element Law uses MPOs as the mediator, the programmatic effect is the same. MPOs are federal agencies that are weakly tied to the state and municipalities.

I argue that regional governance, while politically feasible, exacerbates the statewide crisis. Due to its emphasis on parity, regional governance allows municipalities to dissent by adopting Housing Elements that are technically compliant with HCD criteria (public participation, review of previous Housing Element, housing needs assessment, site analysis, constraints, quantifiable objectives), but do not effectively mitigate the regional housing crisis. I suggest that regional governance creates compliant Housing Elements that are inus condition[8] requiring the alignment of political will, municipal decisions, and the actions of planners and private capital in order to produce a single subsidized housing unit. It is from this view that I frame begin this literature review to understand if the municipal resistance found in

[7] Councils of Governments are voluntary associations of cities and counties that recognize that there are issues that transcend local boundaries and should be mitigated by working together and planning a unified local response to regional concerns. Their governing boards are composed of locally elected members of city councils and county boards of supervisors ("CALCOG: Information Brochure," 2009).

[8] Inus condition, as defined by Mackie, is "an *insufficient* but *non-redundant* part of an *unnecessary* but *sufficient* condition" (Mackie (1974) as quoted in Shadish, Cook, & Campbell, 2002, p. 4; italics in original).

California is any different from the resistance found in municipalities that do not operate under a regional governance approach.

Regional Planning and Theory

In this section, I shall discuss three recent articles that explored the regionalism as solution to wicked problems. Levine provided a prescription for implementing regionalism under economic planning. Basolo analyzed two views to explain regionalism's failed implementation in the United States and provided new typologies for continued research. Jonas and Pincetl positioned California regionalism as a strategy benefiting gubernatorial interests and exogenous capital at the expense of municipalities. In this discussion, I ask if these authors' envision a solution based on regional governance or a hierarchal command of government. In order not to confuse the reader, I shall use the terms "regionalism" and "regional planning" interchangeably; however, when I use the term "regional governance," I am specifically referring to a regional taxonomy of agencies that is grounded in conditional administrative cooperation. In addition, when I use the term "municipality," I am specifically referring to cities (i.e. central cities, inner-ring or outer-ring suburbs) with an emphasis on *local* administrative units, not federal, state, or county agencies as counties "typically serve a broader base of constituencies (urban, suburban, rural) than do cities" (Morgan, 2010, p. 684).

Regional planning should reduce inefficiency; therefore, Levine asked, "can regional planning and coordination generate higher levels of economic prosperity?" (Levine, 2001, p. 185). After conducting an exhaustive analysis that categorized the literature on regionalism into three distinct phases (reform, new regionalism, and urban economics), she concluded that "there is no hard answer to this question. There are, however, many solid theoretical reasons for believing that the answer is yes" (Levine, p. 199). She based this position on the outputs of urban economics: export-base theory (substitution of exports), central-place theory (large cities contain, in general, all necessary commercial

services), and location-theory (firms locate in places with access to markets, efficient transportation, a competent workforce, and low government transaction costs). She suggested that planners may be able to institute regional planning if the plan encouraged urban agglomeration of industry, maintained quality of life, and reduced inefficient government policy. In short, a rising tide lifts all.

Levine's position is sound economic reasoning since commerce, residents, and local governments resolve many decisions on economic self-interest; however, her prescription failed to address political intransigence, equity, and any negative effects of redistribution. In her discussion on reform, Levine noted that during the early 20th century, cities and suburbs may have had distinct roles, but by the mid 1970's they were becoming economically interdependent and intertwined . With the ensuing period of new regionalism, Levine noted the rise of fragmentation[9] where "home rule [was]… the right to participate as an equal partner in arriving at decisions which effect community life," giving municipalities veto power (2001, p. 187). This was evidenced by Baltimore area municipalities "withholding… political support… [for] regionalism… [leading] to the ultimate demise of the Baltimore Regional Council of Government in 1992" . Her research suggested that local consensus is a central condition for implementation of any regional scheme, regardless of economic benefit; however, Baer cautions that implementing regional plans may require "wresting some control over land-use decisions away from local governments" and may eventually reduce effective consensus (Baer, 1986, p. 182).

In Levine's model, if economic success was measured by the increase in commercial and individual income, then what would ensure equitable distribution within the region? A focus on economic self-interest works well in a rising markets, but as noted by Orfield and his investigation of the Twin Cities golden quarter, "most affluent suburban communities get the infrastructure that they want, and the less well-off metropolitan communities pay more" (Orfield, 1997, p. 2). Alternatively, Campbell,

[9] Fragmentation is the "abundance of cities and other political entities" (Basolo, 2003, p. 449) and can be measured by counting "the number of government bodies or governments per capita in a geographic region" (Aurand, 2007, p. 403).

in his examination of equitable sustainability via property, resource, and development conflicts, would locate planners in the center and empower planners via negotiation, land-use design and control, and technology (Campbell, 1996). However, Campbell acknowledges that planner have limited power with his reference to Krumholz. This is important as Krumholz views his equity focused tenure as Planning Director in Cleveland as a grand but finite experiment (Krumholz, 1982). Lastly, Levine's model does not anticipate any possible negative effects of redistribution. This is an important omission because post-fordist or postmodern theory would require that we acknowledge economic disparity within capitalist schemes (Allmendinger, 2001, 2002). While she is silent on whether her model requires a mandatory or a governance approach, I would argue that mandated action is required because governance allows dissent (e.g. Baltimore, and forthcoming examples in Minneapolis).

Like Levine, Basolo views regionalism as a positive, yet conditional, prescription for reducing economic development competition, central city poverty concentration, and haphazard suburban growth (Basolo, 2003, pp. 447-448). In her conceptual framing of regionalism, Basolo explicated local autonomy and public choice as two theoretical views that "share[d] conceptual space," and explained why the United States has failed to implement comprehensive and hierarchal regional planning . Local autonomy, as defined by Olson, theorizes that individuals guide their governments by their cultural preferences (i.e. homogeneity of race and class, autonomy as entrepreneurship, etc.). Local autonomy is characterized by fragmentation where municipalities focus on self-interest without regard to adjacent and neighboring cities . Public choice, as defined by Tiebout, theorizes that individuals evaluate the services offered within their municipality and move to municipalities that are reflective of their values (Tiebout, 1956, p. 418). Public choice is characterized by municipalities eschewing "redistributive policies, because they shift resources from higher-income people to lower-income people" (Basolo, p. 451). It is her view, one shared by others, that fragmentation and economic competition trump the advancement of regional equity (Baldassare et al., 1996; Hardin, 1968/2006; Molotch, 1976).

Basolo's recommendations for mitigating local autonomy and public choice employed Ostrum's thought on collective action and public goods. Public goods, in general terms, are non-exclusive in membership and maintain jointness of supply.[10] Ostrum transformed this general definition by hypothesizing that a group, representing the interests of individuals, may be considered a public good (Basolo, p. 453). In Ostrum's view, as a group becomes larger, collective action should limit group membership and/or apply "coercion or some outside inducement" because large groups (i.e. cities within a region) will not voluntarily produce a collective public good (i.e. subsidized housing) .

Because of limits and coercion, I would question if such a good still has a public nature. For example, a sunset is an *infinite* public good that has a non-exclusive membership and maintains jointness of supply. I can watch the sunset alone, or with a 1,000 persons, and the additional people do not decrease my utility of the sunset. If I apply the same logic to *finite* public goods, such as a one-acre park, then the park's status as a finite resource affects my utility of the sunset. I may enjoy a one acre park, but adding 1,000 persons will result in chaos unless an agency *limits* and *enforces* park membership. In this case, the conditions to employ collective action within a region (e.g. mandatory enforcement) are as necessary as the seven assumptions that Tiebout uses to define public choice (Tiebout, p. 419). In her closing discussion, Basolo recognized the limited power of governance and called for future regional research that specifically examined following conditions: group size, contextual factors (e.g. social, economic conditions), theory (e.g. game theory, the prisoner's dilemma), and exogenous incentives (e.g. federal grants, revenue sharing). These conditions suggest that regionalism requires mandatory, not governance measures of enforcement.

In contrast to Levine's and Basolo's advocacy of regional planning for improving outcomes, Jonas and Pincetl dispelled previous theory on and interpretation of regional research. In their polemic,

[10] Jointness of Supply means that if a group increases its total membership, then the additional members do not reduce individual utility.

Jonas and Pincetl argued that the current iteration of California regionalism has perpetuated inequitable 19th century political processes of dominance (Jonas & Pincetl, 2006). They argue that regionalism produced a "world of regionalisms" situated in response to federal, state, local agencies . This multiplicity of arenas, they argued, is because "fiscal and functional inefficiency may well be built into new regional structures precisely because they are designed *not* to be functional for *local* interests, and instead respond to non-local economic and political imperatives" . In their view, municipalities are left behind due to Wolcott's administrative tyranny. Their discourse is backstopped by Harrell's discussion on theoretical regionalism in which he noted that "all regions are socially constructed and hence politically contested" (Hurrell, 1996, p. 39).

While Jonas and Pincetl's historical examination of California and their assertions of dominance have merit (e.g. federal roles, state interventions, Proposition 13, commercial hegemony), their research was methodologically suspect. Their case study failed to support their polemic and reeked of selection bias—voluntary collaborations were convened and funded by the Irvine Foundation. These collaborations, which focused on environmental, economic development and state commission issues, produced non-binding policy papers, not structural change. To support their dismissal of the "prosaic, if not in fact atheoretical" United States discourse of regionalism, the authors should have conducted a more vigorous examination of regional action . Without more persuasive evidence, their assail was unwarranted.

In summary, this literature on regionalism suggests four points. When dividing a regional pie of positive and negative goods, thought must be given to the explanations of why some participants accrue more or less benefits than others (Levine, 2001). Second, regionalism has the power to effectively and efficiently resolve issues, but any regional measure must require the suppression of local determinism at some level (Baer, 1986). Third, effective regional action will require mandatory compliance for the accrual of beneficial effects; otherwise, regional action becomes fragmented disarray. Finally, for public

goods such as subsidized housing, or those that invoke the dynamic forces of private capital, gubernatorial intent, and local determinism (i.e. transportation, housing, redevelopment, or land-use), public choice and local autonomy theory require mandated action (Basolo, 2003), because voluntary action leads to more talk or collaborations (Jonas & Pincetl, 2006), not resolution.

Regional Planning Implemented

In this section, I discuss seven recent articles that explore implementation of regional planning and municipal reactions. These articles can be groups into three themes: political fragmentation, support for regional planning, and administrative conflict. Regarding political fragmentation, Vogel and Nezelkewicz's work examined its effect on transportation planning in Louisville, and Aurand's tested its effect on the spatial concentration of subsidized housing within MSAs.[11] With regard to support, Baldassare et al.'s article surveyed California planning directors, and Wassmer and Lascher' polled California residents in order to determine who supported voluntary or mandatory regional planning. Discussing administration, Lindstrom explored how growth issues administratively bind Councils of Governments, Lewis examined Metropolitan Planning Organizations for equity in their voting procedures, and Goetz evaluated a regional housing program to identify the program's disconnects. In this discussion, I shall refer to Levine's prescription of economics, Basolo's declaratives on local autonomy, public choice, and/or conditional regionalism, and Jonas and Pincetl's inequity as method of showing that these themes recur throughout the discourse.

Political Fragmentation and Regional Planning?

Vogel and Nezelkewicz's article begins the discussion of political fragmentation because their research demonstrated that any regional or metropolitan government that operating without a clear

[11] MSA means Metropolitan Statistical Areas and are defined as an urbanized area where at least one municipality has a population of 50,000 or more persons. In addition, the adjacent territory also has a high degree of social and economic integration with the core as measured by commuting ties. http://www.whitehouse.gov/sites/default/files/omb/assets/bulletins/b10-02.pdf

hierarchy of command will suffer from a lack of legitimacy. Vogel and Nezelkewicz used case study data to determine whether metropolitan governance can occur in the absence of a metropolitan government (Vogel & Nezelkewicz, 2002). Their investigation was framed by ISTEA/TEA21,[12] which are federal transportation statutes that require that Metropolitan Planning Organizations (MPOs) provide coordination, cooperation, and ranking within a Regional Transportation Plan (RTP). A completed RTP then communicates to federal agencies the *regional importance* of local transportation projects. To enhance their analysis, the authors employed Barlow's conditions of effective management (e.g. What was the taxonomy of area-wide coordination? Did the agency acting in the metropolitan interest?).

Vogel and Nezelkewicz found that the Louisville MPO had limited success for the following reasons. First, municipalities did not perceive the MPO as a regional leader, but as a technical "modeler" of data—suggesting impotence. This supports Lewis' view that "MPOs found it difficult to be more than a 'compiler of projects initiated by others'" (McDowell (1984) and Francois (1995) cited in Lewis, 1998, p. 842). Second, the MPO did not cover the entire region—allowing local autonomy to flourish. Third, the region's political fragmentation (two states, nine counties) did not foster cohesive administrative identity or effort—allowing intransigence. And lastly, the MPO appeased all partners by listing all projects in the RTP, rather than making significant statements and following federal intent. This last finding echoed Mogulof's previous research on COGs,[13] where he found that COG membership inhibited plan evaluation, and restrained the political muscle needed for critical review. This, in turn, led to administrative stagnation where all plans were reviewed and none were rejected (Mogulof, 1971).

To correct intransigence, fragmentation, and stagnation, Vogel and Nezelkewicz advocated that the MPO should add comprehensive planning to improve the region's inter-governmental management.

[12] TEA21 is the Transportation Equity Act for the 21st Century and is the reauthorization of ISTEA. With TEA21, funding included not only federal highways, but also highway safety and transit from 1998-2008. http://www.fhwa.dot.gov/publications/publicroads/01novdec/legacy.cfm

[13] In some cases (e.g. SCAG in Southern California, MTC in the San Francisco Bay Area), the Metropolitan Planning Organization is also the Council of Government.

This management addition would position the MPO between state and municipalities; however, such an addition of comprehensive planning responsibility in Louisville may be misguided. In Provo's study of housing in Portland, where the regional government (Portland Metro) implements comprehensive planning with minimum zoning densities, he found a regional government retreating from mandatory amendments in favor of voluntary ones because of a desire to appease the suburbs and developers (Provo, 2009, p. 380). This is critical because Vogel and Nezelkewicz failed to address an important aspect of the MPO's enabling legislation. The Louisville RTP must be consistent with local land-use decisions, not the reverse, and hence, the fragmented tail wags the dog.

Continuing the discussion of fragmentation is Aurand's study in which he operationalized local autonomy and public choice theories by counting governments. Using Census and HUD data, Aurand tested if fragmentation (a) decreased the supply of affordable housing and (b) increased its spatial concentration in metropolitan areas (Aurand, 2007). Using three unique and methodologically validated measures for fragmentation, Aurand found that fragmentation is associated with a greater relative supply of subsidized housing, but not its spatial location. While these findings bring a counterpoint to previous views of local autonomy and public choice, they must be accepted cautiously due to level of the units of analysis. At the metropolitan level, the HUD data was aggregated to the regional level of the United States (North, Midwest, and South); therefore, the actions of municipalities on subsidized housing were unobserved. As noted by Ottensmann, "fragmented metropolitan government structures create the environment in which suburban municipalities can exercise…[restrictive] influence over the housing market" (Ottensmann, 1992, p. 96), and unfortunately in Aurand's study, municipal action is not revealed.

Who supports Regional Planning?

Baldassare et al.'s article begins the discussion of regional support because their research indicated that municipalities (via their planning directors) believe that they are the experts of their

domain, not a regional agency. Baldassare et al. used survey data (N= 402, 56 % response rate) to discover the extent of general support for regional government among planning directors from 89% of all California municipalities[14] (Baldassare et al., 1996). In general, the authors found that directors supported regional government for the management of public and quasi-public goods like public transit, waste disposal, water supply, and roads. For goods that have a private nature, such as growth management, or residential and commercial development, planning directors maintained that they were better managers-of and more responsive-to local issues than a regional government—confirming local autonomy. Specifically, the authors found the following: 57% of directors opposed regional control of land-use planning, 55% of directors opposed regional control of commercial development, 65% of directors opposed regional control of residential development, and 43% of directors opposed regional control of parks. In addition, the authors found a regional difference between San Francisco area directors' support-of and Los Angeles area directors' opposition-to regional control. Perhaps this difference of opinion is because BART may proxy as a demonstration project since it both enhances the region's infrastructure and the residents' lifestyles.

While this article provided insight into directors' preferences, the correlation between the directors' values and their employers' (i.e. their communities) values remains unaddressed. Are exclusionary practices determined by the community's values or a director's projection of the community's values? Answering this question would have furthered Kravitz's discussion of the relationship between planners and political will in which he called on the planning profession to "free itself from its present course… as a handmaiden to a pragmatic, conservative, technological, and elitist reality" in order to give weight to issues of equity (Kravitz, 1970, p. 267). Ten years after Kravitz, Howe and Kaufman researched the relationship between planners and community values with a series of

[14] In the survey, "the sample consisted of city planning directors in all California cities with populations of 4,000 or more" (Baldassare et al., 1996, p. 22).

articles that explored planners' values, role choices, and ethics. In those studies, they found that as planners age, they moved from liberal to conservative stances (Howe & Kaufman, 1981), and in doing so, they also shifted from being a value-neutral technician or a value-laden politician, to being a hybrid of both roles—situational to the land-use context (Howe, 1980).

In their study of planners' ethics, Howe and Kaufman found mixed results. Regarding public housing, 54% of planners found it ethical for a city planner to leak information of a proposed scattered site public housing plan to neighborhood NIMBYs. Regarding exclusionary zoning, 53% of planners found it ethical for a suburban planner to organize support from local people to pressure officials to mitigate exclusionary zoning policies, and 68% of planners found it ethical for a regional planner to place several strong, but expendable, recommendations into a fair share housing plan that might be later traded off for commissioner's support. However, 84% of planners found it unethical for a regional planning director to withhold financial support for municipal projects unless the municipality agreed to adopt regional growth control measures (Howe & Kaufman, 1979, p. Table 1). Therefore, the fact that Baldassare et al. found that Californian planning directors supported local autonomy in land-use planning is unsurprising. The planning director's action is effected by not only their own values, roles, and ethics, but also by municipal elites, elected officials, and residents—since the latter groups influences the director's livelihood.

Continuing the exploration of support for regional government, Wassmer and Lascher polled residents in order to determine if support can be predicted by race, income, political affiliation, or educational attainment. In 2002, Wassmer and Lascher conducted a random stratified survey of Californians (n= 510, weighted results) that asked: (a) if residents perceived that their county had reached it growth limit, (b) if residents supported voluntary regional planning, and (c) if residents supported state mandated regional planning (Wassmer & Lascher, 2006). When compared to a 1989 resident survey (n=496, weighted results) the authors found that for question one, the percentage of

residents who felt that the state had reached its growth limit increased from 45.9% to 48.4%. During this period California's population grew by 22%, from 29.1 to 35.1 million persons with the growth clustered in the agricultural Central Valley. For question two, 53% of residents supported voluntary regional planning, and for question three, 71.6% of residents supported state mandated regional planning. Questions two and three were not included in the 1989 survey, therefore the authors could not determine changes in perception.

From a regression analysis, Wassmer and Lascher found that residents who were college graduates were 95% more likely to support voluntary regional planning ($p < .01$), and were 67.5% more likely than non-college graduates to support mandated regional planning ($p < .05$). In addition, residents who identified their political ideology as conservative (as opposed to "liberal" or "middle-of-the-road") were 37.5% less likely to support mandated regional planning ($p < .05$). Due to public choice and local autonomy discourse, we could expect that college educated and conservative residents would exhibit decreased support for mandatory regional planning as these groups are more likely to live in the fragmented suburbs. Conversely, residents who were African-American were 136.7% more likely than whites to support voluntary regional planning ($p < .05$), and were 912.1% more likely to support mandated regional planning ($p < .05$). The results for African-Americans are not surprising since government intervention has been required to mitigate discrimination in education, housing, and employment (Pritchett, 2008; Wilson, 1999). The results for Asian-Americans and Latinos were statistically non-significant.

In their conclusion, Wassmer and Lascher suggested that a common ground coalition may be formed among "African-Americans, Latinos, and liberal Whites… with respect to antisprawl measures" (Wassmer & Lascher, p. 641). This proposed coalition supports Levine's assertion of regional planning as a positive economic solution because sprawl affects all groups by increasing their costs (Calthorpe & Fulton, 2001, pp. 2, 11; Duany, Plater-Zyberk, & Speck, 2001, pp. 4-7; Levine, 2001, p. 190; Wassmer &

Lascher, 2006, pp. 624-625). However, if the authors proposed a coalition regarding an issue of redistribution, would this coalition still hold? Probably not. If college educated residents were more likely to support voluntary regional coordination, then we could expect them to use their social capital and political influence to subvert mandatory measures that may increase their costs and diminish their autonomy. Also, if Blacks and Latinos supported state interventions, then can their reasons be found in the exclusionary practices of municipalities or other perceived experiences that may lead to distrust? Theory and evidence would indicate that these groups would not form a redistributive coalition and would cleave into factions of self-interest. Indeed, we can see this evidenced in Westchester, NY's legal issues with required HUD expenditures[15] (Brustein, 2009; Roberts, 2010a, 2010b) and Palo Alto, CA's disdain for its regional allocation of market rate and subsidized housing (Peterson, 2007; Sheyner, 2009; Tanenbaum, 2007; Trout, 2007).

Administrative Conflict within Regional Planning

I begin the discussion of regional administration with Lindstrom's exploratory article because it further explores Levine's economic premise of economic prosperity as a tool for encouraging regionalism. Lindstrom used data gathered from nine Councils of Governments (COGs) located in the Chicago region to proposed that COGs can be non-partisan institutional actors that can address regional inequities (Lindstrom, 1998). In this setting, the COGs were "not institutionally linked to a multipurpose regional body," and therefore, COGs actively lobbied on behalf of municipalities as opposed to COG/MPO combinations that are tethered to federal and state requirements (Lindstrom, 1998, p. 328). She found that COG growth strategy (e.g. pro-growth, managed growth, fair-share) is dependent upon the individual municipality's interaction with "global economic restructuring," with north/south regional

15 HUD is the U.S. Department of Housing and Development. Established in 1965, HUD's mission is to increase homeownership, support community development, and increase access to affordable housing free from discrimination. ("Glossary of HUD Terms,"). HUD allocates a variety of monies (CDBG, HOPWA, HOME, Section 8/Housing Choice Vouchers) that are required to be expended on Very-Low and Low income households, and participation is mandatory if the municipality accepts these categorical grants (Schwartz, 2006, pp. 177-187).

distinctions that mirror those of the global north/south debate (Lindstrom, 1998, p. 334; Scott & Storper, 2003, p. 580). She also found that municipalities will opt-in/out of regional issues they perceive as antithetical to their values (e.g. seven north Chicago suburbs united in opposition of a 1970 "proposal by a major developer to build 18,000 housing units in South Barrington" (Lindstrom, 1998, p. 331)). Her report reinforces Baldassare's comments regarding regional agencies and their effects on "life-style" and "systems maintenance" services, but does not indicate the methodology she employed (i.e. interviews, content analysis, focus groups, ethnography) (Baldassare et al., p. 20). This omission in methodology unfortunately weakens the significance of the findings.

Continuing the discussion of regional administration, Lewis explored how regional agencies, when acting on the behalf of the federal and state agencies, may structurally legislate internal conflict. Lewis used data from MPOs within California (n=15) to test if there is proportional and equitable representation (for municipalities and residents) within MPO voting procedures (Lewis, 1998). His study continues the investigation of central city dominance in regional planning schemes (Ottensmann) as Lewis contends that central cities may be underrepresented electorally within transportation funding because electoral voting procedures are not necessarily based on population or spatial area, but on ensuring suburban participation, due to the "emphasis of federal assistance on new construction [located in the suburbs], rather that rehabilitation of existing highway and transit facilities… [located in] established urban areas" (Lewis, p. 848). Using a proportional index, he found that the Los Angeles region SCAG[16] is the most equitable, the San Francisco region MTC[17] is second equitable, and the San

[16] The Southern California Association of Governments (SCAG) is the largest COG in the United States with 174 member cities. SCAG also functions as the MPO for six counties: Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The region's population exceeds 18 million persons in an area of more than 38,000 square miles. http://www.scag.ca.gov/about.htm

[17] The Metropolitan Transportation Commission (MTC) is the MPO and COG for the nine-county San Francisco Bay Area. The region contains the nine counties (Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma) and includes 101 municipalities. More than 7 million people reside within its 7,000 square miles. http://www.mtc.ca.gov/about_mtc/about.htm

Diego region SanDag[18] the least equitable of California MPOs (Lewis, Table 1). Lewis' findings of equity put a twist on Baldassare et al.'s findings on the Los Angeles region planning directors view of regional government. In Baldassare et al. study, Los Angeles region planning directors opposed regional government, but Lewis found that Los Angeles region MPO had the most equitable procedures in the state (Baldassare et al., Table 2). Perhaps there is something unique about the Los Angeles region and its sense of local autonomy.

To improve MPO procedural inequity, Lewis provided three remedies: the state should re-write allocation laws, the MPOs should re-write the ISTEA voting procedures, or the MPOs should provide additional or at-large voting members. While these remedies may improve equity, in actuality these remedies might also lead to the subsequent withdrawal of suburban participation. In Wheeler's study of regional housing consensus in Connecticut, he found that due to "equitable" voting procedures, the suburban municipalities would effectively "block urban encroachment" of the central cities of Hartford and Bridgeport (Wheeler, 1993, p. 142). Wheeler noted that this intransigency transformed the housing issue from regional equity, to municipal self-interest because Hartford and Bridgeport "would be satisfied… if the suburbs made progress in meeting the housing needs of their own residents," thus reducing the central city demand for housing and social services .

Continuing the discussion of regional administration is Goetz et al.'s work, which demonstrates that the establishment of a regional government and its attendant fair-share housing policy does not necessarily mean increases in subsidized housing inventory. In 1976, the Minneapolis Metropolitan Council enacted the Land Use Planning Act (LUPA) as a mandatory fair-share housing[19] program that

[18] The San Diego Association of Governments (SanDag) is the MPO and COG for the San Diego region. http://www.sandag.org/index.asp?fuseaction=about.home

[19] In housing, fair-share refers to a "redistributive policy or redirecting resources to benefit selective segments of society for equity concerns" (Baer, 2008, p. 52). It is most identified with the *Mt Laurel* Supreme Court decisions where the court mandated "that towns use their land-use powers to create 'realistic opportunities' for a 'fair share' of the regional need" for subsidized housing (Payne, 2006, p. 127).

required municipalities to "provide sufficient existing and new housing to meet the local unit's share of the metro area need for low and moderate income housing" (Goetz, Chapple, & Lukermann, 2003, p. 213). The authors considered the current implementation of LUPA a failure because of the decreased proportion of subsidized housing to total housing and the region's quantity rent burdened[20] households. Using data from the comprehensive plans of 25 municipalities (N=144) and subsequent interviews, Goetz et al. asked the following questions: (a) did comprehensive plans fail to provide for subsidized housing to comply with LUPA, (b) did planners and developers make little effort to build subsidized housing, and (c) did municipalities downzone land originally set aside for future subsidized housing rezoned to lower densities.

In their LUPA analysis, the Goetz et al. noted the following. First, the Governor appointed the Metropolitan Council, and this political action tempered the level of subsidized housing advocacy within the council. Second, LUPA did not define its outcome by quantities of housing units, but "the amount of land set aside for high-density development," under the assumption the this land-use designation would be "most likely to produce" subsidized units . Third, in the absence of federal funds post-1980, the council lost the ability to encourage municipalities to provide subsidized housing and subsequently ceased calculating fair share allocations. It is this process, the authors contend, that set the stage for the regional "retreat" in subsidized housing.

In their review of the initial comprehensive plans (from 1976 to 1982), Goetz et al. found that for question one, 75% of municipalities relied on PUD[21] designations, 58% relied on increased density, 58% relied on reducing minimum unit sizes, and regarding local subsidies, only 8% relied on tax

[20] Rent burden occurs when a household spends more than 30% of its gross income on rent and utilities. http://www.habitatnyc.org/advocate_nycstats.html

[21] PUD means Planned Unit Development and allows development to deviate from the proscribed zoning regulations (building heights, unit sizes, setbacks, parking, etc.). In the 1960s, PUDs were hailed as flexible zoning tool for municipalities to regulate complex projects; however, they frequently transform into negotiated contracts between developers and elected officials without the input of residents (Babcock, 1966, p. 11).

increment financing. From 1995, when LUPA was replaced by the Living Communities Act, the authors indicated that comprehensive plans strategies shifted as they found that 59% of municipalities relied on PUD designations, 19% relied on increased density, 12% relied on reducing minimum unit sizes, but, 25% now relied on tax increment financing to close the fiscal gap. From these descriptive statistics, it was clear that municipalities had taken a reactive and potentially hostile stance toward subsidized housing due to PUD negotiations that require municipal approval. In addition, it was also clear that municipalities had relied on pass through funding from the Metropolitan Council (e.g. HUD funds) as well as developer cross-subsidies from the high density development, not local sources. In short under the comprehensive plans, subsidized housing would be built only if it was included in the PUD, survived the municipal approval, and was funded by non-municipal sources. This is similar to the inus condition of the California model.

From their interviews with planners, the Goetz et al. found that for question two: 71% permitted PUD designations, 50% permitted ADUs,[22] 42% permitted reduced lot sizes, and 21% permitted zoning variances, and 21% reduced municipal fees. One planner indicated that the weak relationship between subsidized housing and the municipality stemmed "from a lack of coordination with the city council. [Since] a housing plan adopted in one year is not necessarily embraced by" a subsequent city council . And since LUPA "did not grant the Metropolitan Council any authority to enforce compliance with the low- and moderate-income housing elements of the statute," municipalities were free to deviate or reduce LUPA goals . The authors maintained that in this environment, planners "generally failed to take initiative in monitoring and promoting… [subsidized housing] through regulatory or political means" . This is a fair assessment; however, readers must also acknowledge that planners are civil servants and are not protected by tenure. And taken with findings

[22] ADU means Accessory Dwelling Unit, also known as a "mother-in-law" or "granny" unit. Usually they contain a separate kitchen, sleeping, and bathroom facilities, and are attached or detached from the primary residence on a single-family lot. In most cases, they are a garage conversion, a small backyard cottage, or guest-house structure. http://www.cityofsantacruz.com/index.aspx?page=1150

from Baldassare et al. on regional support and Howe's research on values, we can expect that any planner promotion of redistributive policies is to invite risk.

From their interview with developers, Goetz et al. found that neighborhood opposition was the most frequent obstacle, followed by land availability, zoning regulations, municipal support, and attendant financing. For question three, the authors conducted a document analysis that compared 1976 land-use designations of high density parcels to designations post 1995, and found that 38% were downzoned to lower residential densities, 17% were rezoned to non-residential, 17% had no change, 16% were zoned to PUD, but 5% were zoned to higher residential densities.

While Goetz et al.'s findings make clear that within the LUPA framework, subsidized housing is an inus condition requiring municipal consensus because the regional planning agency has very little leverage to ensure that plans' objectives are implemented as proposed, there are issues with the framing of this crisis and the methodology. I use the term "crisis," as it is implied within the opening sentence in the third paragraph: "Twenty-five years later, more than 161,000 household in the Twin Cities region pay more than one-half of their incomes for housing and/or live in substandard housing…". Because the authors do not explain what proportion of regional households this figure represents, or how this figure has increased or decreased since 1976, or what the separate proportions for rent-burden and substandard housing are, this figure, while seemingly substantial, appears to be hyperbolic arm-waving.

To their credit, Goetz et al. provided an excellent four-step method for structuring their analysis of the comprehensive plans, but they failed to address any potential selection bias in their sampling methods (N=144, n=25). The authors used growth rate and land availability as part of the sampling criteria, but provided no other evidence or reference to backstop this sampling design. From a review of Figure 1, the sampling read as purposive (inner-ring suburbs) and quota (at least one municipality from

each county). Suggested references that may have improved the investigation's sampling choices (i.e. validity) include the following. Pollakowski and Wachter's study of housing prices within suburban Washington DC in which they found that vacant land had a negative effect and income had a positive effect on housing prices (Pollakowski & Wachter, 1990). In addition, Dowall and Landis examined zoning and housing prices in the San Francisco region. They defined growth as "population growth in excess of 5%" and found that vacant land and income have positive effects on housing prices in suburban cities (Dowall & Landis, 1982, p. 84). Since the Goetz et al. investigation included the persistence of high density land and municipal decision making, these early studies would have supported their choice of sampling design, and also helped to explain the shifts in land designations (from high density to lower densities) by municipalities desiring higher income residents. Incorporating these studies would have also added a deeper meaning to the persistent usage of PUDs as this land-use "require[s] negotiations with planners, decision makers, and the public over the arrangement and amount of building on each site" (Pendall, 1999, p. 116).

In summary, regional planning within the United States lacks administrative and hierarchal legitimacy from planners, municipalities, and highly educated and wealthy citizens. When it is supported, regional planning is advocated for services that would overwhelm a municipal tax base or individual household income. The defense and proliferation of political fragmentation may simply be an extension of individual choice; therefore, any regional effort must appeal to all segments of a region for approval and support. A successful career as a municipal planner may mean adopting, encouraging, and reinforcing municipal values that are antithetical to planning theory and equitable discourse, as planner power is limited power. For municipalities in other regional settings such as Minneapolis, the resistance-to and the production-of subsidized are not unlike those found in California. And lastly, investigations that solely operate at the MSA level, where they scan the data with a stratospheric view of the region, can only hint at or surmise what the reality is at the local level. MSA investigation should

be considered the first stage of an investigation that requires a second stage at the local level to confirm or refute MSA trends and findings.

Political Will

In this section, I shall discuss five relatively recent articles that examine the link between political will and municipal action. These articles are grouped into two themes: opposition and exclusion. Opposition means that residents and/or elected officials take active on-the-record stances against subsidized housing. Opposition is discussed in Pendall's search for the differences between resident anti-growth opposition and resident NIMBYism in California and Goetz's examination of the effects of low-income household dispersal in Minneapolis. Exclusion means that municipalities have knitted restrictive land-use practices within their zoning code to reduce the incidence of subsidized housing within their borders. Exclusion is discussed in Goetz's examination of municipal intransigence in the face of legal remedies, Mayer and Somerville's examination of the relationship between land-use regulation and new residential development in Florida, and Knaap et al.'s exploration of regulatory barriers in large metropolitan areas. What follows is a brief discussion where I define political will, provide the context of its actors, and explain its operation within land-use.

Political Will, Land and Land-Use

Political will can be defined as "matters of legitimacy and distribution of power as they affect the propriety of an agency's existence, its functional niche… its collective institutional goals, the goals of the dominant elite faction (if they vary from institutionalized goals), major parameters of economy, and in some instances the means of task accomplishment" (Wamsley & Zald, 1973, p. 64). This definition reveals political will's flexible nature and indicates that political will is never static or stochastic, but is constantly evolving (i.e. individual maturity, election cycles, epistemology). Political will's agency should not considered good or bad, but rather strong or weak. As noted by Davidoff, "appropriate planning

action cannot be prescribed from a position of value neutrality, for prescriptions are based on desired objectives" (Davidoff, 1965, p. 331). In cases of anti-growth, NIMBYism, land-use regulation, subsidized housing, or lawsuits, it takes strong political will (i.e. elected officials, residents) to either fight the perceived incursion, or to foster community acceptance (Pendall, 1999, p. 133). I suggest that we view political will as a directed and permeating force, actively shaped by the dominant and participating actors' collective and evolving tenor.

When political will interacts with land, political will's agency is conditioned by land's unique characteristics. First, land is the basis of all human activities (*Agenda 21, Chapter 7, Section 27*, 1997). Second humankind's existence requires the persistent environmental manipulation of land (Beatley, 1989; Morrone, 1992). As a corollary, political will (e.g. municipal action) imbues land (e.g. land-use) with the critical purposes of economic and political preservation as both are required for participating municipal actors to maintain their dominant and elite positions. Babcock sees this interaction as a "governmental process… [that has] no inherent principles separate from the goals which each person chooses to ascribe to the political process as a whole" (Babcock, 1966, p. 125). Therefore, who are these actors?

Looking back at Basolo's analysis of local autonomy and public choice, we would find that these actors esteem low taxes, efficient services, autonomy, self-sufficiency, and beneficial economic positions. Molotch, in his analysis of the city as a "growth machine" (Molotch, 1976, p. 310), identified them as a class of persons who reflected the nation's foundation[23] in private property and power—elected officials, businessmen, and landowners. This typology of actors would help to explain why "each unit of a community [or region] strives, at the expense of the others, to enhance the land-use potential of the parcels with which it is associated" (Molotch, p. 311). In close, the interaction (i.e. political will

[23] United States electoral history reveals that only free *property owners* could vote. "Landownership was important to Jefferson because, in his time, such ownerships was a condition for persons wishing to vote" (Last, 1998, p. 48).

directs municipal action within land-use) heightens all actors' self-interest (Hardin, 1968/2006) and creates a game where municipal actors actively shape political will to protect their individual and municipal and self-interest at the expense of other groups (i.e. residents, minorities) and agencies (Babcock, 1966).

Political Will and Opposition

Pendall begins the discussion of opposition because his research demonstrated how residents attempt to influence political will by opposing housing projects. In this case, political will operates as residential and commercial growth processes that maintain a municipality's competitive financial base (Vicari & Molotch, 1990, p. 603). Alternatively, political will can operate as no-growth measures to limit financial liabilities (Fischel et al., 2006, p. 2). Using multiple data sources (e.g. surveys, interviews and the "structured review" of 182 projects files from San Francisco region municipalities), Pendall asked (a) what factors were common to controversial projects and (b) did projects that generated NIMBY protests have a set of characteristics that are different from those that generated anti-growth protests (Pendall, 1999). The descriptive statistics from his structured review are as follows, he found that 113 projects (or 63%) registered opposition to housing development with 20 units or more. Of those 113 projects, 38% contained NIMBY protests, 27% contained anti-growth protests and 6% contained both types or opposition.

For question one, Pendall found that residents frequently objected to projects that required off-site infrastructure, environmental changes (perceived as degradation), and increased density.[24] For question 2, Pendall employed regression models and found that proposed density, apartment-only, adjacency to open space and planning commission approval were statistically significant to NIMBY

[24] Density is a number of housing units in a given area that uses an acre of land (43,560 sq. ft) as the base. A neighborhood of 4 dwelling units per acre would consist of four residences with a minimum of lot size of 10,000 square feet. Planners would consider this metric (4 du/ac) suburban low-density. Planners would consider 10 du/ac as medium-density or high-density apartments—depending on the adjacent land-use context. http://www.housinginitiative.org/pdfs/from_MDC_Website/db9.pdf

protests ($p < .05$) and building permits, median income, multiple entitlements were statistically significant to anti-growth protests ($p<.10$). The only parameter found consistently significant in both opposition models was the project designation of multifamily, but that was at ($p<.10$). In order to triangulate these findings, Pendall surveyed planners and found that planners' ranked the project protests much differently.

Unfortunately Pendall did not explore the perception differences between residents and planners. Should communicative planning theorists evaluate this article, this omitted discourse is conspicuous. As advanced by Forester, communicative planning theory employs Habermas' critical theory as a methodology for acknowledging that planners' communication is attention shaping and leads to guided dialectic engagement between planners and the community (Forester, 1980). Forester suggested four questions that dereify[25] communicative confusion because planners implement municipal political will. The questions are: Is the planner comprehensible? Is the planner's communication offered in sincerity? Is the planner's communication legitimate? Is the planner's communication true? Should a planner negatively answer questions, Forester warned that "not perceived to speak truthfully, planning organizations will breed distrust, suspicion, and a growing hostility to professional public servant" (Forester, 1980, p. 281). Besides this unexplored difference in perception, other questions remain.

While we know that Pendall's general location is the San Francisco Bay area, how many communities were represented within the 182 files and what were these communities' socio-economic contexts? Were these communities impacted by infill or exurban projects? Were the communities' residents, as a whole, homogenous in race, class, income, or education? Could the resident protests

[25] Dereification is an intentional process of exposing misinterpreted norms. Research that employ this method on contemporary phenomena include Argyrou's exploration of western and non-western hegemony in Cyprus (1996), Gardiner's argument that post-modernist feminism may involve pseudo-democratic actions such as writing, teaching or psychoanalysis "have little effect on people's control over their lives or their understanding of social change" (1993, p. 304), or Zaretsky's examination of the American psyche in the ensuing responses 9/11 (2002).

have functioned as a tocsin signaling political or economic changes in the community? Answering these questions would have not only deepened the investigation's context and connection to wider social thought, but also reduced any threats of selection bias. Regarding his "structured review," what was the methodology, its measures and the factors, for refining the accurate analysis of 182 observations? This information, for simple purposes of replication and for larger purposes of reliability and validity, is missing. And lastly, for planners who follow a ladder of citizen participation (Arnstein, 1969), did any of these protests have an effect (i.e. denial, modification, conditions of approval) on the project at hand? This last answer would have underscored the effectiveness of resident protests and refracted the political relationship between residents, municipalities and planners (i.e. who influences who, when, where, and why?).

Closing the discussion of opposition and then transitioning to the discussion on exclusion, I present two articles by Goetz. The first article, *Forced Relocation vs. Voluntary Mobility…* refers to the legacy of municipalities that concentrated the location of public housing within neighborhoods dominated by minorities and low-income households. In the second article, *Desegregation Lawsuits and Public Housing Dispersal…,* Goetz reported on suburban opposition to the scatter site public housing required as legal remedy in *Forced Relocation*.

Using the interviews of over 600 families in the Minneapolis/St. Paul region and Census data, Goetz tested his dual hypothesis that (a) families involved in relocation programs will report improvements in their living conditions, but (b) involuntarily displaced families will report fewer improvements and more problems than voluntarily displaced families (Goetz, 2002, p. 284). This research is based on the 1995 *Hollman vs. Cisneros* decree that required the demolition of over 700 units of public housing, the subsequent relocation of families residing in those units, the development of over 700 new units of scattered-site replacement housing in non-poverty concentrated parts of the metropolitan area, and the assignment of 900 special "mobility vouchers" available to families wishing

to move to deconcentrated[26] areas . In this investigation, political will operates as exclusionary suburban municipalities that limit the construction of low and moderately priced housing in order to repel such households and their fiscal and social liabilities. These suburban actions thwart the effectiveness of federal and central city programs that intend to disperse such households from poverty and minority concentrated neighborhoods located in the central city (Hoch, 2007, p. 88).

In general, Goetz found that voluntary and involuntary families did better than families who remained in public housing, but voluntary families did better than all groups. The descriptive statistical results are as follows. For voluntary families (n=50), Goetz found that these families were more likely to move to census tracts that were the lowest in poverty concentration (9.5% of census tract), least likely to have female-headed households (6.8% of census tract), least likely to have children in poverty (14.3% of census tract), and most likely to have homeowners (72.6% of census tract). For involuntary families (n=195), Goetz found that they were likely to move to census tracts that were poverty concentrated (24.3% of census tract), have female-headed households (13.8% of census tract), have children in poverty (34.5% of census tract), and likely to have homeowners (53.6% of census tract). (Goetz, 2002, p. 111, Table 1). Using t-tests, he found that the residential census tracts for the voluntary and involuntary families, for the most part, were statistically different from each other as well as from the control groups of section 8 and public housing families ($p<.001$). In addition, he provided means tests on Likert scale data concerning parent's perception of their children's educational experiences, and the families' experiences with neighborliness, employment, and safety.

While this study did provide insightful analysis on secondary data, there are issues with its contribution and methodology. In Minneapolis, the "sending" neighborhoods contained population

[26] Under HUD's Moving to Opportunity program, residents were required to move to neighborhoods "in census tracts with 1990 poverty rates below 10 percent" (S.J. Popkin, Harris, & Cunningham, 2002, p. ii). However, in the *Hollman vs. Cisneros* decree, "any census tract with more than 29% African Americans was minority concentrated, and any central-city tract with more than 33% poverty or suburban area with more than 12% poverty was poverty concentrated" (Goetz, 2004, p. 284).

poverty rates that exceeded 30%, public assistance rates that exceeded 17% of households, and households with low incomes that exceeded 36%; therefore, any relocation outside of these census tracts would be considered a program improvement and the information gained by the t-tests is a small contribution to the discourse. A better discussion would have focused on the experiences of the 50 voluntary families who found suitable housing. What were the programmatic methods (formal, informal) of securing the housing units? What was the average family size? Was the housing unit in a large, small complex, or a duplex? Was a social worker or counselor instrumental to unit procurement? These answers would have substantially contributed to the comparative discourse between voluntary and involuntary families and their housing experiences on two levels. First, the Minneapolis experience could have been compared to or contrasted against Chicago's Gatreaux experiment with dispersal (Rosenbaum, 1995). And second, since HUD is now requiring self-sufficiency[27] measures as part of current iteration of HOPE VI[28] projects, the questions would have prefaced self-sufficiency discourse (Berger, Heintze, Naidich, & Meyers, 2008; Heintze, Berger, Naidich, & Meyers, 2006; Van Ryzin et al., 2001).

In a comparative study that explored housing program effects, Steel examined United States and Canadian housing allowance programs and found the Section 8 program,[29] a portable tenant-based subsidy, woefully lacking (Steele, 2001). She argued that the program stigmatized recipients because program participation required their transformation into supplicant status. She maintained that Section

[27] Self-sufficiency can defined as either a dichotomous state (i.e. a household receives or does not receive a government general welfare subsidy, or it can be measured as material hardship (i.e. food scarcity, inability to pay bills such as rent or utilities). Due to time limits for households receiving Temporary Assistance for Needy Families, public housing authorities are concerned about the proportion of tenant incomes that are contributed to housing authority operating income in the form of rental payment (Van Ryzin, Ronda, & Muzzio, 2001, pp. 57-58).

[28] HOPE VI stands for Housing Opportunities for People Everywhere. HOPE VI grew from the work of the National Commission on Severely Distressed Public Housing, which identified "severely distressed" public housing developments, assessed strategies to improve conditions at these developments, and prepared national action plan. In 1992, Congress enacted the HOPE VI program, which combined grants for physical revitalization with funding for management improvements and supportive services to promote resident self-sufficiency. (S. J. Popkin et al., 2004, p. 1)

[29] Section 8 has been subsumed into the Housing Choice Vouchers program.

8 encouraged perverse housing consumption effects because recipients were often located in small units within high-rise buildings, incentivized rent inflation because of asymmetric information benefitting landlords, and created undue fiscal and social transaction costs for low-income households because household must "move" to the quality unit. In contrast, Canadian housing allowances did not require moving to a new housing unit or violate participant privacy because the allowance is paid directly to the recipient without landlord notification. With knowledge of Steele's analysis, Goetz results based on census tract t-tests are a surface reading of dispersal.

Furthermore, in Goetz's analysis of the interview data, it is not clear who actually conducted the interviews, if the questions were structured or open-ended, what methodology was used to quantify the results, and under what guise (voluntary, mandated) the families participated. Those omissions aside, one thing that we can take from his investigation is that planners may need to expand the temporal measurement of "success" of dispersal programs to include short-term (for current households) and long-term effect (for their children). Perhaps, the benefits of moving to suburban municipalities will accrue in a higher proportion for household children, as they should have better educational opportunities. In addition, planners may need to revisit discouraging voucher recipients from moving to neighborhoods of minority concentration—especially when suburbs limit the numbers of housing units available to these households and when Goetz's census tract data indicated that at least 70% of census tract population for both treatment and control groups were employed.

Political Will and Exclusion

Two years later, Goetz continues his examination of the Hollman vs. Cisneros decree, but statistically, double dips with his data and provides nothing significantly different from his previously reported t-tests; but he does answer some of my earlier criticism. With the naming of the Minneapolis Public Housing Authority, we can now assume that it is the source of the tenant data. The real gem of this article is Goetz's fleshing out the details of the decree, but more importantly, the interview data

with housing officials. It is here, that the real difficulties of implementing a housing dispersal programs become evident. There were examples of hostility: "if… [the city of Minneapolis doesn't] want (the low-income housing units), how can they go out to the suburbs and ask us to take them?" (Goetz, 2004, p. 291). There was subterfuge: "suburbs offered up the worst units in their housing stock and/or imposed a set of conditions on the development… a commitment to make improvements equal to 30% of the value of the house" . And lastly, in order to get suburban participation, their was local intransigence via household substitution "the parties to the decree agreed to an amendment limiting the 30/70 split to the first 10 years of operation of each replacement unit. Thereafter, no units will be reserved for Minneapolis families" . This last point illustrates the incredible tradeoffs that are sometime required in order to implement a housing program and are not dissimilar to those chronicled by von Hoffman in his historical review of the Housing Act on 1937 (von Hoffman, 2005).

Mayer and Somerville's continue the discussion on municipal exclusion that is found in zoning. In this case, political will operates within land-use that encourages the development of expensive large lot residences since these units are thought to generate more fiscal benefits than liabilities (Green & Malpezzi, 2003, pp. 120-121). Using data from the Office of Federal Housing Enterprise Oversight and the Wharton Urban Decentralizations Project, Mayer and Somerville hypothesized that land-use regulations should decrease the construction rate of new single-family residences (Mayer & Somerville, 2000). The authors classified land-use regulation into two categories, "those that impose explicit financial costs on builders, typically development or impact fees, and those that delay or lengthen the development process [e.g. zoning]" (Mayer & Somerville, 2000, p. 642). Using numerous regression models, they found that time (e.g. months to receive a subdivision approval) and growth management techniques were statistically significant ($p<.05$, adjusted $r^2=.86$) to the single family permits, but in a

model that included time, growth management techniques, and impact fees,[30] only time remained statistically significant (p<.001). In short, the regulatory process has a more significant effect when it introduces uncertainty (Christensen, 1985), whereas a developer can mitigate growth management risk and calculate an impact fee from project onset. These findings concur with those of Burge and Ihlanfeldt who found that the presence of impact fees may actually speed the construction of multi-family units since the fee may alert developers to municipalities that anticipate new construction (Burge & Ihlanfeldt, 2005).

While these results may startle those that believe the impact fees may inhibit growth, some caution is order. First, the initial OLS model contained six parameters (one present, five lagged) that measured quarterly change in the log of housing prices and all of these parameters were found to be statistically significant (p<.001). By summing these parameters, the authors are able to state that "the estimates show that a 1 percent increase in house prices results in a temporary 15 percent increase in new construction spread over the current and the ensuing five quarters" (Mayer & Somerville, p. 651). While the sum of these parameters answer temporal questions, can this sum also be guilty of inflating the adjusted r^2? If we know that the six parameters are statistically significant, then if you include them in the additional models are you telling us more of the same? In addition, would these additional parameters add statistical noise in the subsequent GLS and IV models? In their discussion of the OLS model, the authors hint at, but do not identify, possible violations of model assumptions . Second, as an investigation of MSA data, the authors transformed categorical data the Wharton survey data into three ratio measures and may have reduced the accuracy of survey instrument . The check on the

[30] Impact fees can be characterized as a municipal reaction to growth. Since new development may induce new demand for services, municipalities impose a fee to offset physical infrastructure (i.e. sewers, roads, street lighting) and social (i.e. school districts, subsidized housing, business improvement districts) costs. These fees are calculated as a rough proportion based on demand/usage between the new and existing residents (i.e. a new park will be used by both classes of residents). Therefore, rough proportionality may create an effect where existing residents, usually within central cities, subsidize new suburban development when such facilities are shared (Nelson, 1988, pp. 15-17).

transformation would have been third party (i.e. planner) validation of transformed measures categories as this is an economically driven and business focused study, whereas impact fees and zoning are planning domains.

Third, OFHEO[31] the housing price index and the NAHB[32] permit data captured the entire MSA, but the survey planners spoke for only one jurisdiction ; therefore, is the resulting conclusion about the relationship between zoning regulations and single family permits subject to ecologically fallacy? And lastly, their analysis proposed a positive relationship between housing prices and housing starts and assumed that there is a flexible supply of developable land. While the authors note that different classes of cities "may have high housing prices, but… different pattern[s] of housing starts," an alternative view is that housing prices and single-family residential construction rates may have been a function of land recycling (i.e. zone changes, brownfield or infill development), changes in tenure (e.g. renters vs. owners), filtering (i.e. gentrification, abandonment), and/or the capitalization of social costs and municipal benefits .

Continuing the discussion of zoning regulations as exclusionary, Knaap, Meck, Moore, and Parker explored the effects of land-use regulation on housing. Using MSA data (e.g. Boston, Miami, Portland), the authors tested whether zoning, acting as a regulatory barrier, imposed restrictions on the type and density of housing (Knaap, Meck, Moore, & Parker, 2007). Their methodology included descriptive statistics (e.g. indexes, frequency tables) and an analysis of comprehensive and function plans within each MSA. With high density multi-family residences as the variable of interest, they found that Boston has the highest median home value ($250K), but the lowest multi-family housing

[31] OFHEO was the Office of Federal Housing Enterprise Oversight. Its duties have now been assigned to the Federal Housing and Finance Agency.

[32] NAHB is the National Association of Home Builders who financially supported the research and is assumed to have provided the single-family permit data. Within the article, the authors did not disclose this data source. http://www.nahb.org/reference_list.aspx?sectionID=819&channelID=311

construction index[33] (.38), and the lowest density (5.83 du per acre). Miami has the middle median home value ($242K), the highest multi-family housing construction index (.47), and the highest density (14.87 du/ac). Portland has the lowest median home value ($184K), the middle multi-family housing construction index (.42), and the middle density (10.07 du/ac). Regarding regulatory framework, the authors found that in Boston, zoning occurred with little state or regional oversight. In Miami, even with Florida's vertical consistency requirements,[34] local jurisdictions had significant discretionary powers. In Portland, due to state planning laws, local jurisdictions followed the regional mandates for minimum density (e.g. 10 du/ac).

While Knaap et al.'s article proposed to investigate effects of regulatory barriers, some questions remain. The authors did not operationalize regulatory barriers in any meaningful manner (i.e. concepts, dimensions, operations, thresholds) and as such, readers have no information about what types of regulations, from what documents, from what municipalities were examined and under what rubric and methodology. Therefore, how could readers recognize regulatory barriers in this and future research if these terms were not clearly identified? Like Mayer and Somerville, the author's usage of MSA data overlooked the "actions" of municipalities. Regarding their dependent variable--multi-family residential units, Miami's, then robust, second-home market and Portland's minimum density may have confounded the data. A simple improvement to this article's descriptive statisitics would have been the inclusion of US national averages to contextualize the MSA data in Table 1, and also the inclusion of HUD's fair market rent to indicate a MSA's level of rent burden[35] in Table 2. Furthermore, the municipal

[33] The multi-family construction index consists of the total change in multi-family housing units from 1990-2000/ the total change in housing units 1990-2000 as per Census (Knaap et al., 2007, Table 1).

[34] Vertical consistency implies a hierarchal order where lower levels of government process are subordinate to higher levels of government process. In California, vertical consistency means that the local zoning regulations (lower level) are consistent with the local general plan (higher level). In Florida, vertical consistency requires that local general plans are consistent with the state's general plan (Anthony, 2003; *California Planning Guide: An Introduction to Planning in California*, 2005).

[35] Rent burden occurs when a household spends more than 30% of the gross income on rent and utilities. http://www.habitatnyc.org/advocate_nycstats.html

data gathered for each MSA would be a great starting point to triangulate the MSA-level findings for municipal-level consistency.

In summary, the construction of subsidized housing or multi-family housing suburban communities can be a lightning rod that unites opposition, or it may be an opportunity for residents to chastise municipal decision makers. For the limited number of households who secure suburban subsidized housing units, perhaps these households are different (i.e. more motivated, smaller in size, better access to information, higher educational attainment, that the general population of public housing households. In addition, the positive effects of dispersal on low-income households may take longer than programs allow-for depending on participation rates and housing markets. Therefore, dispersal policies may need to be revised in terms of temporal evaluation and reconstituted with mandatory counseling for the larger public housing population—issuing a voucher alone may not be enough. Since subsidized housing entails a fiscal gap, planners and policy makers should advocate the usage of impact fees and in-lieu payments toward the creation of affordable housing trust funds. And lastly, while planning is not a science, our methodological writing should not be less than complete. Research methodology needs to be explicitly clear as to what the researcher did, from what constructs, from what data, with what methodology. This clarity will not only improve the quality of the research, but it will also increase replication of studies and reliability of measures. Only then, if others can reproduce the results, can we know the validity of the instruments and measures.

Municipal Choices

In this section, I shall discuss five relatively recent articles that examined municipal decision-making when subsidized housing was one of the considered options. These decisions can be viewed as internal, projected, and protected conflict. Internal conflict means that a municipality is pursuing policies with conflicting goals. This is evidenced in Steinacker's research on the fiscal tension between

subsidized housing and infill development policies and Courchesne's research on the equity tension between subsidized housing and open space preservation policies. Projected conflict means that a municipality has adopted a redistributive policy of producing subsidized housing, but requires that other actors (i.e. non-profits, private developers) execute the implementation. This is evidenced in Johnson and Talen's study of the inclusion of subsidized housing in New Urbanist projects. Protected conflict means that the municipality has committed to a redistributive policy in name only. This is evidenced in Lewis and Hoch's separate studies of Housing Elements as a reaction to state mandates.

Because of their research on municipal fiscal decisions, Rubin et al. and Basolo's research guided this section's article selection. In their examination of municipal choice, Rubin et al. found that municipalities prefer the rehabilitation and preservation of existing subsidized housing as opposed to the addition of new subsidized units because the former lends itself to issues of containment—the units and the households are known, few, and should not create an increased need for additional social services (Rubin, Seneca, & Stotsky, 1990). In her examination of municipal expenditures in California, Basolo found when municipalities competed for financially beneficial residents and commerce, these municipalities were less likely to expend locally endogenous funds on subsidized housing (Basolo, 1999). In the following section, I shall continue this discussion on municipal decision-making on subsidized housing.

Internal Conflict

When given a choice between subsidized housing and other financial concerns, municipalities will chose the most financially beneficial. Using HUD and Census data, Steinacker investigated whether infill development policies and affordable housing policies have conflicting goals (Steinacker, 2003). She located the conflict between infill's positive fiscal benefits (e.g. increase in tax base, reduction of congestion, preservation of open space, neighborhood revitalization) and subsidized housing's redistribution of private and public goods. Using a comparative index of central city to suburbs, she

found that more housing is constructed within the central city, with infill housing costing more. Using two-stage regression models, she found that population change, fair market rents, and median household income have statistical relationships to her five-year infill volume index[36] ($p<.05$). She also found that her demand index[37] was the only statistically significant parameter (out of eight parameters) to her five-year housing costs index ($p<.05$). While these findings indicate conceptual trends, readers should exercise caution because of both the aggregated nature of the MSA data and Steinacker's extensive usage of indexes.

First, Steinacker provided very little discussion regarding the validity of the constructs or indexing methods (i.e. who has used such indexes before and to what extent were the findings relevant and replicable). Second, the indexes employed averaged data within the metrics and they should be interpreted cautiously because averages are not a resistant measure of central tendency (Moore, 1995, Chapter 3). Third, her study period also coincided with a run-up of housing activity; so other untested parameters may have affected the MSA levels of housing development (Tsatsaronis & Zhu, 2004, pp. 66-69, Graph 1). Fourth, her analysis did not survey (a) if any of the central cities contained any greenfields for development, and (b) if the dominant central city within each MSA contained an infill policy or an affordable housing policy or a combination thereof. Those omitted specifics would have helped to unpack why Newark and Rochester, or New York and Sacramento may have virtually identical infill cost indexes for total-, single-, and multi-family housing units, within her MSA findings.

Continuing the discussion of conflicting goals, Courchesne provided a legal examination of Massachusetts' Chapter 40B statute and its interaction with environmental law (Courchesne, 2004). Since 1969, Chapter 40B has allowed a state housing court to approve the construction of subsidized

[36] The Infill index measured the "ratio of the total number of new residential units in the city to the total new residential units in the MSA, divided by the ratio of the land area in the central city to the land area in the MSA" (Steinacker, p. 497) .

[37] The Demand index measured the change in MSA population from 1990-95 over the change in total housing units for the same time period (Steinacker, 2003, p. 503).

housing (e.g. a "builder's remedy") when a municipality denies approval for such units and the municipality cannot subsequently prove that at least 10% of its total housing inventory is affordable to low-income households. As a reaction to 40B and to preserve their local autonomy, municipalities have zoned significant portions of land as open-space to retain their suburban and rural character. In his discussion, Courchesne analyzed not only municipal compliance with the Massachusetts Environmental Policy Act, but also considered municipal compliance with the state's Wetlands Protection Act, the Historic Districts Act, and Title 5 of the State Environmental Code. In general, he found that the courts have deferred to municipal implementation of these state laws and this deference, the author asserted, has created a rivalry between housing equity and environmental preservation . Similar to Baer's analysis on the California model, Courchesne noted that "the heart of this critique is confusion about the proper arbiters of 'regional,' 'local,' and 'statewide' concerns.... Which level of government should have the legal power to enforce the 'carrying capacity' of the *region's* resources? The locality? The state?" .

After reviewing policy alternatives (e.g. incremental changes to 40B, inclusionary housing ordinances, regional contribution agreements), Courchesne opined that 40B should be revised to provide the aggrieved parties private rights (e.g. autonomy, profit, legislative) and proposed that planners reframe the public's obligation toward the resolution of issues pertaining to race, class, and the environment. His reframing has four points: think regionally, enact a regional government, legislate environmental justice, and invoke morals. Regarding the latter two points, perhaps a review of Klosterman's discussion of the public interest criterion is warranted.

Klosterman argued that when "properly interpreted, the concept of the public interest can provide planners" with a method for justifying expert-driven planning intervention (Klosterman, 1980, p. 324). To achieve this, the planner must redefine public interest by separating individual and community characteristics using a criterion of "social cohesion, a diversified economic base, a healthful and pleasant environment and governmental structures and process which are open to change, responsive to

criticism and capable of identifying and dealing with problems" . Unfortunately, if we take Pendall's research on housing opposition into account, the subjective problem of perception (i.e. planners, residents, and elected officials) would still remain as legislating environmental justice or invoking morals (whose and why?) may remain subjectively elusive.

Projected Conflict

When municipalities are amenable to subsidized housing, the means of production may be contingent upon other actors gathering the resources, and such contingencies filter incoming households by income level. Using primary data from a national survey (n=220, 38% response rate), Johnson and Talen asked (a) to what degree subsidized housing is included within New Urbanist developments, and (b) through what means (i.e. voluntary or mandatory requirements, financial incentives, administrative tools) developers include subsidized housing within those projects (Johnson & Talen, 2008). As one of their founding tenets, New Urbanists advocated that their urban-based typology of building types, pedestrian activity, and dense locations would provide housing utility for households earning below, at, and above median income levels ("Charter of the New Urbanism," 1996). Descriptively, their data identified 304 New Urbanist projects and found highest concentration of projects in North Carolina, Florida, and California, respectively. Regarding land-use settings, they found that 42% of projects are located in greenfields, 33% as urban infill, 21% as suburban infill, and 5% as TOD. [38]

In answer to question one, Johnson and Talen found that 55.6% of developers included subsidized housing in their projects. Of those mixed-income projects, 50% reported that producing subsidized housing was mandatory. Alternatively, of the developers that did not include subsidized

[38] Transit-oriented developments (TODs) are usually defined as areas within a quarter-mile or half-mile of rail stops or bus transit hubs, with fairly high development density, good availability of shops and services, good pedestrian amenities, and pleasant and safe walking access to the transit center. http://policy.rutgers.edu/faculty/chatman/documents/TODs_and_travel_in_CA.pdf

housing in their projects, 58% of those developers said subsidized housing was not appropriate to the residential mix and the remaining 42% cited financial reasons. Furthermore, 52.6% of non mixed-income developers stated that no incentive could entice them to include subsidized housing in their New Urbanist project. In answer to question two, the developers identified federal funds as the most frequent means (LIHTC[39] 52.4%, CDBG[40] 35.7%, Hope VI 28%—percentages exceed 100% because some projects utilize multiple federal funding sources). When subsidized housing units were produced, developers targeted Moderate, Low, and then Very Low[41] income households, respectively. Resident household income can explain this stratification because household income is required to repay the LIHTC bonds. While the LIHTC method provides housing and finance, this financial tool has been criticized for skimming the cream of the low income households and locking out the very poor and hardest to house because of their persistent unemployment (Goetz, 2003). The developers identified state funds and/or actions that provided infrastructure as the second most frequent means for providing subsidized housing.

What is notable about Johnson and Talen 's research was the high frequency of New Urbanism located within greenfields. Greenfields, as opposed to urban areas, seem to be a contradictory location for an urban-leaning typology, but it would also explain why North Carolina figured so prominently in the ranking. The authors also included timely discussion on tenure (deed restrictions, non-profits or states having the first right of purchase, scaled appreciation for household) and this discussion helped to

[39] The Low Income Housing Tax Credit (LIHTC) Program, which is based on Section 42 of the Internal Revenue Code, was enacted by Congress in 1986 to provide the private market with an incentive to invest in affordable rental housing. Federal housing tax credits are awarded to developers of qualified projects and these tax credits are sold on Wall Street. http://www.hud.gov/offices/cpd/affordablehousing/training/web/lihtc/basics/

[40] Community Development Block Grant Program (CDBG): Created under the Housing and Community Development Act of 1974, this program provides grant funds to local and state governments to develop viable urban communities by providing decent housing with a suitable living environment and expanding economic opportunities to assist low- and moderate-income residents ("Glossary of HUD Terms,").

[41] Income limits are determined by HUD's Area Median Income (AMI). Very Low is 50% of AMI, Low is 80% of AMI. Moderate is 120% of AMI. In Los Angeles County, the maximum income limits for a four-person household, are as follows: Very Low is $ 39,650, Low is $63.450, and Moderate is $74,500. http://planning.lacounty.gov/assets/upl/project/housing_2009-income-limits-costs.pdf

explain why many of the developers allowed non-profits to manage the subsidized portion of their projects. However, the most important finding was the role of the federal government. Clearly, federal monies, not state or local, were the backbone to closing the subsidized housing gap. And lastly, this is one of the few planning studies that conducted a dialogue with the private developers as opposed to leaving them undrawn.

Protected Conflict

Levine's and Hoch's research illustrated the perfunctory efforts of municipalities when municipalities are required to comply with unpopular and unfunded mandates. Emphasizing the production of multifamily units as the dependent variable, Lewis used multiple data sources[42] to test whether municipal compliance with California's Housing Element law was a significant predictor of housing production (Lewis, 2005). In his discussion, Lewis noted that prospective strategies (e.g. California, Oregon), which encouraged planning for future demand, did not have accountability measures in their process and did not provide an adequate evaluation of housing unit production. Whereas retrospective strategies (e.g. New Jersey, Massachusetts), which examined the proportional deficiencies of current subsidized housing to total housing production, contained punitive accountability measures (i.e. builder's remedy), but maintained corrosive intergovernmental relations. Yet, it was the retrospective strategies that allowed for evaluation of actual units produced, not planned (Lewis, 2005, pp. 182-184).

In his investigation, Lewis found that for the log of annual multifamily permits, compliance was not statistically significant, but median housing unit age, population size, and the square of median household income were statistically significant ($p<.01$). And, for the log of annual single-family permits, again Lewis found that compliance was not statistically significant, but median housing unit age,

[42] Census, Construction Industry Research Board, California Department of Finance and California Department of Housing and Community Development.

population size and fiscal effort[43] were statistically significant ($p<.01$) as were the change in a municipality's total housing units between 1980 to 1990, and median household income ($p<.05$). In his closing, Lewis recommended that California revise the compliance standards by reviewing elements within a region (accounting for regional markets), enact a Massachusetts Chapter 40B builder's remedy (as a strong "stick" penalty), revise tax policy (redistribution of sales taxes, valuation), and create a trust fund (as a "carrot" approach).

The only weakness of this investigation stemmed from the usage of building permits as the dependent variable, since permit issuance does not ensure that a housing unit will be completed. In addition, the permit does not specify if the unit will be market rate or subsidized. Therefore, the readers must connect multi-family housing production to subsidized housing production, but at what level? 10% of multi-family permits. 12% or 9% of building permits. However, this is due to the weakness of the law, not Lewis. The law does not require any enumeration of actual subsidized housing units as part of the California model; therefore, using building permits serves as an imprecise proxy for subsidized housing production.

Another investigation that illustrated perfunctory municipal compliance is Hoch's investigation of housing elements. In 2003, Illinois passed a housing law mandating planning for subsidized housing that combines aspects of Massachusetts Chapter 40B statute and California's Housing Element law. "If less than 10% of an Illinois municipality's or county's housing stock was classified as affordable… [then the law] required that local government… make and adopt an affordable housing plan by April 2005" (Hoch, 2007, p. 88). Using survey and secondary data Hoch asked: (a) did the Illinois housing mandate shift local policy attention to subsidized housing, (b) were the legislative justifications offered for the mandate perceived by planners as legitimate, and (c) were the submitted plans consistent, coherent,

[43] Fiscal Effort is fiscal effort: the ratio of municipal general revenues to the aggregate personal income of the city's residents (Wolman (1996) as cited in Lewis, 2005, p. 189).

relevant and committed. In his survey (n=49, 59% response rate), he found that 51% agreed that the mandate shifted attention, but 59% felt that the mandate imposed an unfair burden, and 76% felt that the mandate made little economic sense. Regarding justification (job/housing mis-match, diversity, traffic congestion), the results were mixed. And lastly, his analysis of the elements found that 97% were compliant with the mandate.

While this article provided insight into local jurisdiction's perceptions of mandated state requirement, issues with the methodology weakened the impact of his findings. To his credit, Hoch stated that the research was limited to "noncompliant jurisdictions without an adopted affordable housing plan" (Hoch, 2007, p. 88); however, this admitted selection bias limits the value of the findings, as their foot-dragging may indicate that they are indeed different from the general population of cities. In addition, Hoch does not provide any information regarding the state-wide population of municipalities affected by the law; therefore we cannot ascertain if this biased regional sample (n=49) can be extrapolated to a state or regional level. Figure 1, which describes the Chicago area (N=272), gives a hint of the study population, but it is implicit, not explicit (Hoch, 2007, p. 89). An improvement in this investigation would have been the employment of a stratified random survey of compliant and non-compliant municipalities to test for differences and similarities.

Regarding question three, while Hoch's concepts of consistent, coherent, relevant, and committed were referenced to previous analyses of housing elements, he did not provide any conceptual or operational definitions that guided his methodology. To his credit, he stated that a "lack of resources precluded… [his] using multiple readers," (Hoch, 2007, p. 93); however, this lack of transparency is surprising coming from the author of *Pragmatism, Planning and Power, Racism and Planning, What Planners Do: Power, Politics, and Persuasion,* because not only did the lack of methodology limit the reliability and replication of the results, but it also increased the skepticism of the reader (Hoch, 1984, 1993, 1994).

Regarding home rule, Hoch states that "many officials in home rule municipalities claimed the law did not apply to them," but failed to provide a context for home rule application within Illinois (Hoch, 2007, p. 93). In California, municipalities can be categorized as either general law or charter cities. A general law city is incorporated under and subject to the laws of the state, whereas charter cities are incorporated under their own charter and have broader powers regarding land-use regulations and consistency (*California Planning Guide: An Introduction to Planning in California*, 2005). More importantly, "in the case of charter cities in California… the state cannot intervene in land-use decision making unless the matter is of statewide concern" (Baer, 1988, p. 270). This type of contextual information would have deepened the understanding of home rule resistance to state wide mandates within Illinois. And lastly, what exactly is the "index of Quality Variation?" Like Steinacker, Hoch employs a metric to explain the variance of home prices, but he neither tethers the index to research data, nor does he explain its validity of measurement or reliability in usage.

Discussion: What have we learned about municipalities?

Municipalities are resistant to subsidized housing because of fears that are real and un-real. The real fear is that such housing represents a fiscal deficit that operates as semi-permanent subsidy because a very-low, low- or moderate-income household cannot cover the financial commitments of purchase, rental, and/or maintenance of their occupied housing unit (Mueller & Schwartz, 2008, p. 129; Shlay, 2006). The subsidized unit may also signify foregone municipal income in terms of property and sales tax receipts (Lobao & Kraybill, 2005; Rubin et al., 1990; Ruby, 2008). And lastly, depending on the characteristics of the household (i.e. senior, families with children), the household occupying the subsidized unit may require that the municipality provide additional educational, recreational, health, and social services that is subsidized by existing residents. Municipalities, owing to their reliance on property and sales taxes are justified in having these fears, but the fiscal effects can be mitigated with

the redirection of existing subsidies. The un-real fears, which focus on perceived changes to a municipality's social standing, class stratification, and personal safety, are more difficult to quantify as well as resolve.

Policymakers can address municipalities' real fears, but it is the unreal fears that fill a council chamber and pressure elected officials to deny approval to subsidized housing projects. What to do? Remove the power of permit approval from the municipality.

While I am not advocating the dissolution of home rule or making multi-family housing units as by-right or permitted use (as encouraged by the California's Housing Element law). We, as planners and academics, should diversity our strategy for subsidized housing to include the purchase of existing residential units for conversion to subsidized housing stock. In one swoop, housing advocates can increase the subsidized inventory, yet respect the agency of municipalities. This shift in strategy may require revision of both federal and state housing policies regarding the "redirection" of existing subsidies as well as the qualification and renovation of existing housing units. Under HUD's Neighborhood Stabilization Program, some non-profits are purchasing foreclosed units for low-income households. This action deserves longitudinal analysis for programmatic effects on the households and regional housing inventory.

What does this say about Regional Governance?

And lastly to my original question, which asked whether regional governance is the optimal approach to deliver a necessary good. Are municipalities that are not under a regional governance approach any different or more resistant? No. From the literature on regionalism, it takes mandated or conditioned effort to produce such goods due to economics, autonomy, public choice, and inequity. Drafting measure like 40B, with housing courts may increase the inventory housing units, but it also increases corrosive relationships between the state and municipalities. In addition, mandated approaches would also have to consider the actions of private developers who would game the system,

but Johnson and Talen demonstrate that that may be only a small fractions as long as PUD negotiations, are open to public hearings. Therefore, the effective and equitable distribution of affordable housing requires mandated and coercive action—trumping governance (de Neufville, 1983, p. 41; Gillette Jr, 2006; Payne, 2006). This is not say that a regional approach to affordable housing should not be pursued, but are we, as planners, willing to live with its built-in and persistent failure.

Last words

Federal expenditures for public housing will not return as evidenced by Hope VI and its intent to remove dilapidated units and Housing Choice Vouchers and their intent to disperse low-income households into the housing owned by private capital. Therefore, for planners the best means of providing affordable housing is using existing levers (zoning, vouchers, non-profit participation, linkage fees) to increase the supply of multi-family housing. However, where does the money come from to fund municipal subsidized housing? Residential impact fees and inclusionary zoning in-lieu fees can provide local funds tied to the robustness of the local housing market. Locally the implementation of this cross-subsidy strategy would give rise to local funding that is strictly spent on new construction and/or purchases that are equitably distributed with income stratified areas. New comparative research is needed to examine municipalities that adopt similar fee 'levers' and critically examine the effects and explain the differences in outcome.

Planning may not be a science, but that does not mean that quasi-experimentation should be any less rigorous in methodology and writing. Researchers must be explicit about their choices in research design, conceptual and operational definitions as well as their methodology. New standards for reporting research and the internet posting of examined data must be enacted to allow triangulation. This would not only bring clarity to the research, but also distribute methodology for future research in three ways. First, explicit clarity will encourage replication of studies in other locations and contexts. Second, it would instruct research students in the hows, the whats, and the

whys of inquiry. Third, we would increase our respect from other social science disciplines by increasing our internal research vigor. If our research is unclear, shoddy, and over-reaching, then so is planning's reputation.

Planning theory cannot successfully rationalize the issue of housing and remain unchanged in this scenario of recalcitrance, autonomy, and resistance. More of the same (i.e. criticism) will not resolve this issue. Just as Dyckman called out for theorists to advance thought that planners can use in defense and as Brooks lamented with theorist disconnection with practice, the resolution of subsidized housing is an opportunity for theorists to move from the safe confines of journal discourse and go to a city council meeting or a housing commission hearing. Then they can get their hands "dirty with data" to champion an approval or redistributive policy as to opposed to attacking the messenger (i.e. the planner) and its horse (i.e. plans) (Brooks, 1988; de Neufville, 1983, p. 43; Dyckman, 1969). Theorists need to speak truth where truth lives because we can no long sit idly by, in lectures, conferences, and seminars when households are placed in precarity due to their residential unit. New cross-sectional and longitudinal research is needed that explicitly links theory with municipal data and such research should be reported at municipal hearings.

Appendix

Figure 1

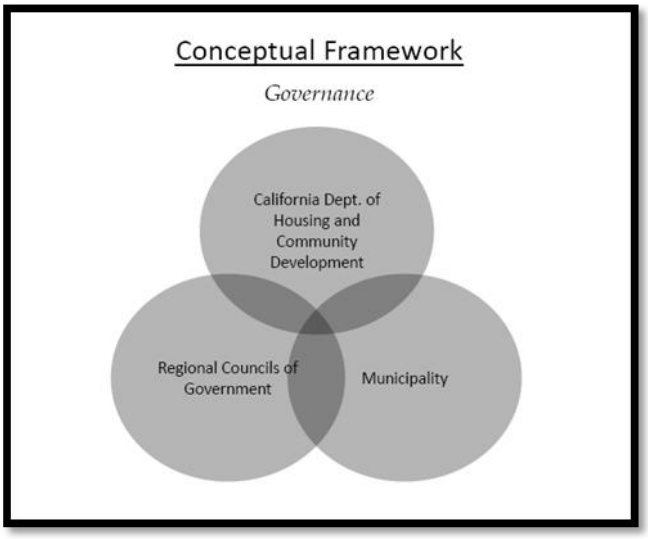

Figure 1 Regional governance as a framework of parity in agency and resources

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