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Do Regional Economies Need  
Regional Coordination?

by

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# DO REGIONAL ECONOMIES NEED REGIONAL COORDINATION?

by

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## **Abstract**

Over the past century, America changed from a nation of distinct cities separated by farmland, to a place where employment and population density is far more continuous. For some purposes, it makes sense to think of the U.S. as consisting of a number of contiguous megaregions. Using the megaregion definitions of the Regional Plan Association, this paper documents the remarkable differences between these areas in productivity, housing prices, commute times and growth rates. Moreover, over the past 20 years, the fastest growing regions have not been those with the highest income or the most attractive climates. Flexible housing supply seems to be the key determinant of regional growth. Land use regulations seem to drive housing supply and determine which regions are growing. A more regional approach to housing supply might reduce the tendency of many localities to block new construction.

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## **I. Introduction**

In 1900, America was an ocean of agriculture which embedded dense urban islands. The 19<sup>th</sup> century cities were spatially distinct. The cities often clustered around a natural advantage, such as a port, or a man-made advantage, such as a railroad stop. The cities spread throughout the continent because there was great wealth in the natural resources of the American hinterland and the inland cities served to move the wealth of the hinterland onto boats and trains for shipment east. The cities were compact units dispersed throughout the country.

One hundred years later, the economic forces that land to this urban landscape have changed. While America once thrived on its natural resources, its human capital is now central. There is little gain in having a city close to the cornfields. While transporting goods was once extremely expensive, now it is cheap and requires far less labor (Glaeser and Kohlhase, 2004). While people once walked to work, now the overwhelming majority of Americans drive cars. As a result of these massive economic shifts and changes in transportation technology, the old island cities have been increasingly based by urban regions.

In Section II of this paper, I review the replacement of distinct cities with sprawling urban regions. I start by looking at the growth of counties in the regions around New York, Chicago and Los Angeles and show the increasingly dispersed nature of population. Across the U.S. as a whole, the post-war period had two different eras of population dispersal. Between 1950 and 1970, people moved from the densest counties to counties that were slightly less dense. This was the era of the early suburbs. Since 1970, population growth has been centered in areas that were radically less dense. This latter period also included the remarkable decentralization of employment that now characterizes most of the nation's metropolitan areas.

This decentralization of employment and population increasingly suggests that large regions, rather than cities or metropolitan areas, may be an appropriate unit of analysis.

In Section III, I turn to the ten megaregions identified by the Regional Plan Association (2006). While these regions have certain aspects in common, such as a relatively continuous distribution of people and firms, they also have substantial differences. For example, the high income areas of the Northeast and Northern California that have specialized in information-intensive industries appear to be far more productive than the poor areas of the south, especially the Gulf Coast. High cost regions are generally higher density and have longer commute times.

I then turn to the growth patterns of these different megaregions. Just as with metropolitan areas or cities, we find that less dense regions have grown more quickly than denser regions, reflecting the general move to car-based space-intensive living. We also find that warmer places have grown more quickly than colder regions, just as is the case with metropolitan areas and cities. However, unlike metropolitan areas, we find no connection between initial income and population growth, especially over the last twenty years. There is no sense that people are moving to the more economically productive places.

In Section IV, I argue that we should understand these patterns of regional growth as the outcome of differences in housing supply within the U.S. In the older, denser regions of the country, new housing has been far more limited than in the speedily growing areas of Florida, Texas and the Southwest. While some of this difference reflects higher construction costs in the high income regions, and some of this difference reflects less land availability, a growing body of evidence suggests that land use regulations rather than lack of land are responsible for the differences in housing supply across the U.S. The places that are not growing have chosen to artificially restrict new development while the growing areas are still friendly to new building.

Finally in Section V, I turn to the policy implications of an increasingly regional America. I argue that there are pluses and minuses of greater regional coordination. Coordination makes it possible to internalize inter-jurisdictional externalities that are increasingly important in a regionalized world. However, like most economists, I remain

enthusiastic about the diversity and competition that comes with local control. There are some areas, like economic development policy, where the benefits of competition seem to outweigh the benefits of coordination. In this area, regional control seems likely to be a mistake. In other areas, like transportation, the externalities seem massive and regional coordination seems extremely important.

Traditionally, much of housing policy has been locally controlled, although there are substantial differences from region to region. Indeed, the places which lodge land use controls in the hands of county governments appear to be friendlier to growth than the places where segregated suburbs empower homeowners to block new building. I suggest that a mixed regional-local system might have value. In this system, localities would maintain control over land use decisions, but regions would provide incentives to induce localities to make the right choices. Section VI concludes.

## **II. The Rise of Regional Economies**

The rise in regional economies does not mean that regions were unimportant historically. In 1900, cities still drew strength from their region and high transport costs ensured that much trade was regional. Historically, Chicago was the hub of the Midwest and Boston was the urban core of New England. These places had a particular advantage by being physically proximate to the natural resources of their areas and a significant amount of their trade was regional. They also served as ports of entry and exit for goods that were coming into and out of their particular regions, just as New York City served as the port for all of the United States.

The rise of regional economies does not mean that those transport-linkages have become more important. Indeed, transport costs for goods have become less important and increasingly important cities trade with the world rather than with their nearest neighbors. It is surely a mistake to see America's megaregions as independent economic entities that deal primarily with themselves and the rise of these megaregions does not imply any reduction of connection with the rest of the country and the world.

The rise of megaregions is best seen as reflecting the changing patterns of location for people and firms. These regional economies differ from conventional cities because they are characterized by a continuous expanse of moderate density employment and housing rather than a spatial center for employment surrounded by high density dwellings. Employment is no longer centered in Chicago's loop, but rather spread somewhat lumpily throughout the entire Midwest.

To see this, we start with the population patterns surrounding America's three largest cities—New York, Chicago and Los Angeles—since 1950. Figures 1, 2 and 3 consider the distribution of the total population that lives in counties within 100 miles of those cities. In Figure 1, I show the share of the population that lives in New York County (Manhattan), the other four boroughs, counties that are outside those boroughs but still within 50 miles of Manhattan and counties that lie between 50 and 100 miles of Manhattan. Manhattan itself declined as a share of the region between 1950 and 1970, but has held reasonably steady since then. The other four boroughs declined through 1990, but have actually risen since 1990. The inner ring of counties that are less than 50 miles of New York increased their share of population in the 1950s during the first wave of suburbanization, but have actually lost population share since then. The counties that have grown most are those on the outer edge of the city between 50 and 100 miles of Manhattan.

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Manhattan is the oldest of these three cities and started in 1950 with the most decentralization, both within the city and across the inner suburbs. Moreover, Manhattan is a far smaller county than Cook or Los Angeles County so its share of population is naturally smaller. In Figure 2, I show the population distribution of the Chicagoland, again defined as counties within 100 miles of Cook County. Between 1950 and 2000, the share of the population in Cook County declined from over 60 percent of the region to less than 50 percent of the region. However, the growth in population occurred in counties between 1 and 50 miles of Cook County, not in the counties that were the furthest away. In a sense, Chicago is slightly behind New York's regional development

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and we should probably expect that, over time, those further counties will take a larger share of the region's population.

Figure 3 shows Los Angeles. Los Angeles is of course the most populous county in the nation and in 1950 it had almost 90 percent of the population within 100 miles of Los Angeles. This share has declined by approximately 15 percent since then and the growth has mainly been in counties within 1 and 50 miles of Los Angeles County. As in the case of the Chicago counties, growth has been much more limited in the distant counties.

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Figures 4, 5 and 6 show a different cut on the same data. They plot growth in county population between 1950 and 2000 on distance from the central county. Figure 4, the New York graph, shows a fairly clear positive relationship where the growth has been fastest in the most distant counties. Figure 5, the Chicago graph, shows that the central county itself had little growth, but once you look Cook County, growth was actually fastest in the innermost areas. Figure 6, the Los Angeles graph, looks something like Figure 5, where Los Angeles had the least growth, but outside of Los Angeles, growth is faster in the inner counties. Again, these figures show the difference between a more mature region, where growth has been focused in the outer counties, and slightly newer areas, that are still filling up the inner circle.

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Another way to see the rise of regionalism is to look at the distribution of population across counties of different density levels. In Table 1, we split U.S. counties up on the basis of density in 1950. The five rows reflect the population in counties with less than 33 people per square mile (which was the median density level of U.S. counties in 1950), counties with between 33 and 59 people per square mile (which included one quarter of U.S. counties in 1950), counties with density levels between 60 and 144 people per square mile, which included 15 percent of counties in 1950, counties between 145 and 3670 people per square mile, which included 9 percent of counties in 1950 and counties with more than 3670 people per mile, which included the densest one percent of counties in 1950.

Between 1950 and 2000, the share of the national population living in the very densest counties has almost fallen in half, from 15 percent to 8 percent of the population. This decline is the essence of the decline of the old big cities. After all, of the ten largest cities in the U.S. in 1950, eight have less population today than they do know. Those cities were the densest places 50 years ago and today they have declined substantially

While the decline of these areas has been more or less continuous, the growth of other types of counties can be clearly divided into two epochs. Between 1950 and 1970, those counties that had between 145 and 3670 people per square mile saw the biggest increase in their share of the U.S. population. These were places like the inner suburbs of New York that boomed during the early post-war period. During this era, the share of population in these places grew by six percentage points which is a lot of people, but the share of population in the least dense areas was declining. The continuing flight from agriculture meant that old farm counties were being depopulated. In total, the share of the population living in counties with less than 60 people per square mile declined from 27.2 percent in 1950 to 23.8 percent in 1970.

Since 1970, the second densest category of counties has lost ground while the less dense counties have gained. Since that year, the share of the U.S. population living in counties with less than 145 people per square mile has increase from 40 percent to 48 percent. America is becoming an exurban nation. People that once clustered in those highly dense counties are now increasing spread out in less dense areas.

The spread of people into suburbs was followed by a spread of employers. Following Glaeser and Kahn (2004, 2001), we use zip code data on employment collected for 1994 and 2001 and characterize the degree of decentralization of employment. This data captures the number of workers—in different industries—in all of the nation's zip codes. We connect this data with information on the location of a metropolitan area's employment center, which comes from a 1982 Census document that essentially established this center by polling local leaders. With this, it is possible to characterize the



degree of decentralization in each metropolitan area and the changes between 1994 and 2001. It is not possible to go back prior to 1994.

Perhaps, the simplest measure of the degree of decentralization is the share of population at various distances from the Central Business District. Figure 7 shows the average share within three miles, between three and five miles, between five and ten miles and between ten and fifteen, between fifteen and twenty and between twenty and twenty five miles across all metropolitan areas for data from 2001. We ignore zip codes that are further than 25 miles from the city center. On average, 24.2 percent of employment is within 3 miles, 12.7 percent lies between three and five miles, 25.7 percent between five and ten miles, 18.4 percent between ten and fifteen miles, 11 percent between fifteen and twenty miles and 8 percent between twenty and twenty five miles. This distribution of employment confirms the remarkable level of employment decentralization that currently exists in the American city.

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Of course, the average level of decentralization masks the considerable heterogeneity that exists within metropolitan areas. We use the share of employment within five miles of the city center as our proxy for employment centralization. Figure 8 shows the cumulative distribution of this measure across all metropolitan areas. There are some metropolitan areas with more than 50 percent of their employment that is that centralized and others with less than 20 percent of their employment within five miles of the city center. The mean value of this variable is 52 percent.

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Glaeser and Kahn (2001) find few significant correlates of decentralization at the metropolitan area level. At the industry level, we find that high human capital industries, since as finance and insurance, have tended to remain centralized, while manufacturing is particularly decentralized. Dense areas keep their attraction for those areas that still value that ability to communicate quickly. Manufacturing has a great need for land and with the rise of the truck found it easy to decentralize.

### *Causes of Decentralization*

Glaeser and Kahn (2004) argue that the primary cause of this suburbanization is the internal combustion engine. Among individuals, cars have proven tremendously attractive because of the vast increase in speed associated with driving to work. The average car commute is 24 minutes; the average commute by public transit is 48 minutes; an enormous attraction to Americans. The truck was also important as it enabled manufacturing firms to leave the rail and port infrastructure that had tied them to cities.

The decentralized regions are essentially a redefinition of the American urban landscape around the automobile. As opposed to almost all previous transportation technologies, the car operates essentially point-to-point, rather than on a hub-and-spoke model, where the train or bus stop is essentially a hub and walking is needed to get to the final destination. The point-to-point car technology is the source of its great speed but also the reason why cars have been associated with totally different density levels. Cars both facilitate living at far lower densities and they are also huge consumers of space which makes lower density levels necessary. The decentralization of population and employment has essentially been an attempt to accommodate the car.

Glaeser and Kahn (2004) provide a number of pieces of evidence on the role that cars played in facilitating decentralization. It is unsurprisingly true that there is a tight link between decentralization and automobiles across American cities. This connection also holds true outside of the United States. Across countries, anti-car policies, such as high gas taxes, are associated with both less car usage and denser development. To address the possibility of reverse causality (fewer cars lead to higher gas taxes), Glaeser and Kahn (2004) instrument for gas taxes using French Legal origin. French legal origin countries have many regulations of most forms and also have higher gas taxes. They also have denser cities.

There are certainly other theories of decentralization that also have some merit. For example, some economists have linked decentralization to a desire to flee from a

perceived blight of racial minorities. While there is surely some truth to this view, decentralization is fairly ubiquitous across American metropolitan areas and even areas with almost no minorities have large amounts of decentralization. A second hypothesis given by Margo (1992) is that suburbanization reflects rising incomes and a demand for land. Again, while there is surely some truth to this hypothesis, decentralization has occurred in rich and poor places alike and our estimates of the income elasticity of demand for land (Glaeser, Kahn and Rappaport, 2007) suggest that income effects alone would be far too small to account for much of the decentralization.

### **III. Comparisons between Megaregions**

The increasingly decentralized nature of the U.S. economy seems to call for different modes of analysis other than our traditional focus on cities and metropolitan areas. The increasingly dispersed distribution of population, at least within certain, broad regions has led the Regional Plan Association (2006) to megaregions, which are vast areas that generally encompass many metropolitan areas. The use of megaregions reflects the fact that proximate metropolitan areas are increasingly linked because people and employment have grown between the old employment centers. In this section, I will present an empirical look at the Regional Plan Association's ten megaregions and the differences between them. I will turn in Section V to a discussion of the potential benefits and costs of handling more government policy at the megaregion level.

The megaregions differ dramatically in income, housing costs, density and travel patterns, both because of the current economies of these areas and because of historical factors that continue to exert a major influence. For example, higher income areas are primarily those with a more educated workforce and longer travel times are associated with areas that historically had higher density levels. Table 2 shows the basic distribution of income, housing costs, share of the adult population with college degrees, density and travel times across the ten megaregions and the rest of the U.S.

### *Income and Economic Differences across Regions*

We have formed average income numbers by using census the Census 1 percent public use micro-sample (IPUMS) and forming the average income across all of the counties in each megaregion in 2000. Table 2 gives the range of these average income numbers across the ten megaregions which are ranked in order of their income. The two richest regions are Northern California and the Northeast which both have average household incomes that are slightly above \$70,000. The standard economic view is that wages reflect the marginal product of labor, so this fact implies that these two regions are by far the most economically productive areas in the country. Alternative measures of productivity, such as country business patterns, confirm the enormous output of these two regions.

After these two megaregions there is a steep drop-off of over 8,000 and then there is a cluster of six megaregions where average earnings run from \$55,563 (South Florida) to \$61,777 (Southern California). The other four regions in this group are, in ascending order of income, the Arizona Sun Corridor, Piedmont, the Texas Triangle, Midwest and Cascadia. All of these areas are substantially better paid than those people who live in none of the megaregions, who earn an average of \$50,737 and the Gulf Coast, which earns an average of \$45,506. Essentially, the megaregions consist of two high flying areas on the eastern and western extremes of the country, one particularly poor region and a large number of areas in the middle.

Across cities and metropolitan areas, two factors are known to be reliable predictors of high wages and productivity: city size (or density) and years of schooling. Ciccone and Hall (1996) document the remarkably strong connection between density and output. Glaeser and Mare (2001) show the people in metropolitan areas which surround big (and generally dense) cities earn substantially more, holding everything else constant, than people elsewhere.

Figure 9 shows the correlation across metropolitan areas between the log of the gross metropolitan product per employee and the logarithm of density. The correlation is quite striking. Figure 10 shows that this correlation is also true across megaregions when correlating median income and the logarithm of density. The relationship is still positive although somewhat weaker. Certainly, the productive Northeast is by far the densest region and the poor Gulf Coast is among the least dense areas.

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All wage differences across space require at least two explanations. First, we need to understand why firms are willing to pay higher wages in some areas than others, which means we must understand why productivity is higher in some places than others. Second, we must understand why workers don't flock to high wage areas. We will explore the second question in the next subsection, but we comment on the first question here. Dense areas may be more productive for many reasons. The omitted variable hypothesis is that locational attributes, like access to a good port, both make a place more protective and thereby attract density, which suggests that the density-productivity relationship is not the result of density causing productivity, but the result of both variables being caused by a third factor. A second explanation of the density effect is that the proximity between firms reduces the transport costs for shipping goods. A third explanation is that the close productivity of workers leads to intellectual spillovers that enhance productivity.

The third hypothesis is also an explanation for the well known relationship between human capital and income. If areas thrive in the information age because of their ability to produce new ideas, and if agglomerations of educated people are the building material for innovation, then we should expect to see a tight link between education and regional wealth. This basic view follows the long-standing hypothesis of Alfred Marshall and Jane Jacobs who both emphasized the role of intellectual spillovers increasing productivity in dense areas.

Following Rauch (1993), there has been an extensive literature showing that people who live in high human capital areas earn more. Figure 11 shows the relationship across

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metropolitan areas between the residual from a log wage regression, i.e. the log wage holding education, age and gender constant, and the share of the metropolitan area that has a college degree. More educated places have higher wages. This effect has been getting stronger over time (Glaeser and Saiz, 2004) and today the average wages in an area is an extremely strong predictor of the wealth of the area. This effect holds if you use long-standing variables which drive the current education level, like the density of colleges before 1940 (as in Moretti, 2004).

Across megaregions, it is also true that high skills line up with high income levels as Figure 12 shows. Just as in the case of income, there are essentially three groups of metropolitan areas. The Northeast and Northern California have the highest education levels. 30.1 and 29.8 percent of their adult populations, respectively, have college degrees. Cascadia is almost as well educated, with 28.5 percent of its population having college degrees. The Gulf Coast has the lowest levels of education by far. Only 18.2 percent of this regions population has a college degree. The other six areas again occupy a middle ground with shares of college graduates going from 22.1 percent (Southern Florida) to 25.4 percent (the Texas Triangle).

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While the basic relationship between skills and productivity certainly holds at the megaregion level, it is also clear that this relationship is far from perfect. Cascadia seems too poor relative to its education level and Southern California seems too rich. Further research is needed to understand these outliers.

Still, the relationship between skills and earnings is much stronger than it was in the past.

Figure 13 shows the relationship between income and share of the population with college degrees in 1950. For 1950 income, we used the population weighted average of county incomes rather than using individual level data, but the differences between

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Figures 12 and 13 are not the result of this slightly different methodology. In 1950, education was mainly a function of being a newer region, with younger people on the West Coast. Some of these places were rich, but others were not.

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In 1950, the regions also just had a very different distribution of income. There were essentially five richer regions: the Northeast, the Midwest, Northern and Southern California and Cascadia. These areas all had average incomes around \$25,000 (in year 2000 dollars). By contrast, the other five megaregions were all relatively poor with the Gulf Coast and Piedmont regions at the bottom of the pack. The divergence of those two regions over the past 50 years is one of the remarkable stories of post-war American economic geography.

Another way to understand the different regional economies is to look at the primary industries of their largest metropolitan areas. The Northeast region's largest metropolitan area is, of course, New York. Ranked by payroll, finance dominates the region with \$86 billion dollars of payroll in the SIC two-digit industry "finance and insurance." The largest subpart of this group is SIC four-digit industry "securities and commodity contracts, intermediation and brokerage." The SIC two-digit industry "Professional, Scientific and Technical Services," has \$46 billion dollars of payroll. Health care and wholesale trade are the other two largest industries by payroll. Health care and social assistance is the region's largest employer followed by finance and insurance and wholesale trade has the largest total receipts. The great export industries of the Northeast region are the human capital-intensive sectors of finance and business services and the more traditional residual sector of wholesale trade.

The San Francisco metropolitan area, which is the dominant metropolitan area in Northern California, has a remarkably similar industrial mix. Its dominant export industries are again finance and insurance and professional services. Northern California is also the home of Silicon Valley and its remarkable agglomeration of technology producers. Again, this thriving wealthy region is productive because it specializes in idea-intensive industries that employ highly skilled people. Seattle, the largest combined statistical area in Cascadia, is likewise an information producer. Its dominant industries are "information," which includes publishing and more importantly software and again business services.

Another set of five regions: the Midwest, the Texas Triangle, Southern California, Piedmont and the Arizona Sun Corridor all have manufacturing as their largest industrial group by payroll. These areas also have significant business services, but unlike the first three areas, they are still first and foremost in the business of producing goods, rather than ideas. The type of goods obviously differs from region to region. The Texas Triangle has the energy sector and Southern California has a vast trade associated with the port of Los Angeles, but they are basically goods producers.

The final two megaregions, Southern Florida and the Gulf Coast, have health care and social assistance as their dominant industry. In the Gulf Coast there is also some manufacturing and in Southern Florida there is some degree of business services. Southern Florida's economy is certainly also tied to tourism and retirement. The Gulf Coast is the most economically troubled megaregion.

#### *The Spatial Structure of Employment across Megaregions*

Not only do the megaregions differ in the amount of their earnings, but they also differ in the places that they earn. Some areas are relatively centralized and others are not. For each megaregion, I calculate the average share of employment within five miles of a central business district. There are generally several such districts within a megaregion.

Figure 14 plots the shares of employment that are more than five miles from a central business distribution for all ten megaregions and the rest of the U.S. in 1994 and 2001.

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The figure shows that all mega regions are more decentralized in 2001 than in 1994, which can be seen in the fact that all of the data points are below the 45 degree line shown in the figure. In most cases, the changes are modest, but this is, after all, only a seven year time period. If anything, the Arizona Sun Corridor has had the biggest increase in decentralization, but even its change is only about five percent.

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Across the areas, there are three clusters. First, the Gulf Coast, the Northeast and Cascadia are the most centralized. In these cases, around forty percent of employment is



within five miles of a central business district. This is the pattern that holds outside of the megaregions as well. The second cluster contains five mega regions: the Arizona Sun Corridor, the Midwest, Northern California, Southern Florida and Piedmont. In these places about thirty percent of employment is within five miles of the central business district. As such, these places are essentially hybrids of older centralized areas and more modern job sprawl. Finally, the Texas Triangle and Southern California have about 23 percent of their jobs within five miles of a central business district. These places have very little decentralization.

A finer look at the data shows that the five mile cutoff misses some interesting variation across the megaregions. If we look within the five mile area, the Northeast, Cascadia, Midwest and Northern California have considerably more employment within three miles of central business districts than between three and five miles of the district. In the other regions, the distribution of employment is relatively flat within these five mile areas. As such, some of these areas really continue to have true employment centers while others do not.

#### *Housing Costs and Other Disamenities*

The high wage megaregions are also high cost areas. After all, if they weren't then everybody would want to live in places where they could earn more money and, as a result, nobody would want to live in the Gulf Coast. Economics has no more fundamental principle than that high wages should be offset by other costs, as seen in the distribution of housing prices across megaregions.

Figure 15 shows the relationship between housing prices and incomes across megaregions. Our housing value numbers are based again on the 2000 Census IPUMS and we are forced to use self-reported housing values. The basic relationship between prices and income is quite tight, as it is across metropolitan areas. Figure 16 shows the fact that metropolitan area income is a strong determinant of housing values across

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metropolitan areas. On average a 10,000 dollar increase in income is associated with a 37,000 dollar increase in housing values in 2000.

The major outliers in the cross-regional relationship between income and housing prices are Northern California, which is more expensive than its income seems to merit, and the Texas Triangle, which is cheaper than its income would seem to merit. The most natural explanation for these differences is climate and other amenities. As Figure 17 shows, there is a robust positive relationship between warm Januaries and housing prices across metropolitan areas. Northern California may offer the same income as the Northeast, but it also offers a much more moderate climate. Unsurprisingly people are willing to pay for this comfort. Conversely, the Texas Triangle has a particularly tough climate that is both extremely hot and quite humid. Perhaps these variables explain the low price of Texas homes.

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As a result of the twin forces of climate and income, megaregions can be divided into four areas on the basis of housing prices. Northern California is in a world of its own with median housing values of more than \$175,000. These values have risen dramatically since 2000. The Northeast, Cascadia and Southern California form a middle group with prices hovering around \$130,000. The Midwest, the Arizona Sun Corridor, Southern Florida and Piedmont are a fourth group with prices between \$90,000 and \$100,000. Finally, the Texas Triangle and the Gulf Coast are much cheaper than the other regions.

The differences in housing prices reflect both housing demand and housing supply. The four most expensive places are also places where new construction has been limited. In a series of papers, Joseph Gyourko and I have argued that these limits on supply are primarily the result of land use regulations. I will return to these issues of housing supply at the end of the section.

Housing costs only capture one of the prices that must be paid for living in expensive areas. The more productive, dense regions also have longer travel times. Figure 18

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shows the relationship between average commute time and income across metropolitan areas (megaregions). People in the high income regions, not only pay more for their houses, but they also must spend more time commuting. This is a classic prediction of the Alonso-Muth-Mills model where people can obtain cheap housing on the urban fringe. As a city gets more productive, prices go up, but people also live further and further away from the city center and have longer and longer commutes.

In the figure, the Northeasterners spend more time commuting than their income would suggest, while the Northern Californians have a somewhat shorter commute. This presumably is one of the reasons, along with climate, that housing prices are higher in Northern California. Southern California has somewhat higher commute times than its income might suggest and this might be seen as another way in which Los Angelenos are paying for their famous weight. Commute times in the Texas Triangle, Southern Florida, Piedmont, Arizona and Cascadia are all fairly similar and close to the regression line. Cascadia does appear to have somewhat shorter commutes than its income might predict, but then again, its housing prices are also higher than its income might predict.

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Finally, the Midwest and the Gulf Coast have much shorter commute times. In the case of the Gulf Coast, the low commute time is predicted by the low incomes. One advantage of living in a place with a weak economy is less traffic on the roads. The Midwest has the lowest commute times of all of the megaregions. This is clearly one form of compensation for cold Midwestern winters.

While it is useful to think about commute times as part of the price that people have to pay to live in economically robust regions, density, rather than income, is a more direct cause of long commutes. Figure 19 shows that relationship between density and average travel times to work across megaregions as it is across cities. Unsurprisingly, more people per square mile means slower commutes. Figure 20 shows the relationship between density and commute times across cities with more than 100,000 people and more than 153 people per square mile. Some of this relationship occurs because people in dense areas are more likely to use public transportation, and public transit commutes

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are generally much slower than car commutes. Figure 21 shows the relationship between commute times and share of the population using public transit using the same sample as Figure 20. In a regression where commute times are regressed on both public transit use and density, both variables significantly increase commute times.

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### *The Growth of Megaregions*

The megaregions differ not only in their current characteristics but also in their patterns of growth. Some of these regions are growing strongly; others are losing ground relative to the U.S. as a whole. Figures 22 and 23 show the share of the U.S. population living in the ten megaregions over the past 50 years. Figure 22 shows the share living in no megaregion, in the Northeast and the Midwest. These three groups have many more people than the other megaregions, so it is easiest to consider them separately. All three lines are on a downward trajectory.

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From 1950 to 1970, these two regions roughly held their ground. Since 1970, the regions have lost population relative to the rest of the nation. About ten percent of the U.S. population lives in these two regions than did 30 years ago. It is no surprise that these older, rustbelt areas have lost population. After all, warm temperature is among the most reliable predictors of urban growth over the past century (Glaeser and Shapiro, 2003).

I have trouble concluding too much from the decline in the share of the population living in no megaregion. After all, the megaregions are defined on the basis of their current importance to the U.S. economy. If these areas had been declining, they would have been less likely to have been selected with that criterion.

Figure 23 shows the rise of almost all of the other areas. Southern California and Southern Florida have had the greatest increase in their share of the U.S. population. Both of these regions have seen a roughly five percent increase in their share of the U.S. population. The increase is particularly spectacular in Southern Florida which started the post-war period with 1.5 percent of the U.S. population. Southern Florida's rise owes

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much to immigration and the growing retired population, but there has also been an impressive increase in native population of all age groups. Rising incomes have led people to increasingly value the consumer amenities of this semi-tropical area.

The Texas Triangle and the Arizona Sun Corridor have also had impressive growth. As in the case of southern Florida, Arizona's growth is particularly impressive because it began with such a small share of the U.S. economy. The growth of Cascadia and Piedmont is also impressive, but it is somewhat more modest than the other growing regions. Finally, as one might expect from its economic weakness, the Gulf Coast has had a relatively constant share of America's growth over the past 50 years.

What explains the growth of the different regions? Three main factors have historically been important for the growth of metropolitan areas: sun, skills and sprawl. The correlation between median January temperature and population growth between 1980 and 2000 for the 100 most populous metropolitan areas in 1980 is shown in Figure 24. The relationship between skills, as measured by the share of the population with college degrees and population growth, is shown using the same sample over the same time period in Figure 25. This skills connection is closely related to the connection between economic success and subsequent growth. Figure 26 shows that this correlation is much stronger in the older, colder regions of the country. Finally, figure 27 shows the relationship between density and growth over the same time period.

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Across megaregions, both density and warmth predict growth. Figure 28 shows the correlation between density in 1950 and population growth across megaregions since then. It is clear that the less dense places have had faster growth, which may not be surprising since they are starting from a lower base. Figure 29 shows the positive connection between average January temperature and growth since then. Less density and more sun seem to predict growth at the megaregion level, just like they do at the metropolitan area level.

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However, the relationship between income and megaregion growth shows that peoples are not moving to richer areas. Glaeser and Shapiro (2001) find that in the 1990s, initial income predicts the growth of cities and metropolitan areas, but the richer megaregions have not grown faster, perhaps because those richer places are also denser. Figure 30 shows the relatively flat correlation between income and growth during the 1950 to 1970 period. Figure 31 shows the remarkable negative correlation between income and growth between 1980 and 2000. Over the last 30 years, economic growth has been concentrated in the poorer megaregions.

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In the next section, I will argue that we must understand housing supply to understand the fact that poorer megaregions are growing much more quickly than rich megaregions, and that the connection between housing supply and regional growth is one reason why it makes sense to think about a more regional or national approach to land use regulations.

#### **IV. Regional Growth and Housing Supply**

The fact that high income places have grown less than low income places would be hard to understand without understanding the importance of housing supply. If housing could be freely supplied at a fixed price with a fixed commute everywhere, then people should presumably be flocking to high income areas. Perhaps, some high income areas, like the Northeast or the Midwest, lack other amenities, like climate, but that certainly can't be said of Northern California. Yet Northern California, despite its high incomes, splendid climate and relatively short commutes grew less than five of the ten regions over the past 20 years.

Over the past twenty years, the explosive growth was in the Arizona Sun Corridor, the Texas Triangle and Southern Florida. The five faster growing metropolitan areas in the 1990s were Las Vegas, Naples, Florida, Yuma, Arizona, McAllen, Texas and Austin, Texas. These places are generally not as economically successful as coasts and their climate is certainly worse than that of California. Their growth has more to do with housing supply than with innate demand for the characteristics of these areas.

A basic fact about population growth is that change in the number of people and change in the housing stock are almost perfectly correlated. Figure 32 shows the correlation between the change in the number of homes and the change in the number of people in the 1990s. Over very short time horizons, there can be changes in the vacancy rate and over longer time horizons there has been a secular decline in the number of people occupying each housing unit. However, when we compare metropolitan areas or cities in a given decade, growth in population and growth in the housing stock are almost the same thing.

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This fact would be relatively uninteresting if all areas had roughly the same housing supply and the differences in both population and housing change were driven by changing demand to live in a particular region. For example, if some regions were attractive because of income and amenities and others were not and if growth was determined by these factors, then we would still expect to see the correlation between income and housing growth, even if housing supply was perfectly elastic everywhere. However, this view of the world would also predict that prices should be higher in places that were growing more. After all, if growth is driven by demand, not supply, then high demand should lead to both high quantities and high supply.

Figure 33 shows the relationship between population growth between 1990 and 2000 across megaregions and housing prices in 2000. The growth does not show any sort of a straight connecting housing prices with growth. Some of the data points in the Figure 33 can be explained by demand. The Gulf Coast, and to a lesser extent the Midwest, combine low prices and low growth. These areas do seem to have less demand. However, among the other areas, high growth seems to be correlated with low prices, not high prices. The Texas Triangle is one of the faster growing megaregions and yet its prices are almost as low as those in the Gulf Coast. Northern California and the Northeast are among the slowest growing regions and they have the higher housing prices.

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These patterns can also be seen at the metropolitan area level, as shown in Figure 34.

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This Figure graphs permits issued between 2000 and 2005 on housing prices in 2000 across metropolitan areas. The graph shows three basic sectors. First, there are areas with few permits and low prices. These are low demand areas, many of which are in the Midwest and the Gulf Coast. Second, there are areas with many permits and moderate prices. Most of these areas are in the fast growing megaregions. Third, there are areas with few permits and high prices. Many of these are in the Northeast and Northern California.

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The fact that high price areas have little new permitting and high permitting areas have moderate prices is certain evidence of supply differences across areas. Without differences in supply conditions, the expensive areas would be building much more than the cheap areas. Instead, we see that building is going on in areas with less demand because in those areas it is easier to build housing. The constant flow of new homes in these places helps to ensure that they stay affordable.

#### *Lack of Land vs. Land Use Regulation*

There are essentially three ingredients in building new homes: land, a permit and physical infrastructure. In principle, supply might be greater in some areas than others because of any of these three factors. High supply places might have more land, or easier permitting processes or better provision of housing structures. In this section, we will discuss the evidence on the relative importance of these three inputs to differences in supply conditions are metropolitan areas.

Gyourko and Saiz (2004) have looked at the differences in the cost of building structures across space using data from R. S. Means that surveys builders on their building costs. They do indeed find that physical construction costs are higher in areas with high housing prices, however differences in physical construction costs can only explain a small amount of the heterogeneity in prices. For example, they document a 25 dollar per square foot difference in construction costs between Atlanta and San Francisco, which is



among the most extreme differences in construction costs. This would explain a 62,500 dollar difference in prices for a 2,500 square foot house. By contrast, the National Association of Realtors reports a median sales price in Atlanta of \$167,000 which is \$550,000 less than the median cost of \$715,000 in San Francisco. While differences in physical construction costs are not irrelevant, they can only be a small part of the story.

The more difficult task is to determine the relative importance of lack of land and difficulty in permitting. One way to look at the importance of density is to see whether there is more construction in places with more land. Figure 35 shows the correlation across metropolitan areas between permits per acre between 2000 and 2005 and density in 2000. The Figure shows a strong positive correlation. Figure 36 shows a similar positive correlation across 187 cities and town in the greater Boston region. Places that have less land build more not less. This result does not reflect high demand for those areas, as the correlations are unchanged if we control for initial price in the area.

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A second piece of evidence on this question is that prices are not particularly higher in areas with more density. Glaeser and Gyourko (2003) look at high prices across metropolitan areas, and find that many of the places with the highest prices have quite low density levels. The combination of high prices, low permitting and low density is particularly clear in the Northern California which has protected great tracts of land.

A third piece of evidence on lack of land is that lot sizes are getting bigger in at least some high cost areas. Jacobovics (2006) documents that in the Boston area “the median lot size for new single-family houses was 0.91 acres, up from 0.76 between 1990 and 1998.” This increase in lot size is far too big to be accounted for by the rise in incomes. If greater Boston was running out of land, then we would expect lot sizes to be getting smaller rather than larger. The fact seems far more compatible with the view that regulations restricting new construction are getting tougher over time.

A final piece of indirect evidence of the importance of land scarcity compares the price of land evaluated in two different ways. Conventional hedonic analysis can deliver a price

of land by comparing similar houses on smaller and bigger lots. This should deliver people's willingness to pay for more area. A second approach to estimating the price of land is to look at the total sales price of a house and subtract the estimated price of building the physical structure. This second approach will combine both the value of the land and the value of having the right to build on that land.

In an unregulated market, these two methods of valuing land should yield the same result. Areas with high demand and scarce land should have equally high land values using either technique. In an unregulated world, a quarter acre would be worth more if it sat under a new house, and homeowners would subdivide their lots and build. Glaeser and Gyourko (2003) compare these two different methods across many metropolitan areas. We find that in high cost areas the price of an acre is typically ten times larger if it sits under a new house than if it extends a lot. This finding is incompatible with the view that these places just lack land, and so there must also be substantial regulations preventing subdivision.

In a related exercise, Glaeser, Gyourko and Saks (2005) examine prices and construction costs in Manhattan. If Manhattan's limited supply and high prices just reflected a lack of land, then we should expect new residential buildings to be getting taller. By contrast, they are getting shorter. If regulations didn't bind the market, then we should expect to see apartment prices roughly equal the physical cost of building up. After all, with residential highrises, you don't need more land to create new apartments; you just need to build taller buildings. We find that condominium prices are now at least double construction costs in many areas. Again, this is incompatible with the view that lack of land is the only restriction on new construction.

There is also more direct evidence on the role that growth controls, minimum lot sizes and other forms of regulation play in limiting the amount of new development. Katz and Rosen (1988) wrote a classic paper about the Northern California region that shows that prices are higher in areas that have used regulations to restrict growth. Across

metropolitan areas, Glaeser and Gyourko (2003) find that prices are higher in more regulated markets.

Glaeser and Ward (2006) look at land use regulations within the greater Boston region. We document a remarkable panoply of regulations that impact the ability to build, including rules about subdivisions, wetlands and septic systems. These rules vary wildly from place to place for reasons that seem to be unrelated to any obvious economic or physical factor. These rules have also increased significantly over time.

We examine the connection between land use regulations and both new construction and prices. We find that as average minimum lot size in a town increase by one acre, the number of new permits between 1980 and 2002 decreases by .41 log points or roughly 40 percent. When towns adopt an extra type of land use regulation, we find that new construction drops by .105 log points or roughly ten percent. Each extra acre of minimum lot size appears to increase prices by about 15 percent and each extra form of regulation increases prices by about 10 percent. Land use regulations appear to both decrease new construction and increase prices.

I do not mean to suggest that land availability is unimportant. Surely, some part of the remarkable growth of the Texas Triangle and the Arizona Sun Corridor comes from an abundance of land. Yet regulations are also extremely important. The importance of these regulations means that the housing supply differences across space are not fixed, but rather could be changed under a different regulatory regime.

### *The Political Economy of Zoning and Urban Decentralization*

The popularity of land use controls and their rise over the last 35 years is not hard to understand. For most homeowners, new construction is a bad thing. There are both real externalities and pecuniary externalities from every unit of new construction. The real externalities include congestion on the roads and the potential nuisance of actual construction. Many people may prefer to be surrounded by land other than homes so

there is a real aesthetic loss associated with new building. If new homes don't pay enough in taxes to cover the expected costs of providing them with public services, then there may also be an externality working through the public treasury.

The pecuniary externality is that each new home increases the supply of housing which should lower the price of housing. Just as OPEC has an incentive to restrict the supply of oil, local homeowners have the incentive to restrict new housing to maximize the value of their own house. Particularly in high cost areas, homes are often a huge part of a household's portfolio. We shouldn't be surprised that homeowners are willing to work hard to restrict the supply of substitutes for their most valuable asset.

In a conventional city, the interests of homeowners were opposed by the interests of employers, builders and bankers, who together made up what Logan and Molotch (1988) called the "urban growth machine." Employers want to make sure that housing prices are low so that they will need to pay their workers less. Builders profit from construction and have an incentive to push for more permits. Finally, bankers earn profits from lending to new homebuyers and also have an incentive to encourage new construction. Historically, this group has acted to make construction easy and these actors are still important in the high growth megaregions such as the Texas Triangle and relatively pro-growth cities like Chicago.

If traditional cities pitted homeowners against this growth machine, the pro-growth elements are remarkably absent from many suburbs. Bedroom suburbs are homeowners' enclaves with little employment. Their governments are dominated by their major interest group—the homeowners who make up the population. We should not be surprised, therefore, that in many places where homeowners have control over governments, that those homeowners have made it increasingly difficult to build new housing.

This logic can help us make sense of the connection between urban decentralization and the rise of land use regulation. In the older centralized cities, all of the different groups

interacted and often the large employers had the upper hand. As the car pushed people out into specialized suburban enclaves, homeowners came to dominate the decision-making process and shut down new development, particularly in high income, high education areas.

Of course, this process did not happen everywhere. In Boston and Northern California, anti-growth groups were particularly effective in blocking new construction. In the growing megaregions, these groups have been much less effective. One set of reasons for these differences are differences in long-standing political institutions. In some areas, small ex-urban communities control development. In other areas, county governments have control over new building. For example, much of the growth in Las Vegas has occurred in unincorporated areas where only the county board holds sway. Even in some eastern areas, like Maryland, county governments are the ultimate arbiters of new development and they have generally been much more supporter of new growth, than small suburban enclaves.

The reason that larger governments seem to be so much more pro-growth is probably that those governments are more likely to be influenced by important employers and builders. While local homeowners may be effective in controlling a small local zoning board made up of their neighbors, they will be much less effective in pushing a county government that also has an interest in attracting employers. For this reason, larger governmental entities, such as those that have tended to dominate in the growing megaregions, have usually been more supporting of permitting.

### *The Welfare Effects of Land Use Regulation*

Nothing that I have said in the previous discussion suggests that land use regulation is either good or bad. There are real externalities associated with new construction and it is appropriate for communities to impose some limits on completely unfettered growth. Showing that land use controls are important does not imply that they are bad. In this

subsection, I will discuss some of the theoretical and empirical arguments about the welfare consequences of land use controls.

Standard economic arguments suggest that the right level of land use controls should essentially impose a “zoning tax” that is equal to the real externalities created by new development. This “zoning tax” is essentially the gap between the current housing price and the cost of supplying the house in the absence of regulation. Glaeser, Gyourko and Saks (2005) estimate that this “zoning tax” represents about 50 percent of the value of a house in New York City and in several other high cost areas. If this estimate is correct, then new housing is essentially being taxed at a 100 percent rate because of limits on development.

Is this tax appropriate given the externalities that new housing creates? Glaeser, Gyourko and Saks (2005) discuss the possible negative externalities associated with construction in New York. Even including the potential losses from lost views, we find it implausible that a 100 percent tax is appropriate given the positive and negative effects of new highrise construction in Manhattan. While our estimates are certainly rough, it seems difficult to justify the limits on new construction that appear to be in place in New York City.

Similar calculations for suburban development are much more difficult because it is hard to consider the full range of changes in a suburban community that may come from new building. There is a somewhat simpler approach to this question, however, which asks whether the current level of density maximizes the total land value in the community. With a number of assumptions, land value maximization ends up being equivalent to welfare maximization. Glaeser and Ward (2006) find that current density levels in Greater Boston are far too low to be land value maximizing. Extra housing does have a negative impact on prices, but this impact is too small to offset the extra value created by building a new house. As a result, the restrictions on housing appear to be reducing land values in the area.

If these results are right and communities are building too little, then we should ask why homeowners are unable to coordinate and maximize land values. For such coordination to work, new builders would need to bribe neighbors to let them build. In some cases, we do see impact fees that resemble such bribes, but on the whole there is much less of these side payments than we might expect. In some cases, there are institutional rules that explicitly forbid such transfers. My own view is that some combination of cultural norms and laws have made these transfers rare, and as a result, homeowners only see a downside from new construction and act to prevent it.

The impact of restrictions on new construction has generally not been to limit the amount of building in America but rather to push that building from one region to another. The regional redirection of construction from highly productive regions to less productive areas may actually be quite costly for the country. Moreover, since some externalities may actually be worse when building in the growing regions, the net effect of this redirection may be negative. For example, new construction in Manhattan leaves much less of an environmental footprint than new construction on the fringes of Las Vegas. Yet our current land use policies encourage builders to avoid the city and head for the desert.

## **V. Economics, Public Policy and Megaregions**

One view, usually espoused by planners, is that the United States is hampered by having political units—cities and counties—that are too small to make investments that would benefit the country as a whole. Another view, more commonly taken by economists and political scientists who are followers of Charles Tiebout, is that competition among governments is a great way to generate both discipline and innovation. The answer is surely between those two extremes. In the case of activities where local actions have vast externalities, it surely makes sense to move towards more regional control. In other cases, where externalities are much smaller or where competition is more vital, more local control makes sense.

In this section, I will discuss three different types of public policy: economic development, education, and transportation, before focusing on housing. I argue that these three policy areas span the spectrum of areas which should have continued local control to areas which desperately need more regionalism. I ignore many important areas of governmental action, such as police, fire and redistribution, because they seem less likely to be subjects for debate. In some of these cases, such as police and fire, I think that the case for continued local control is extremely strong because the advantages of local knowledge and competition and the modest inter-jurisdictional externalities. In the case of redistribution, I think that national control makes more sense both because of externalities coming from the mobility of the poor and because I think that any obligation to take care of the poor operates at the least on the national (if not the world) level.

### *Economic Development*

One of the areas where regionalism has been discussed is in the area of economic development. Since any large scale employer will surely hire workers and buy inputs from throughout a region, it seems to make sense to run economic development policy at the regional level, rather than the local level. After all, when Boeing comes to Chicago, it will also hire people who live in Evanston. Surely it makes sense for the entire region to chip in to attract these large employers.

While this logic may seem attractive, I think it is mistaken because I think most local economic development policy is also mistaken and that those errors will tend to grow bigger at the region level. The starting point is a question about what makes for good economic development policy. One view argues for large scale pro-action, where governments go out and lure businesses with tax cuts and other subsidies. The other view argues that attracting business is mostly about making a place attractive to workers and getting rid of governmental barriers to innovation and firm location, such as taxes and regulation. According to this second view, Nevada's laissez-faire approach has been a far more effective local economic development policy than the cities that have combined more taxes and regulation with aggressive courting of businesses.



One way of seeing the two different poles of economic development policy is that the first activist approach is really an employer-based policy that emphasizes providing stuff for firms. The second approach is essentially a person-based policy that emphasizes making a place attractive for workers and trusting that firms will follow, as long as there aren't too many barriers to business. The second approach is not laissez-faire in general. Making a place attractive to residents requires a great deal of government effort in education, public safety, transportation and housing. However, the second approach is more laissez-faire in the areas that are commonly called economic development policy.

The case against an activist economic development policy is that governments are inherently bad at picking firms and industries that are a good investment, both because picking winners is inherently hard and because governments frequently face incentives to do the wrong thing. Japan's Ministry for International Trade and Industry (MITI) aggressively followed the path of active economic development. While some early commentators suggested that MITI was part of Japan's economic success, Beason and Weinstein (1996) show clearly that MITI targeted support to low growth sectors that had few returns to scale. If MITI, which had vast resources and their pick of the smartest Japanese graduates of their top universities, was unable to pick winners, how can we possibly expect American local governments, with far less manpower and resources, to do better?

Certainly the track record of local economic development policies is far from encouraging. There has been a strong tendency to focus on industries of the past rather than industries of the future. Advocates of Boston-area economic development policy were arguing as late as the 1960s that without subsidies to shoe and candy manufacturing, the region would have no chance. There are many cases where subsidies to particular firms seemed to reflect political clout more than economic value.

The difficulty of micro-managing economic development should actually be getting worse in an increasingly innovative era. The essence of an innovative economy is

unpredictability. After all, if we could predict the new, new thing, then entrepreneurs wouldn't be able to thrive by coming up with new ideas. We may know that biotechnology is likely to be important, but there is an entire industry trying to figure out what areas of biotechnology will succeed and cities are unlikely to be able to win at that game.

None of this is meant to say that all economic development policies are bad. Reducing taxes and regulation seems to attract business. Holmes (1998) uses a spatial discontinuity approach to show how firms located in states that had anti-union right to work laws or lower taxes. Greenstone and Moretti (2003) find that localities that are able to attract big industrial plants usually by reducing taxes seem to do reasonably well. One of the reasons for the great success of the Las Vegas area is surely its low taxes and lack of regulation.

If we think that good economic development policy is mostly the reduction of taxes and regulations, then local competition seems much more attractive than collective regional monopoly. There is surely some room for cooperation. Evanston may want to contribute to the tax relief offered by Chicago, but as long as we think that attracting businesses means eliminating barriers, then there is little need for all that much coordination. Localities can get rid of those barriers on their own and competition among localities provides them with the right incentive to do just that. A larger scale of government is less likely to be nimbly able to respond to the need to change the rules to attract firms.

A second factor cutting against regionalism in economic development policy is that much of good economic development policy involves looking for low cost ways to take care of the pressing needs of local businesses. While we always need to be wary of too much government-business cooperation because of fears of corruption, there is surely much value in having open lines of communication so that the government can relieve cheap problems facing local firms, like a traffic snarl or an environmental hazard. These actions require communication and small local governments are more likely to find that communication easy than a large regional economic development team.

A third advantage of local economic development policies is that their more limited resources make subversion by businesses less costly. A business that figures out how to influence the national government has the possibility of receiving vast federal subsidies. Localities are limited in what they can give and this limits the scope for abuse. Overall, I think that economic development policy is an area in which regionalism is unlikely to be all that helpful. Local competition seems more likely to yield attractive results than big regional planning.

### *Education*

Education occupies a middle ground where there are surely some significant advantages for regional policy, but there are also big gains from local control and competition. There are at least three good arguments for some form of regionalism in education. First, people who are educated in one locality will often work elsewhere in the megaregion or the country as a whole. Second, people who are attracted by a good education system in one jurisdiction will often play a role in the economy of the region outside of that jurisdiction. Third, education spending is often the best form of redistribution available because human capital is so important to generating income. As I argued above, redistribution is surely not a local responsibility.

A final fourth issue with local provision of education is that it provides powerful distortions to the location decisions of parents. Even if all communities are otherwise identical, the localization of schooling provides strong incentives for parents who care about schooling and are able to pay for it to locate together. This creates unnecessary segregation on the basis of skills and income. The problem is worse if communities are not identical and some places are bedroom suburbs while others are mixed use cities. In that case, local schooling creates an unfortunate incentive for parents to flee the older cities with problematic school systems.

On the other hand, there is some evidence suggesting the competition among school districts improves school quality (Hoxby, 2000). School finance equalization schemes have often had the impact of reducing school quality by eliminating the incentives or ability of some jurisdictions to spend more (Hoxby, 2001). The track records of large school districts, which are often extremely bureaucratic and static, are far from encouraging.

As such, education is an area that has both strong advantages from regionalism and disadvantages from cutting back on local competition. There are no easy answers to this problem, especially since the current system is so politically entrenched. Teachers' unions are both enormously powerful and generally hostile to changes that would introduce competition and accountability into the system.

In such a setting, the economists' dream would look something like a megaregion-wide voucher program with lots of competition among public and private providers and no fixed connection between location and school. In such a system, the voucher could be used to handle redistribution and to ensure robust public investment in education, but there would still be the virtues of competition and diversity. As such, the system would be a hybrid that combined the best features of both local control and regionalism.

This dream is so politically implausible that it may not even be worth discussing, and it may make sense to focus only on more modest approaches. Perhaps it makes sense to consider some regional subsidies to education that are connected to the person, rather than the place, and that can be used to help pay for private education. Alternatively, there could be a role for regional policies that make it easier for people to go to school in different jurisdictions. This is a difficult area where the case for some degree of regional action seems merited, but it's hard to determine a course that will be remotely feasible politically and helpful.

## *Transportation*

Transportation is at the other extreme from economic development. The essence of transportation is in connecting different places. No one jurisdiction has the right incentives to build connections with neighboring jurisdictions. After all, those other jurisdictions will receive benefits as well and unless those benefits are internalized, too little infrastructure will be built. Since the earliest days of the Republic, there has been some recognition of the need for national investment in infrastructure. The Eisenhower highway system is, of course, the most classic example of national investment in car-based infrastructure.

Still, there are many reasons to think that the national investment in infrastructure is an imperfect approach. Over the past 20 years, federal funding for new projects has decreased. The federal government may also be too remote from local knowledge to understand the correct forms of infrastructure investment. A regional approach to ground-based transportation may make particular sense, because the regions have more information and incentives to get things right than the federal government, but a greater ability to internalize cross-jurisdiction externalities than local governments.

While the case for regionalism in transport planning and investment is clear, it is less clear what form that transport investment should take and I will not embarrass myself by going into it here. However, it is clear that different solutions will be appropriate for different regions. The ability to specialize investments is, after all, one of the big advantages of moving to a more regional approach. For example, high speed rail is much more likely to make sense in the Northeast than in the Arizona Sun Corridor.

One particular hope that I have is that regional transportation might lead to greater adoption of congestion charging on crowded roads. For forty years, economists have argued that drivers should be charged for the costs that they impose on those around them. Today, we have ever-improving transponder technology that would make

congestion charging easy to implement. There are particular gains to congestion charges that differ by time of day.

However, the advantages of congestion charging are reduced substantially if cars don't have the right electronic technology. If this technology differs from place to place, the costs of operation will be much higher. A common regional commitment to congestion charging and a region-wide system that uses the same transponder system and that follows the same rules will reduce the operational costs of the system significantly.

### *Housing*

As in the case of education, there are advantages and disadvantages to regionalism in the case of housing policy. The case for local control is that there is a huge amount of local knowledge about both natural conditions and preferences that can be used by local planners. We have a long tradition of local control over planning and moving to a radically new system would be both jarring and wasteful of existing planning infrastructure.

On the other hand, there are many reasons to think that the current system is problematic both on empirical and theoretical grounds. As I discussed above, when bedroom suburbs make their own decisions then they tend to take into account only the interests of neighboring homeowners who are generally opposed to new building. Larger jurisdictions tend to include employers and builders who have opposing interests. The empirical track record seems to suggest that larger jurisdictions tend to be less opposed to new development, in part because they allow for representation of a wider range of interest groups.

It is certainly true that when a jurisdiction makes decisions about new construction, it imposes externalities on other areas. For example, if an area pushes prices up by restricting supply the people who currently don't live in the area but would like to are hurt by this increase in price. Employers are hurt by the need to pay more to their

employees. There may even be transportation related externalities if lack of construction in an area close to an employment center pushes new units further out. The extra driving through areas between the new area and the area close to the employment center imposes traffic costs on the towns in between.

One interesting externality occurs because new construction in one community pushes new construction elsewhere. In a perfect world, where all communities imposed taxes or regulations to perfectly correct for externalities this would not be a problem. However, if some communities do not impose barriers to new construction, then the barriers to construction in one place will inevitably lead to too much construction in another area. As I discussed above, it may be that new construction in the eastern towns of Massachusetts do create environmental costs, but if banning that construction leads to more construction in the Arizona desert, then this may actually increase the costs on the environment.

Historically, American regional growth has not been driven by differences in housing supply. Places grew because they were more economically productive or more attractive, not because zoning authorities were more permissive towards new housing. I am quite unsure whether this change is to the good, because I have seen little evidence that suggests to me that these regulatory authorities are appropriately weighing the costs and benefits of new construction. I am sure that some areas are currently too stringent and I suspect that others may be too lenient.

A regional approach to land use regulation could improve the system. There are two natural ways in which regionalism might help. In some cases, regional land use planning could reduce the costs on localities of maintaining their own land use systems. There might be some chance of reducing bureaucratic duplication which some central provision of basic land use services.

The bigger advantage from regionalism lies in the possibility of pushing localities to better internalize the costs of their land use decisions. If I am right, and communities are

making decisions that impose costs on outsiders, then regional land use planning could be used to prod local communities towards making better decisions. I suspect that this will require more than moral suasion. One approach would be to eliminate local control over land use altogether, but that seems as unlikely as moving to a voucher system in education. Moreover, it is true that localities have a great deal of local knowledge that would be lost by moving to decision-making on a larger scale.

An intermediate solution requires the region to provide carrots and sticks to induce communities to build. If it is thought that too many high price communities are permitting too little, then a point system could easily be put in place that would prod communities to build more. This point system would allocate quotas for new production on the basis of current density, prices and location. High cost areas would have a higher quota since there is more demand for their area. High density areas would have a lower quota since they presumably have less land on which to build. Areas that are more proximate to employment centers could have a higher quota.

After these quotas are established, jurisdictions would gain points to meet their quotas on the basis of how much they build. The simplest system would just allocate one point for each new housing unit. A slightly more complex system would offer higher points for homes that were socially desirable, such as housing that was accessible to public transportation or that was smaller and therefore more affordable to lower income people. Communities would gain points by building and the quotas would be subtracted from the number of points earned.

This net point total would then be connected with cash payments to the communities. One system could feature only new aid to the communities which would be allocated on the basis of the number of points earned. This system would require more aid to jurisdictions, but it would have the benefit of facing less opposition since no communities would lose aid relative to their current position.



A second system might be revenue neutral and require the jurisdictions that ended up below their quotas to take points from the jurisdictions that are above their quotas. The New Jersey system that has evolved since the Mount Laurel decision is, in a sense, a prototype for a tradable points system of this kind. The goal is to ensure that communities bear the costs of their decisions not to build and such a points system could make that happen.

Of course, to be effective in creating new housing, the system would have to create strong incentives. In greater Boston, the marginal benefit of building a unit to a community would have to be greater than 20,000 dollars for it to have any effect. I suspect the figures in Northern California would have to be even greater. The exact details of any system should surely differ from region to region, but the case for some sort of regional planning in housing seems strong.

## **VI. Conclusion**

In this paper, I have looked at the rise of regional economies and the implications of this rise. 100 years ago, urban areas were dense centers surrounded by farmland. Together, population and employment spreads from place to place. This connection has created greater regional entities that differ greatly, but share the common attribute of relatively continuous density.

The ten megaregions differ substantially in their incomes and economic productivity and they also differ in their growth rates. The older, denser regions have been declining. Growth is most dramatic in the lower density areas of the southwest and Southern Florida. These growth patterns reflect a national trend where population growth is centered not in the most attractive or productive places, but in those places that don't constrain new construction for heavy land use regulations.

In the last section of the paper, I argued that the rise of regional economies increases the value for regional coordination in some areas, but not in others. Economic development

policy seems to make more sense to continue as a local matter. Transportation planning, for example, is an obvious area where regional considerations are vital. Housing, on the other hand, increasingly needs a regional perspective since localities' decisions to block new construction is increasingly imposing costs of neighboring communities. I suggested a tradable points system that might encourage communities to internalize those costs while still respecting long-standing traditions of local control over development.

## References

- Beason, Richard and David Weinstein (1996) "Growth, Economies of Scale and Targeting in Japan (1955-1990)" *Review of Economics and Statistics* 78(2): 286-295.
- Ciccone A, Hall R.E. (1996) "Productivity and the density of economic activity," *American Economic Review* 86 (1): 54 – 70
- Glaeser, Edward L., Joseph Gyourko, and Raven Saks (2005). "Why is Manhattan So Expensive? Regulation and the Rise in House Prices" *Journal of Law and Economics* 48(2) (2005): 331-370.
- Glaeser, E. and J. Gyourko (2003) "The Impact of Building Restrictions on Housing Affordability," *Federal Reserve Bank of New York Economic Policy Review* 9(2):21-39.
- Glaeser, Edward L., Kahn, Matthew and Jordan Rappaport (2007) "Why do the poor live in cities?" *Journal of Urban Economics*, forthcoming.
- Glaeser, Edward L. and Matthew Kahn (2004) "Sprawl and Urban Growth," in *The Handbook of Regional and Urban Economics*, Volume 4 (V. Henderson and J. Thisse, eds.), North Holland Press.
- Glaeser, Edward L. and Matthew Kahn (2001) "Decentralized Employment and the Transformation of the American City," *Brookings-Wharton Papers on Urban Affairs* 2 (2001).
- Glaeser, Edward L. and Janet E. Kohlhase (2004) "Cities, Regions and the Decline of Transport Costs," *Papers in Regional Science* 83(1): 197-228.
- Glaeser, Edward L., Kolko, Jed and Albert Saiz (2001) "Consumer City," (joint with J. Kolko and A. Saiz), *Journal of Economic Geography* 1: 27-50.
- Glaeser, Edward L. and David Mare (2001) "Cities and Skills," *Journal of Labor Economics* 19(2) (2001): 316-342.
- Glaeser, Edward L. and Albert Saiz (2004) "The Rise of the Skilled City," (joint with A. Saiz), *Brookings-Wharton Papers on Urban Affairs* 5: 47-94.
- Glaeser, Edward L. and Jesse Shapiro (2003) "Urban Growth in the 1990s: Is City Living Back?," (joint with J. Shapiro), *Journal of Regional Science* 43(1): 139-165.
- Glaeser, Edward L. and Bryce Ward (2006) "The Causes and Consequences of Land Use Regulation: Evidence from Greater Boston," NBER Working Paper # 12601.

- Greenstone, Michael and Enrico Moretti (2003) "Bidding for Industrial Plants: Does Winning a 'Million Dollar Plant' Increase Welfare?" NBER Working Paper # 9844.
- Gyourko, Joseph and Albert Saiz (2004) "Reinvestment in the housing stock: the role of construction costs and the supply side" *Journal of Urban Economics* 55(2):238-256.
- Holmes, Thomas J. (1998) "The effects of state policies on the location of industry: Evidence from state borders," *Journal of Political Economy* 106 (4): 667 – 705
- Hoxby, Caroline M. (2001) "All School Finance Equalizations Are Not Created Equal," *Quarterly Journal of Economics*, 116 (4).
- Hoxby, Caroline M. (2000) "Does Competition Among Public Schools Benefit Students and Taxpayers?" *American Economic Review*, 90 (5).
- Katz, L. and K.T. Rosen (1987) "The Interjurisdictional Effects of Growth Controls on Housing Prices," *Journal of Law and Economics* 30(1): 149-160.
- Jakobovics, A. (2006) "Housing Affordability Initiative: Land Use Research Findings" <http://web.mit.edu/cre/research/hai/land-use.html>
- Logan, John and Harvey Molotch (1988) *Urban Fortunes*. Berkeley: University of California Press.
- Margo, Robert (1992) "Explaining the Postwar Suburbanization of the Population in the United States; the Role of Income". *Journal of Urban Economics* 31: 301-310.
- Moretti, Enrico (2004) "Estimating the Social Return to Higher Education: Evidence From Longitudinal and Repeated Cross-Sectional Data," *Journal of Econometrics* 121 (1-2).
- Rauch, James E. (1993) "Productivity gains from geographic concentration of human capital: Evidence from the cities," *Journal of Urban Economics* 34 (3): 380 – 400
- Regional Plan Association (2006) "America 2050: A Prospectus," New York.

**Table 1:  
Distribution of Population Across Counties of Different Density Levels**

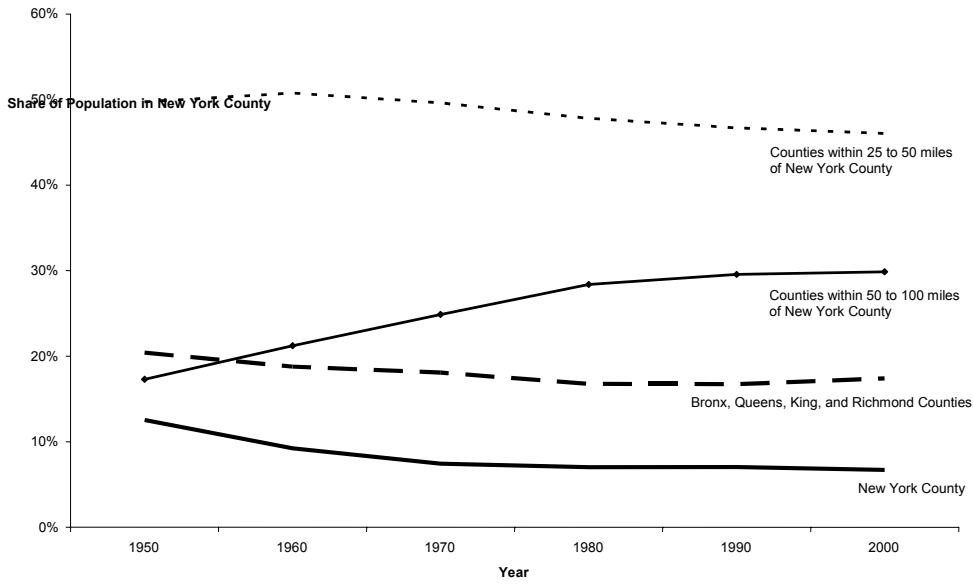
	<b>Share of the Population in the Least Dense Counties</b> (bottom 50 percentile)  (less than 33 people per sq. mile)	<b>Share of the Population in the Low Mid-Density Counties</b> (51-75th percentiles)  (33 to 59 people per sq. mile)	<b>Share of the Population in the High Mid-Density Counties</b> (76-90th percentiles)  (60 to 144 people per sq. mile)	<b>Share of the Population in the Dense Counties</b> (91-99th percentiles)  (145 to 3670 people per sq. mile)	<b>Share of the Population in the Densest Counties</b> (top 1 percentile)  (more than 3670 people per sq. mile)
1950	14%	13%	16%	42%	15%
1960	13%	12%	16%	46%	13%
1970	12%	11%	16%	48%	12%
1980	14%	12%	18%	46%	10%
1990	14%	13%	18%	46%	9%
2000	15%	14%	19%	44%	8%

**Table 2: Characteristics of Megaregions in 2000**

	Income	Share College	Housing Values	Commute Time	Density Level
Northeast	\$70,158	30%	\$176,431	26.5	265
Northern California	\$70,122	30%	\$176,431	26.5	265
Southern California	\$61,777	24%	\$133,824	27.0	352
Cascadia	\$60,076	28%	\$134,489	24.4	158
Midwest	\$59,230	24%	\$100,781	23.2	264
Texas Triangle	\$58,881	25%	\$73,967	25.7	193
Piedmont	\$56,955	25%	\$93,783	25.0	253
Arizona Sun Corridor	\$56,845	25%	\$100,130	24.7	93
Southern Florida	\$55,563	22%	\$93,366	25.2	397
Outside Megaregions	\$50,737	20%	\$82,838	21.3	32
Gulf Coast	\$45,506	18%	\$65,725	23.3	146

Note: All data from the 2000 U.S. Census.

**Figure 1: Decline of the Share of the Population in New York County**



**Figure 2: Decline of the Share of the Population in Cook County**

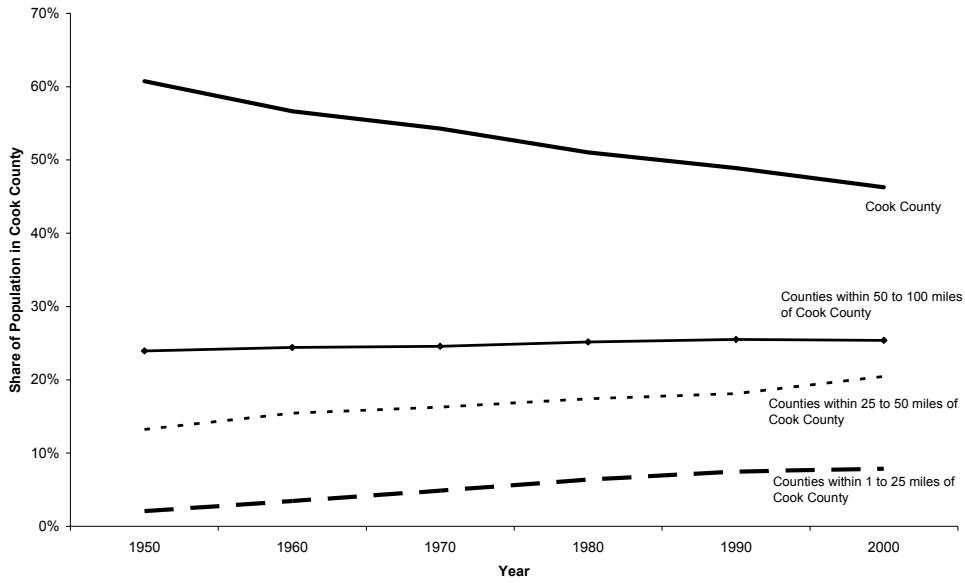


Figure 3: Decline of the Share of the Population in Los Angeles County

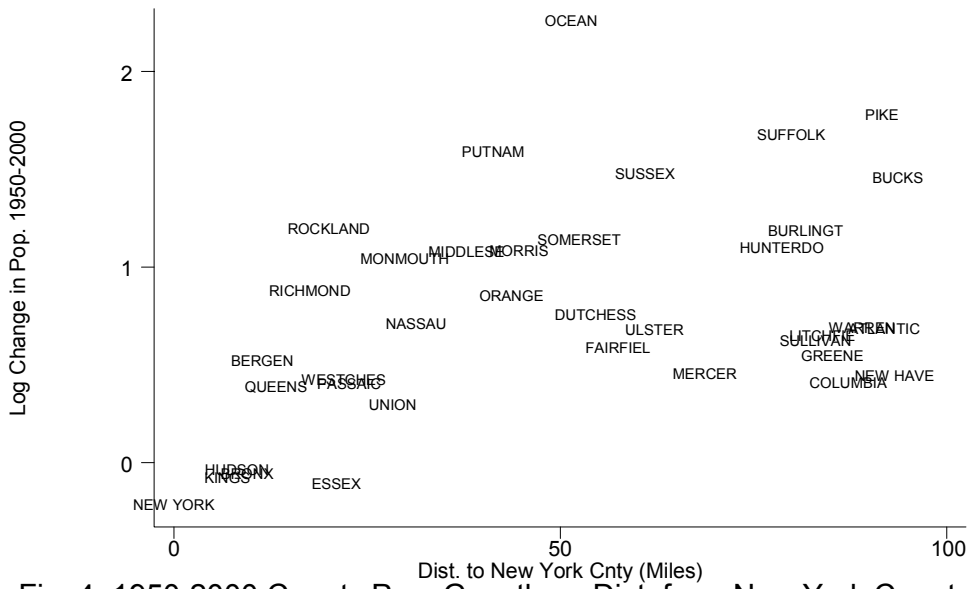
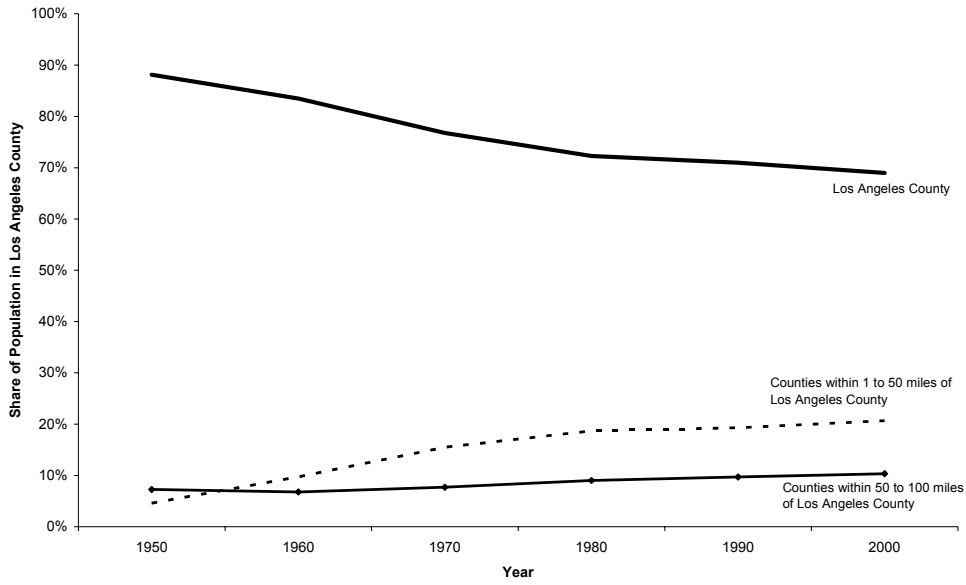


Fig. 4: 1950-2000 County Pop. Growth on Dist. from New York County



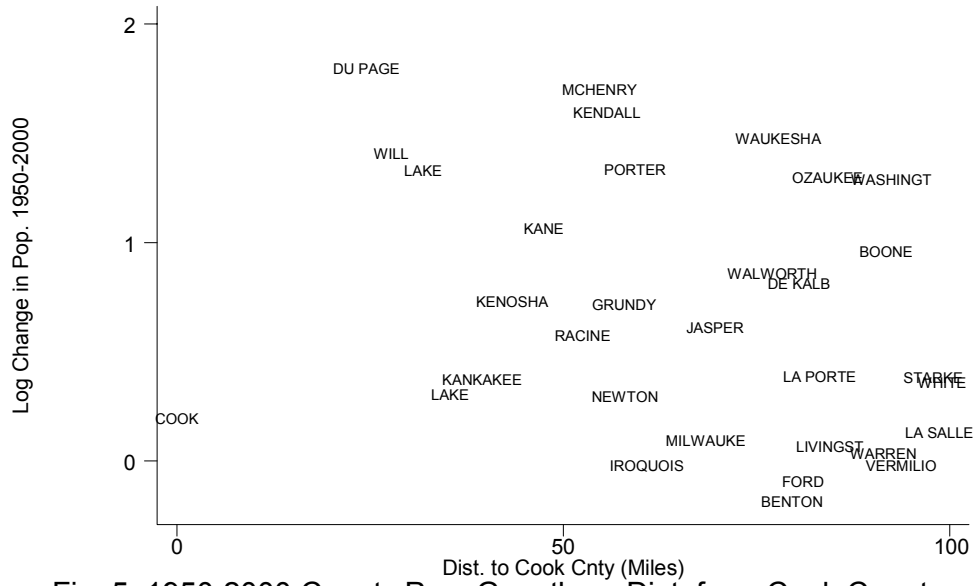


Fig. 5: 1950-2000 County Pop. Growth on Dist. from Cook County

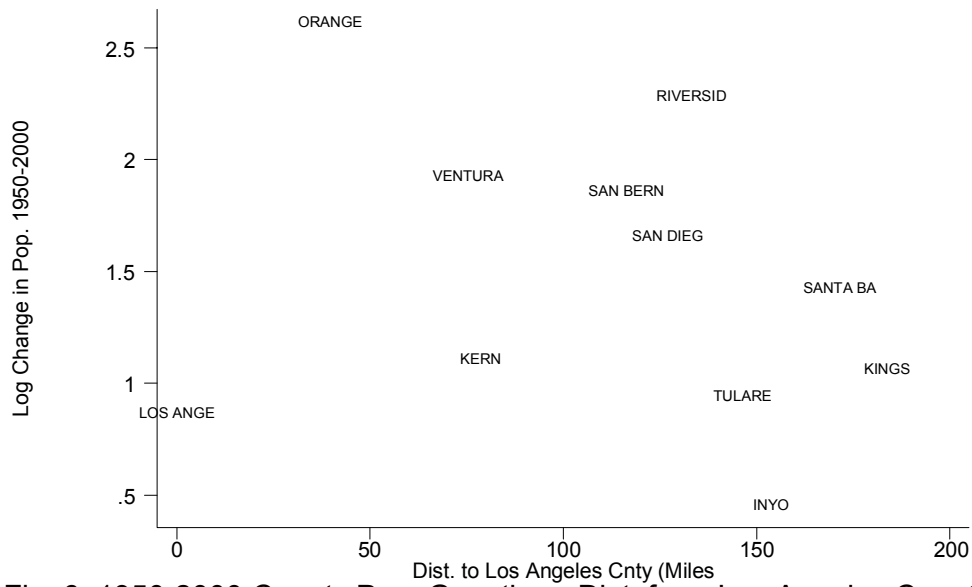


Fig. 6: 1950-2000 County Pop. Growth on Dist. from Los Angeles County

Figure 7: Population Living and Employed Persons Working at Various Distances from a Central Business District

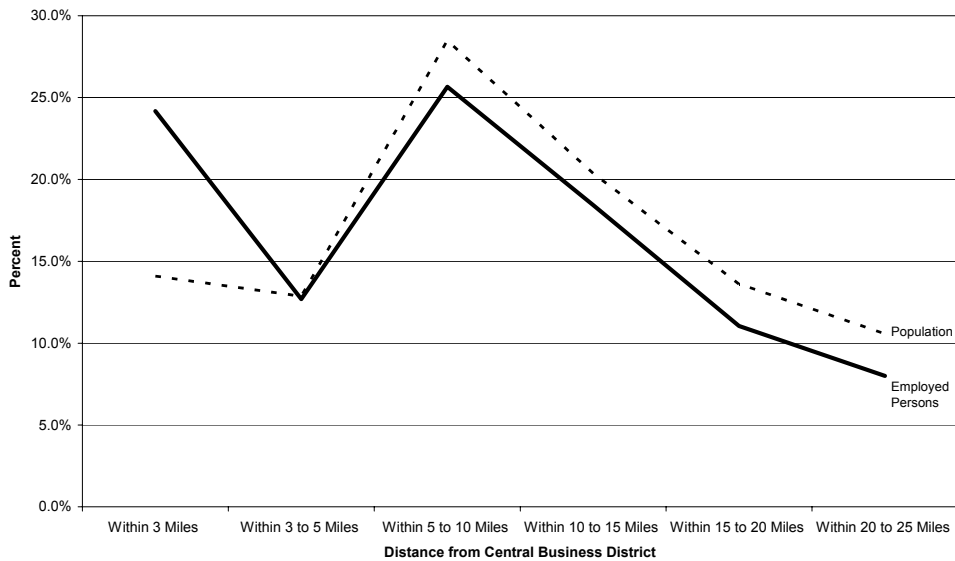


Figure 8: Employment Centralization Across MSAs

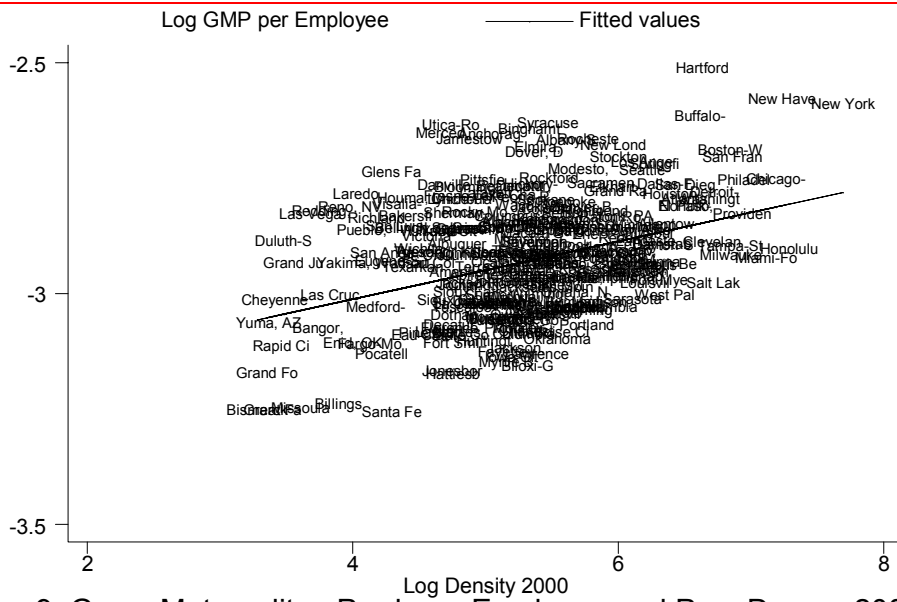
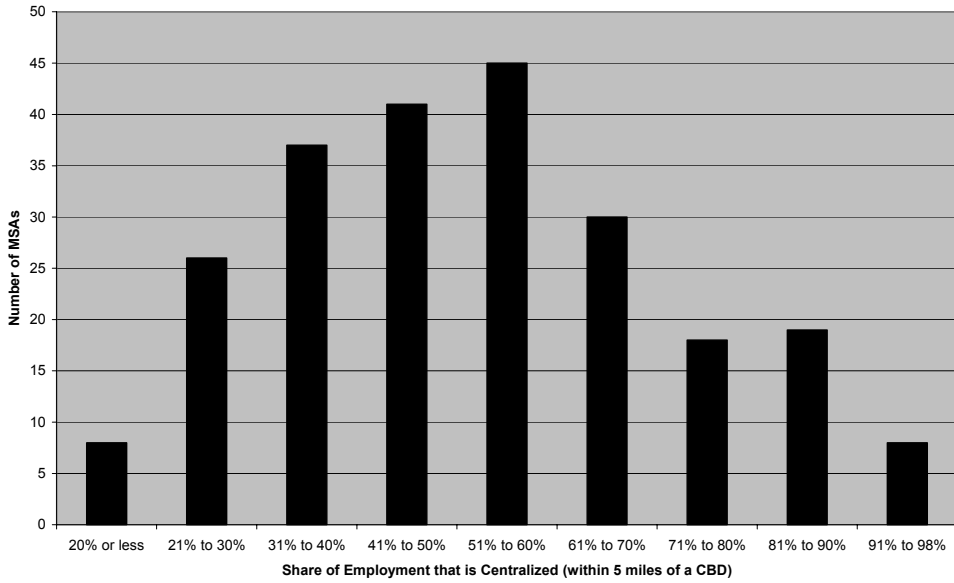


Figure 9: Gross Metropolitan Prod. per Employee and Pop. Dens. - 2000

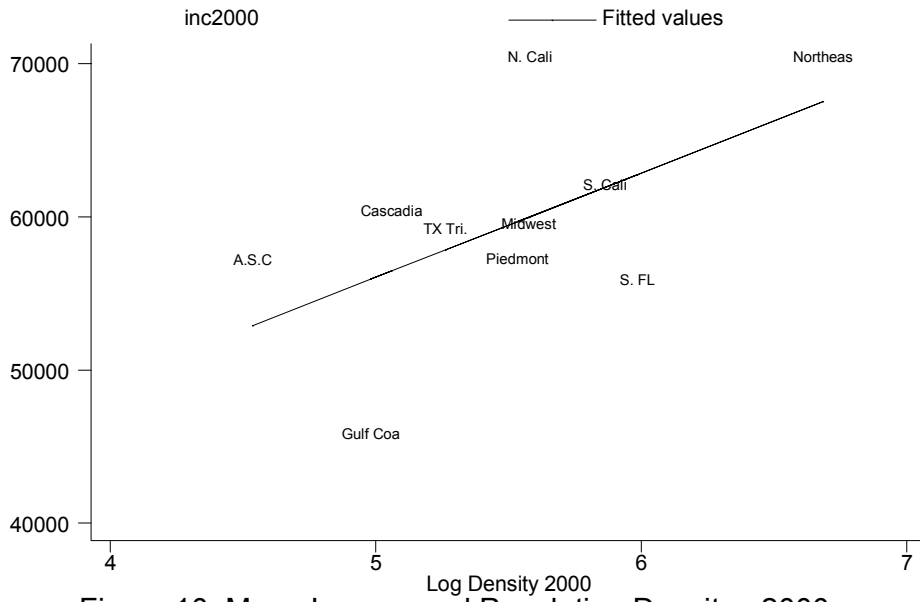


Figure 10: Mean Income and Population Density - 2000

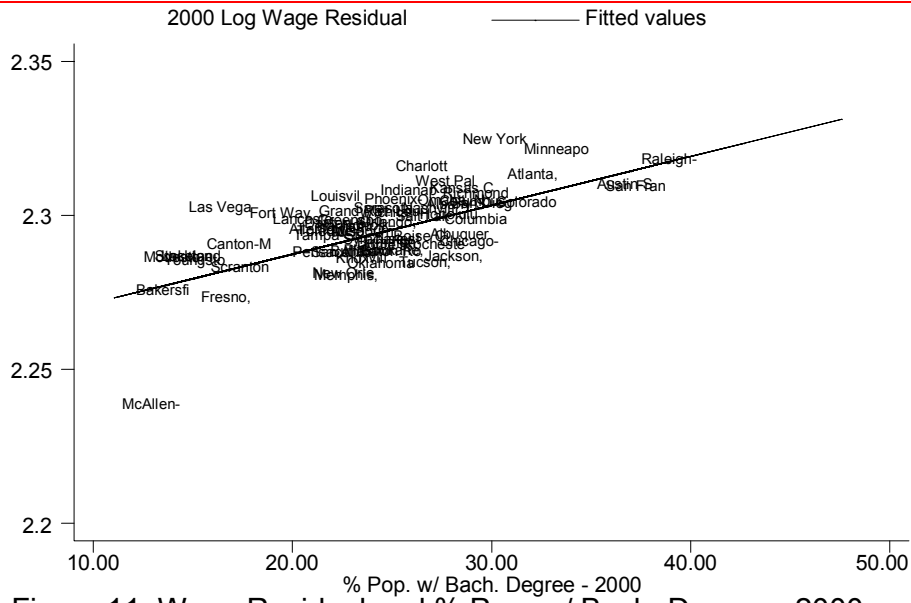


Figure 11: Wage Residual and % Pop. w/ Bach. Degree - 2000

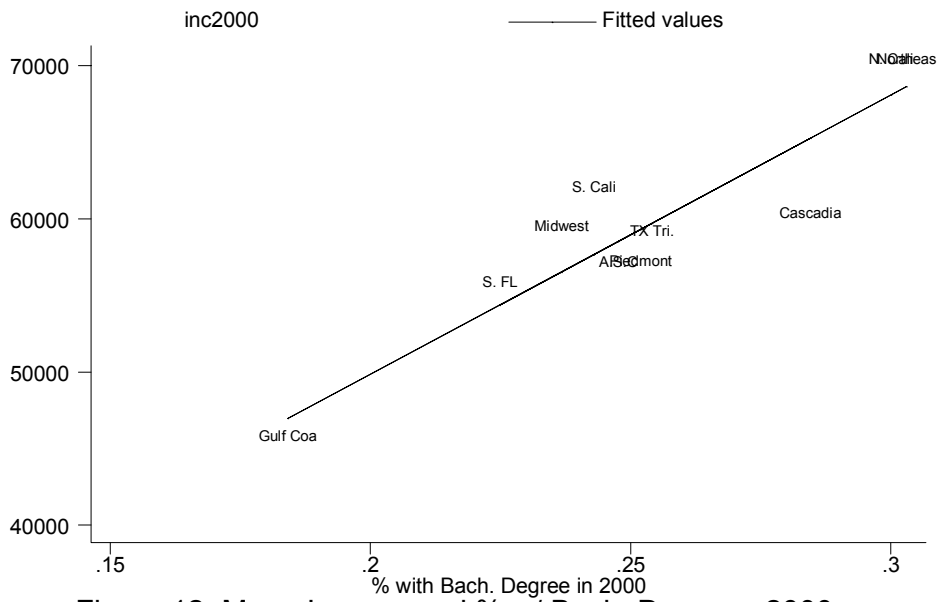


Figure 12: Mean Income and % w/ Bach. Degree - 2000

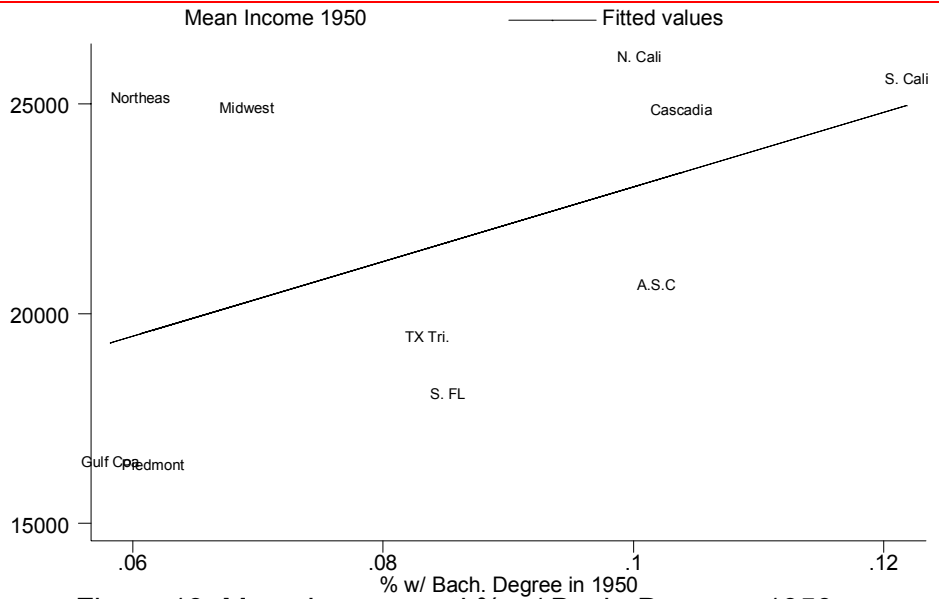


Figure 13: Mean Income and % w/ Bach. Degree - 1950

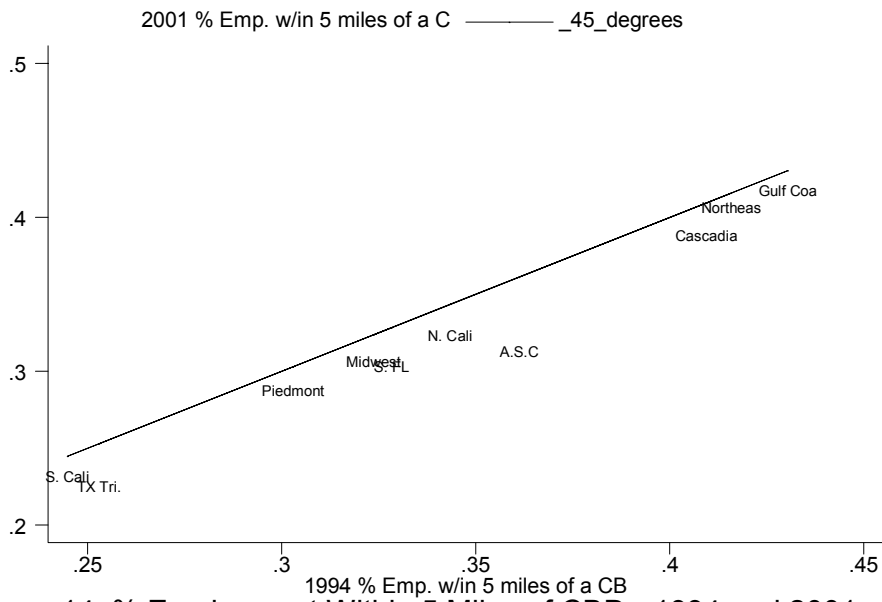


Figure 14: % Employment Within 5 Miles of CBD - 1994 and 2001

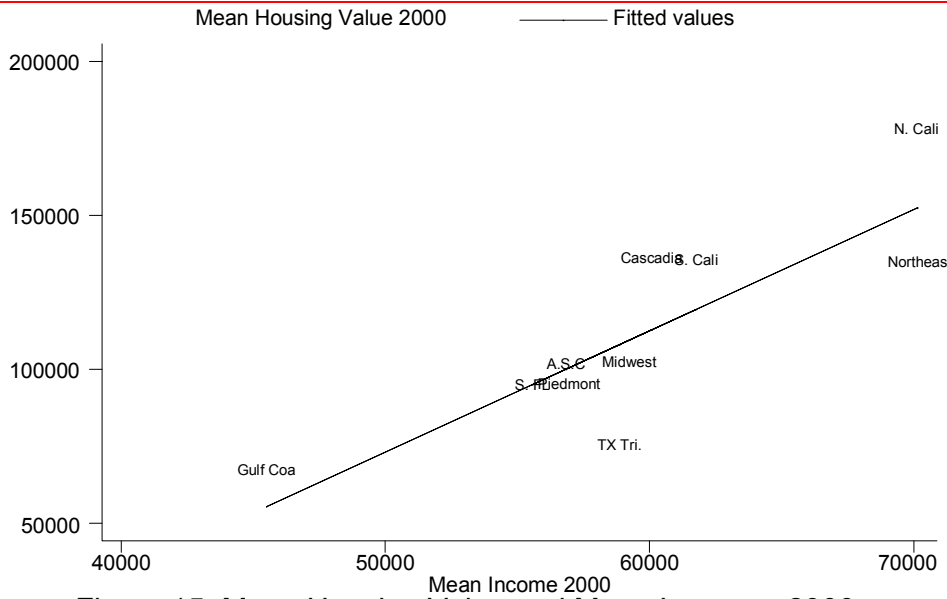
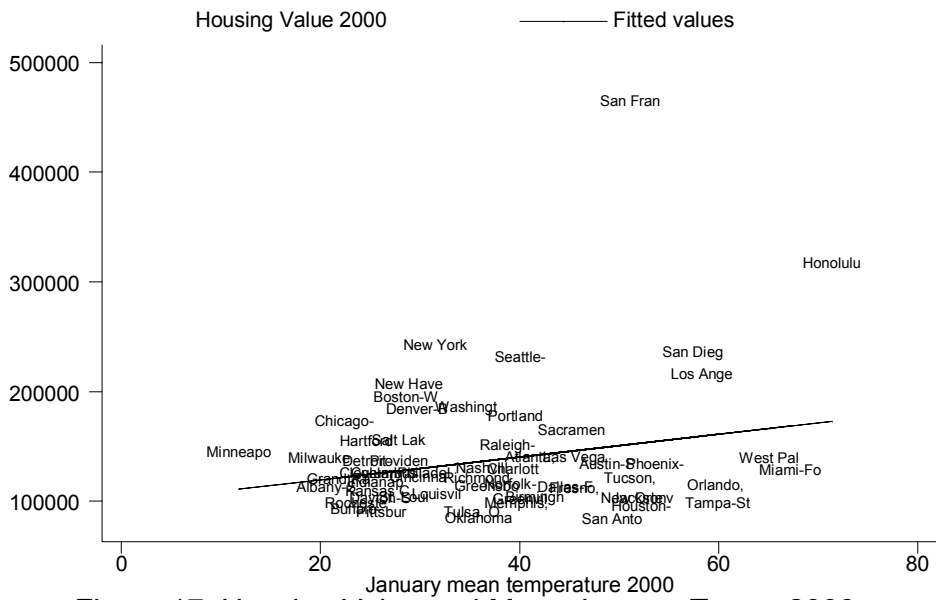
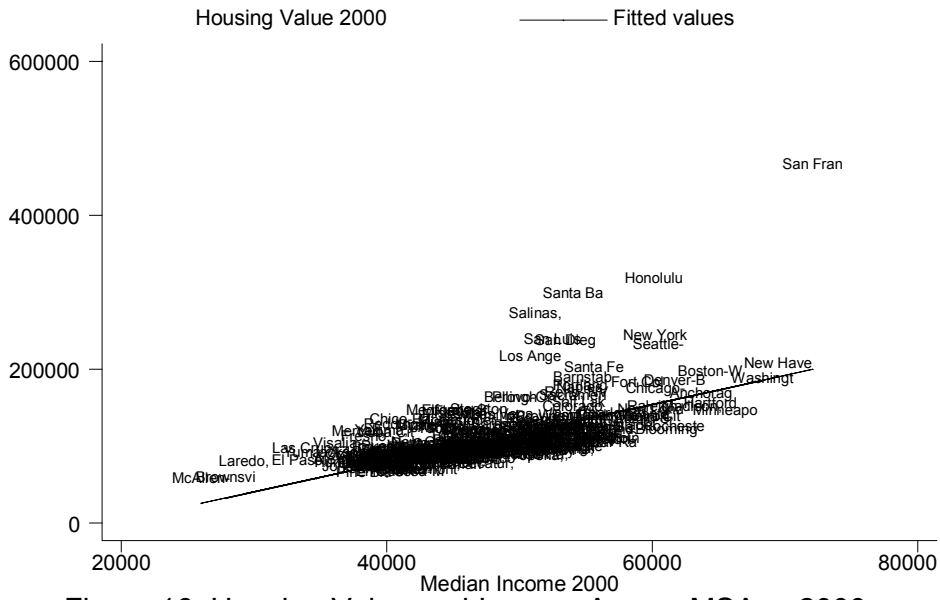


Figure 15: Mean Housing Value and Mean Income - 2000



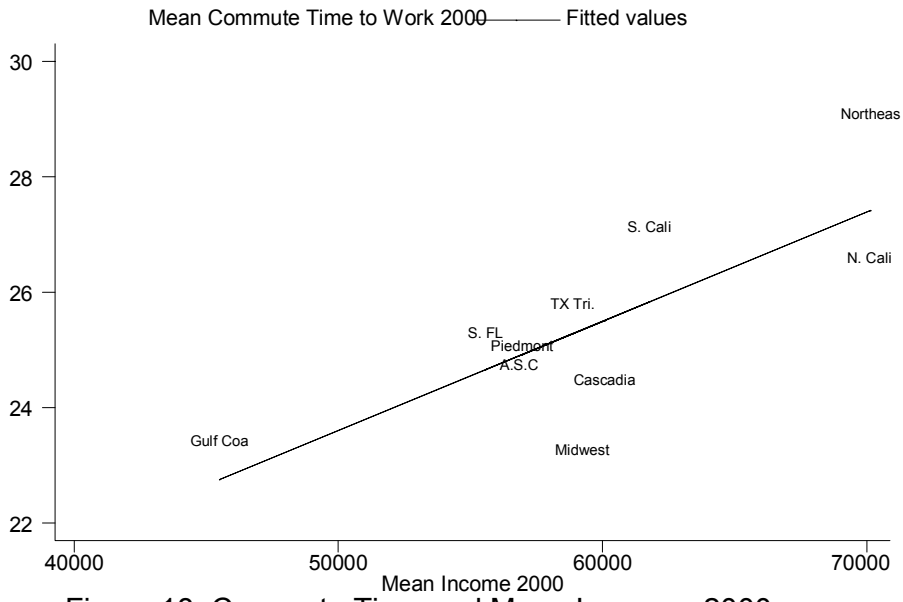


Figure 18: Commute Time and Mean Income - 2000

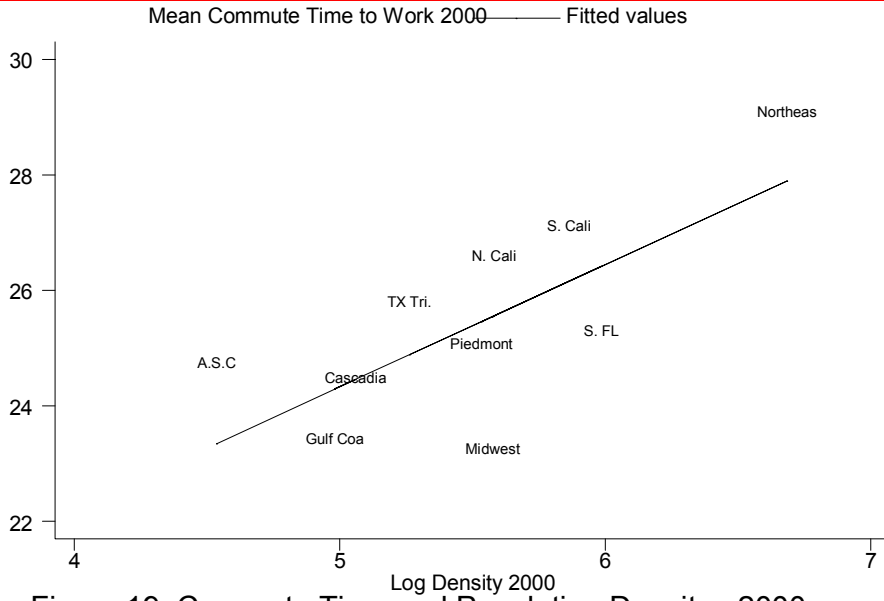


Figure 19: Commute Time and Population Density - 2000



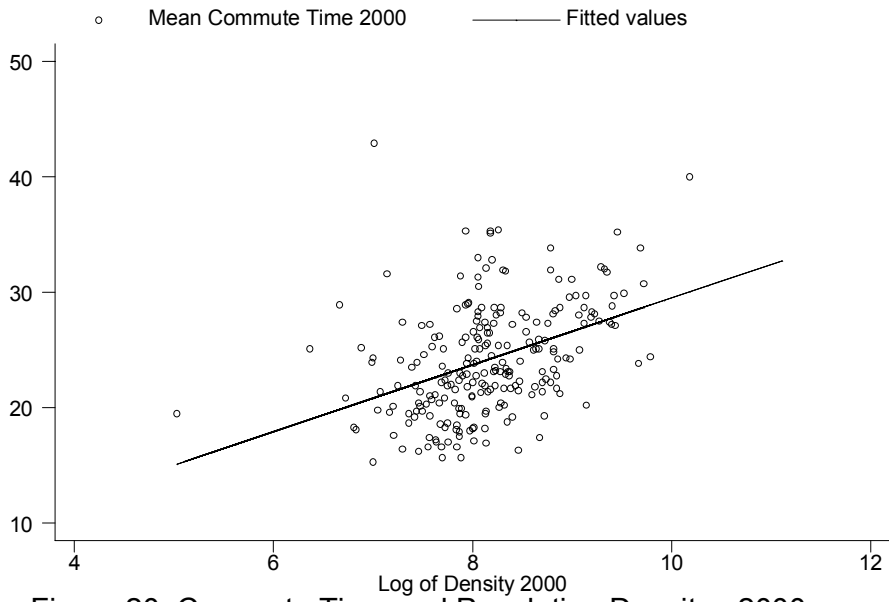


Figure 20: Commute Time and Population Density - 2000

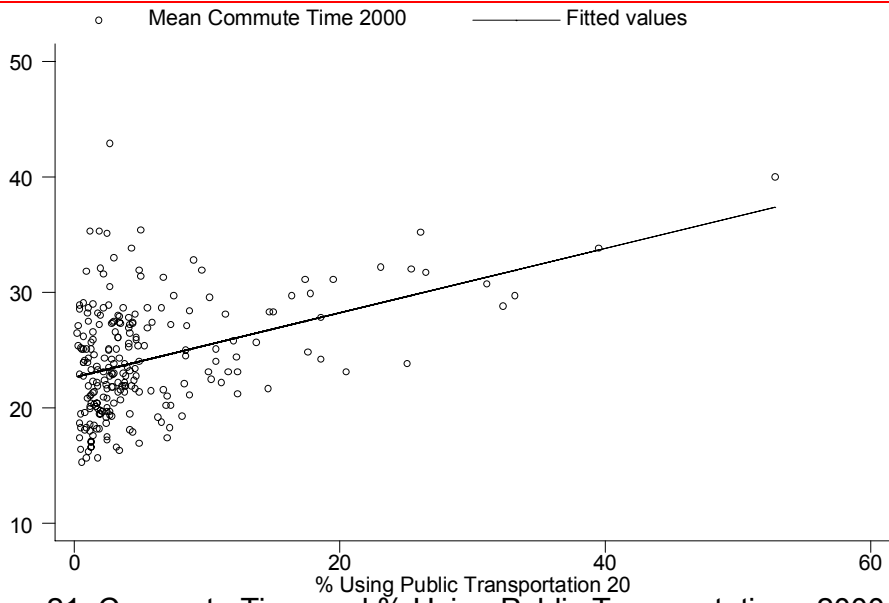


Figure 21: Commute Time and % Using Public Transportation - 2000

Figure 22:  
Share of Population in the Northeast and Midwest Megaregions  
1950-2000

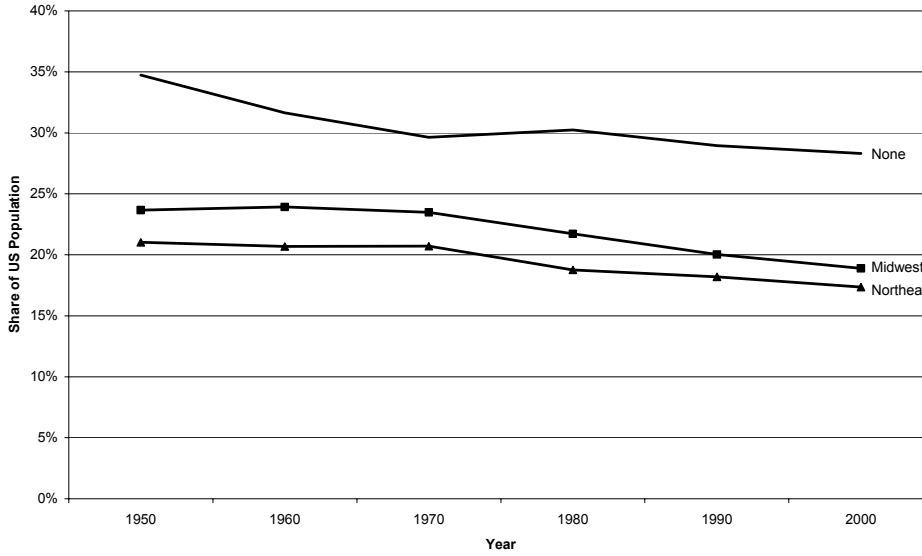
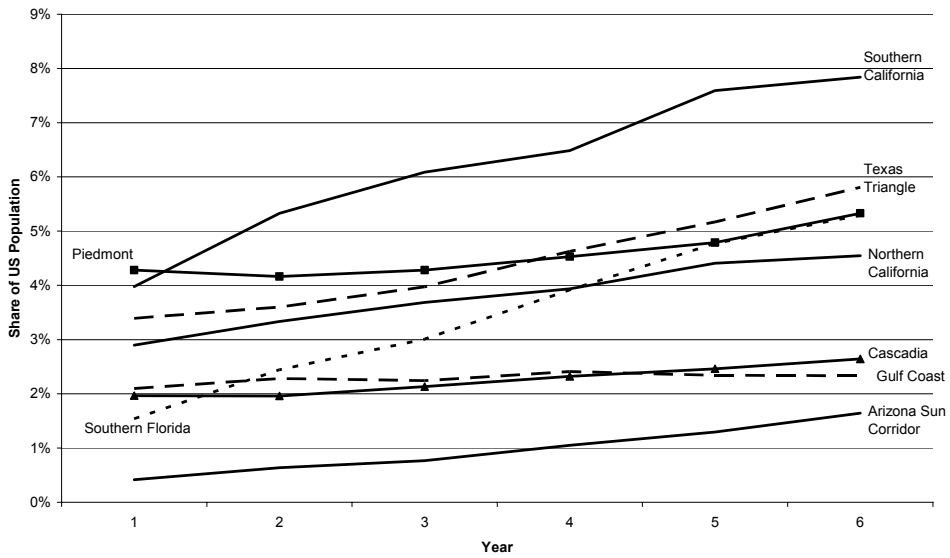
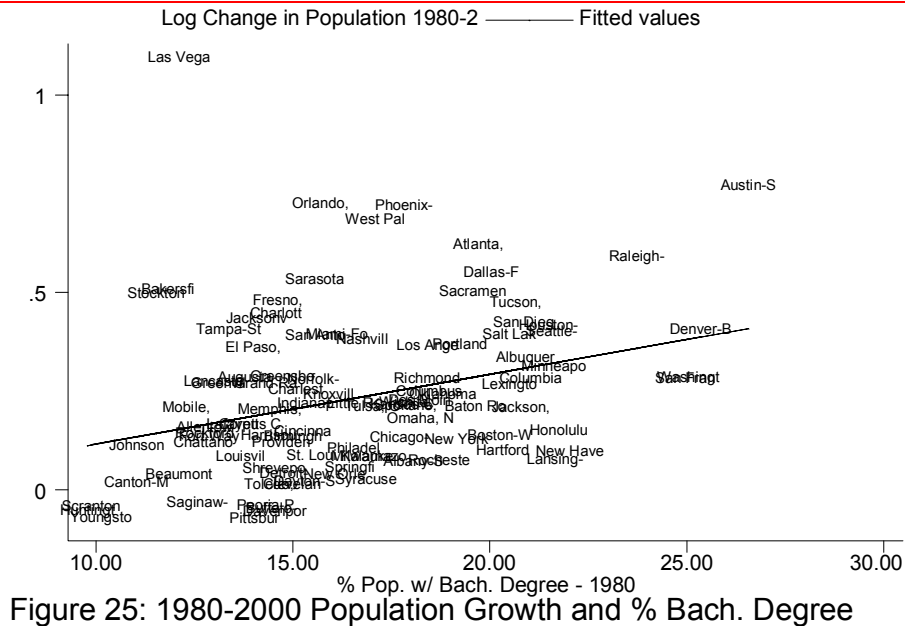
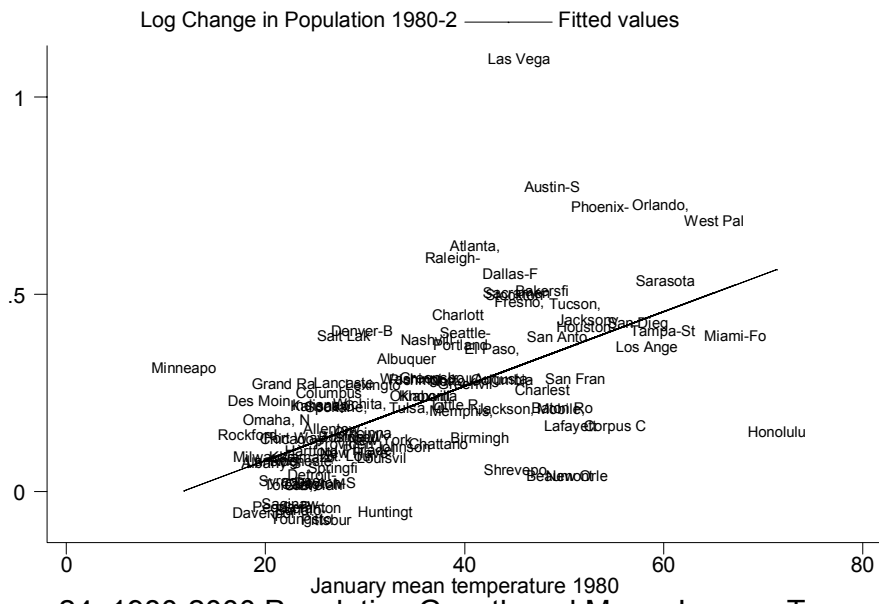
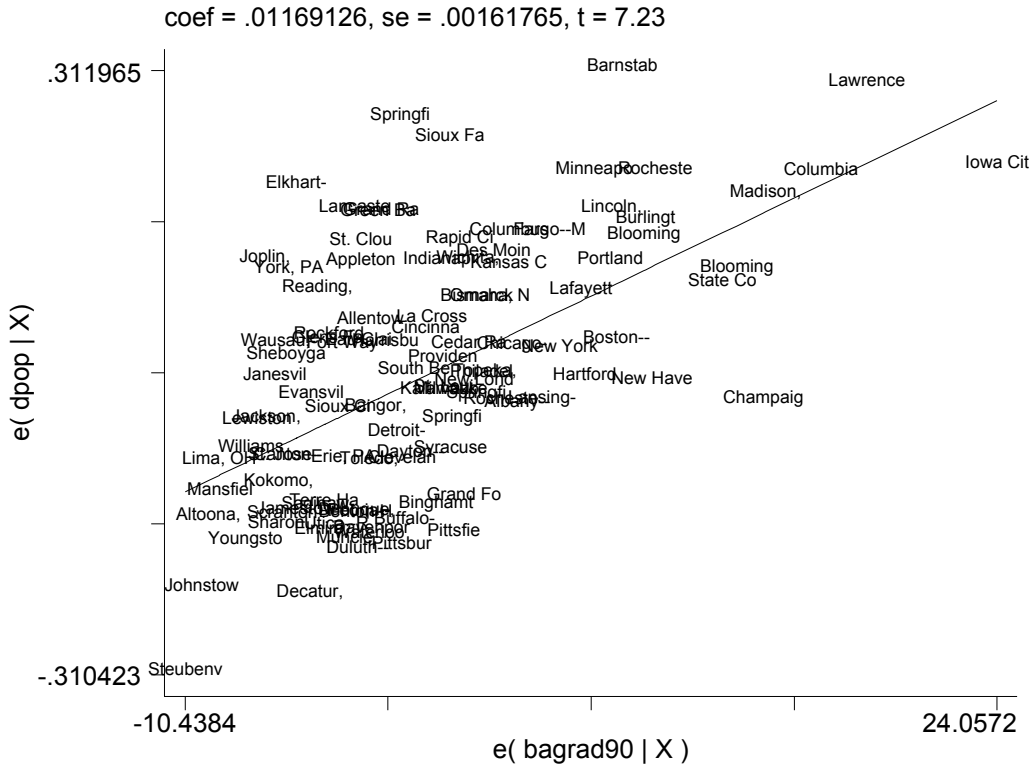


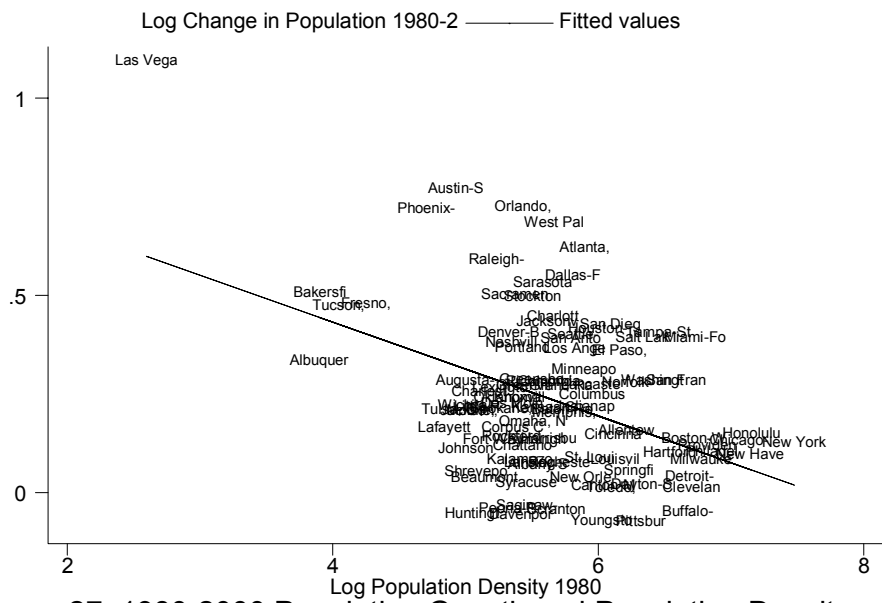
Figure 23:  
Share of Population in the Arizona Sun Corridor, Cascadia, Gulf Coast, Northern California, Piedmont, Southern California, Southern Florida, and Texas Triangle Megaregions  
1950-2000







**Figure 26: 1990-2000 Growth and % Bachelor Degree in the Northeast and Midwest**



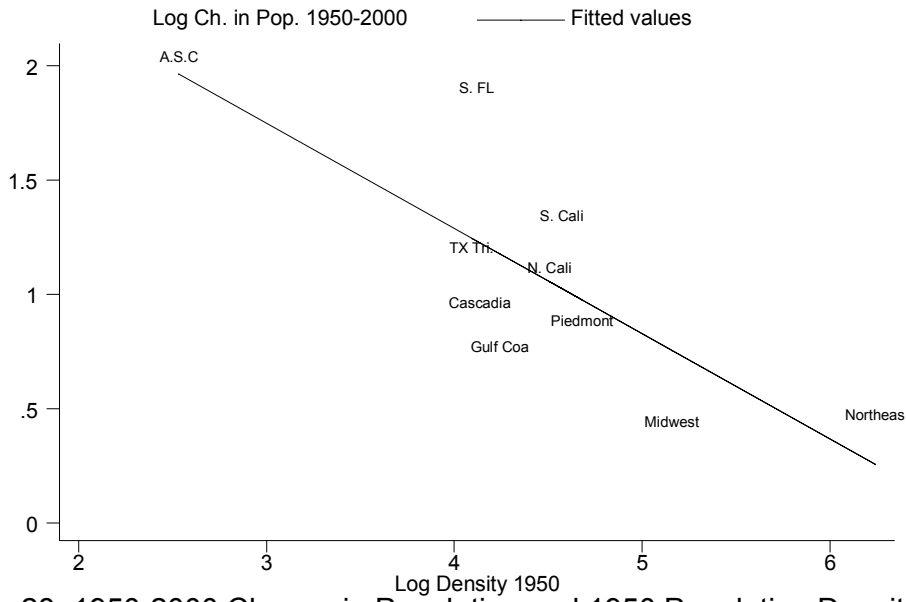


Figure 28: 1950-2000 Change in Population and 1950 Population Density

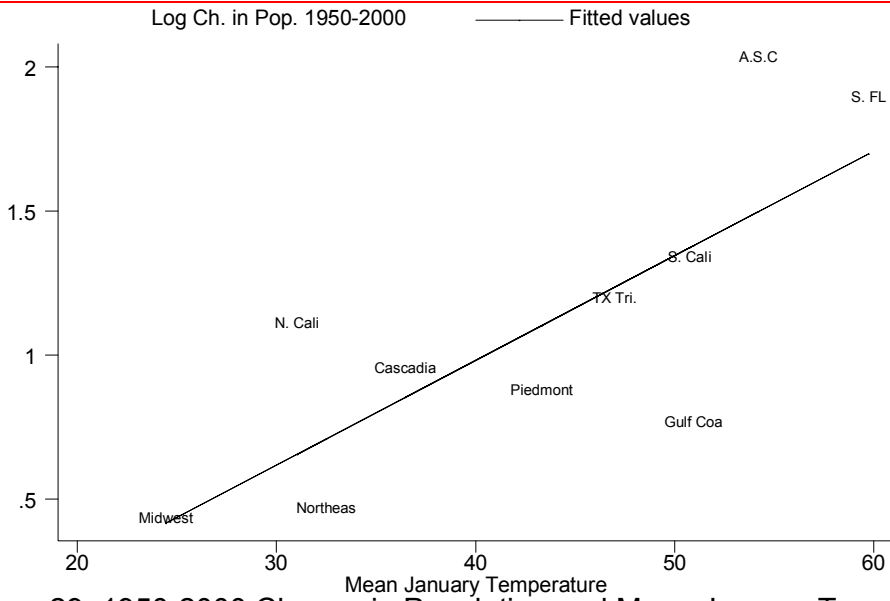


Figure 29: 1950-2000 Change in Population and Mean January Tmp.

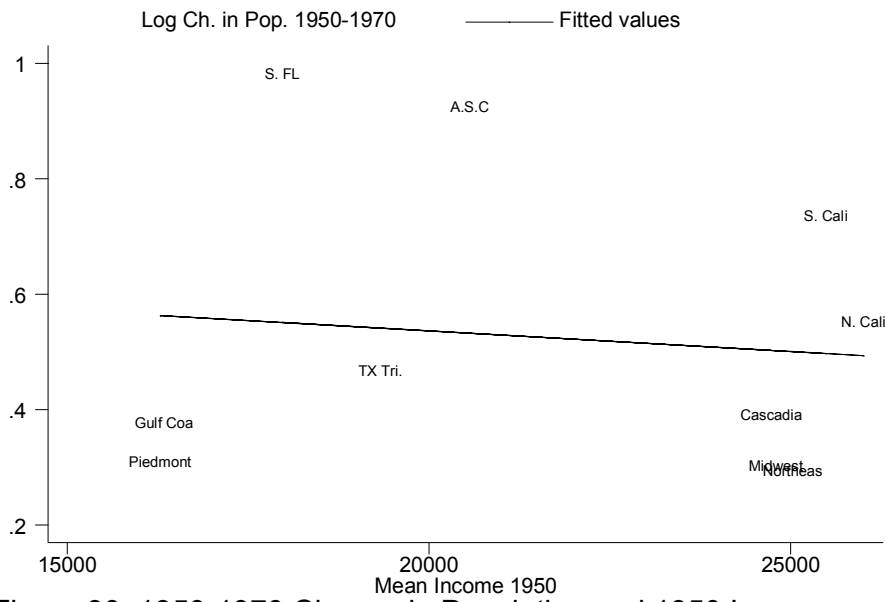


Figure 30: 1950-1970 Change in Population and 1950 Income

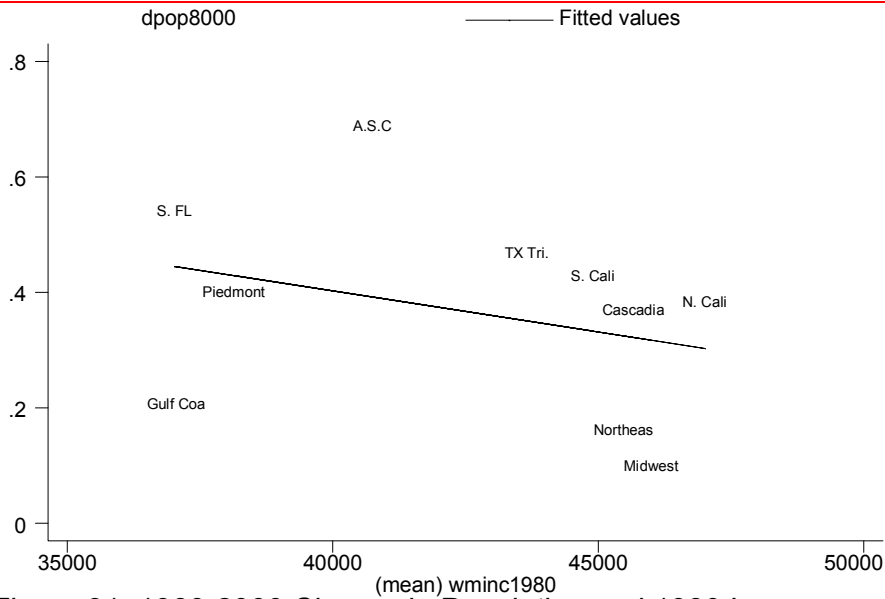


Figure 31: 1980-2000 Change in Population and 1980 Income

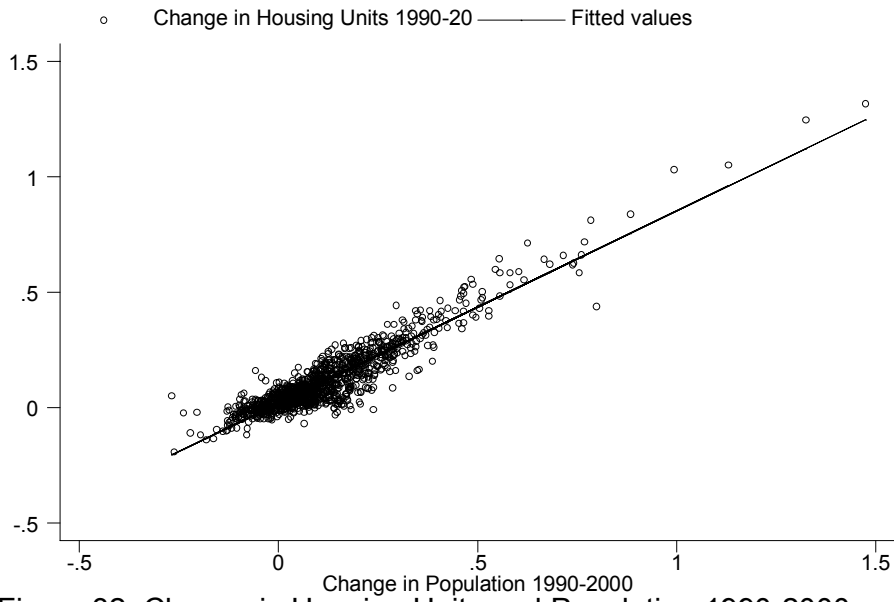


Figure 32: Change in Housing Units and Population 1990-2000

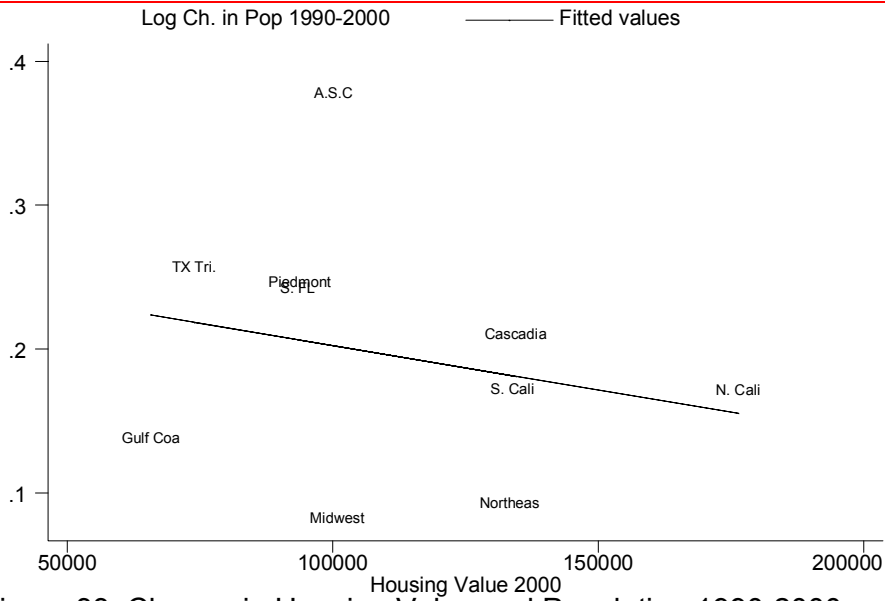
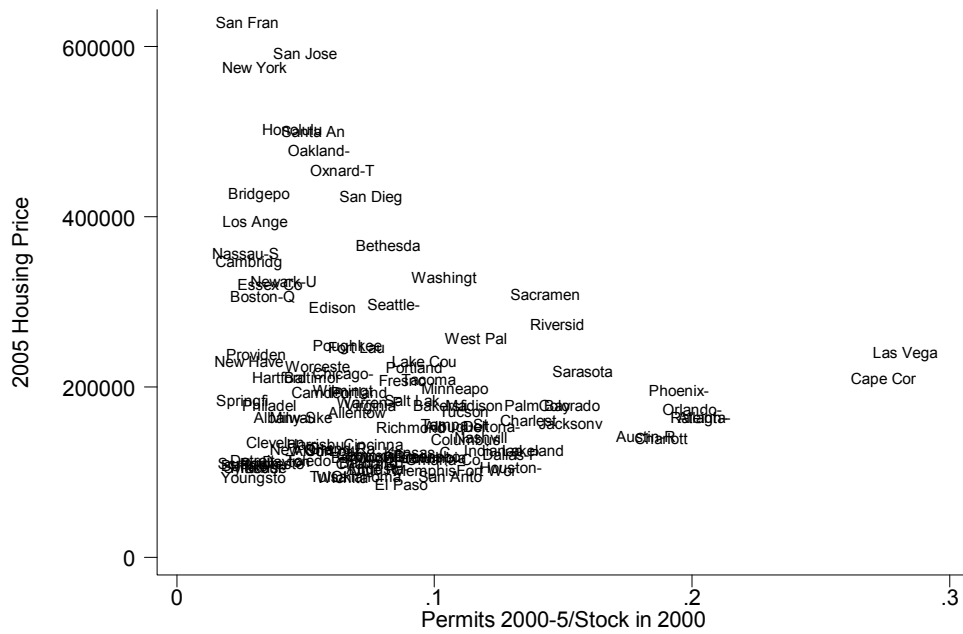
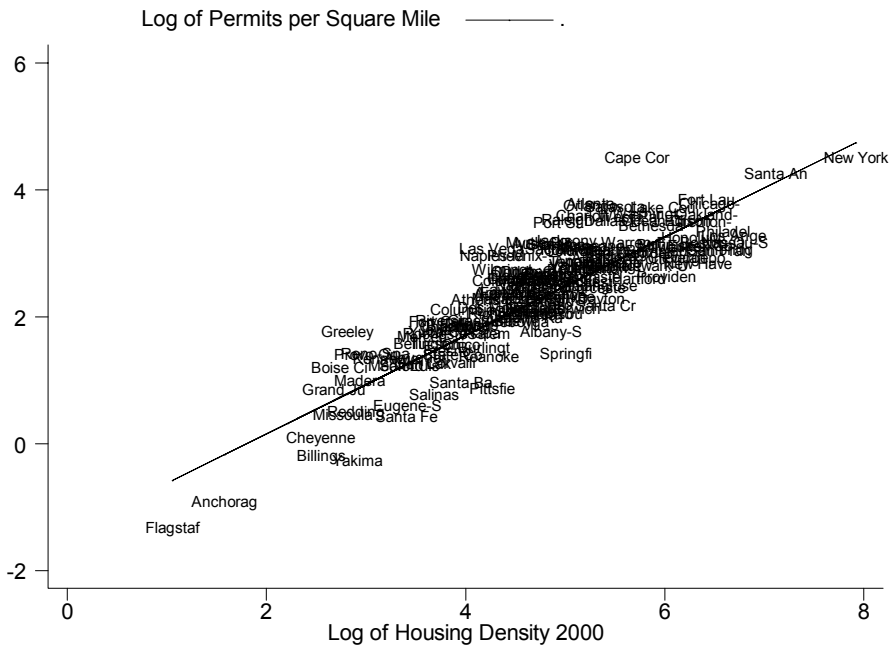


Figure 33: Change in Housing Value and Population 1990-2000

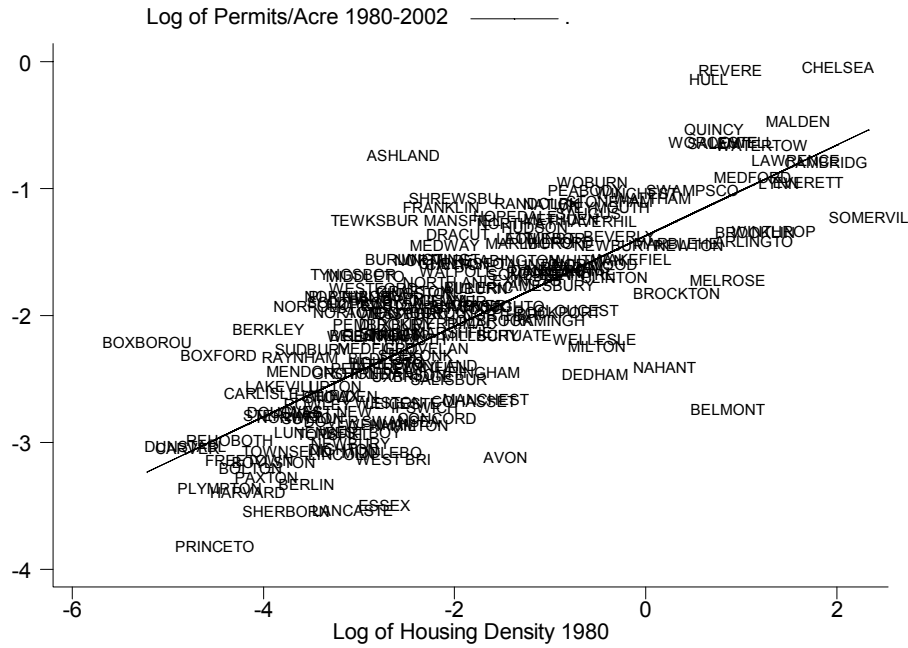




**Figure 34: Prices in 2005 and Permits 2000-2005 Across Metropolitan Areas**



**Figure 35: Permits 2000-2005/Square Mile in 2000 and Density in 2000**



**Figure 36: Permits 1980-2002/Square Mile in 1980 and Density in 1980 in Greater Boston**

