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Abstract

Cities make it easier for humans to interact, and one of the main advantages of dense, urban areas is that they facilitate social interactions. This paper provides evidence suggesting that the resurgence of big cities in the 1990s is due, in part, to the increased demand for these interactions and due to the reduction in big city crime, which had made it difficult for urban residents to enjoy these social amenities. However, while density is correlated with consumer amenities, we show that it is not correlated with social capital and that there is no evidence that sprawl has hurt civic engagement.

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I. Introduction

Over the past 50 years, the automobile has dramatically changed the world's urban landscape. Traditional dense walking cities have been replaced by cities designed entirely around the automobile. These new cityscapes look completely unlike earlier ones because they are so much less dense—a result of the form of transportation they exploit. The car demands a physically large city because driving and parking require vast amounts of space and the car's nature permits low-density living. As the car supplanted previous technologies, traditional cities fell into a spiral of decline and seemed doomed to increasing obsolescence.¹

With this backdrop, the remarkable resurgence of a number of big cities in the 1990s is quite remarkable. In the United States, New York, Chicago and Boston have all experienced remarkable decades relative to their recent past. London has also had a turnaround since the 1970s. There are two main explanations for this turnaround. First, over the past 20 years there has been a remarkable increase in the importance of knowledge in the economy and the biggest, densest cities appear to have a comparative advantage in facilitating the flow of knowledge. Second, over the past 20 years the desire of consumers to live in these cities has increased enormously as a result of changes in style of government, improvements in law enforcement technology, and rising incomes that have raised demand for high-end urban amenities.

In Part II of this paper, we review the basic facts of urban resurgence. Since 1980, urban housing prices have risen, sometimes dramatically. Urban incomes have done moderately well and population levels stabilized after the dismal 1970s. There is clear evidence for a widespread resurgence, but population levels are still rising faster in the car-oriented Sunbelt than in traditional urban areas. Moreover, the evidence suggests that when we adjust for costs of living, real wages have been falling in dense urban areas.

¹ Transportation technologies are not the only force shaping urban form; land use regulation and production technologies are also important. Still, the available evidence strongly supports the primacy of the automobile in the dispersal of population and employment (Glaeser and Kahn, 2004).

Standard economic theory tells us that this means that urban resurgence is not primarily the result of rising urban productivity. Instead, falling relative real wages is better seen as evidence for an increased desire of people to live in urban areas. Big cities are having a renaissance as places of consumption, not production.

In Part III, we turn to the social aspects of dense urban centers. More specifically, we look at whether the urban edge in facilitating social contact has played a role in the renaissance of many of the largest cities. Urban proximity facilitates both positive and negative social interactions. Positive social interactions include the fun of meeting people or going out to concerts, museums and other activities more readily available in urban areas, and the city's important role as a marriage market. Negative social interactions include crime, the spread of disease through close physical proximity, and congestion. Urban success depends, in part, on the positive social interactions outweighing the negative interactions.

Since 1980, crime rates have fallen dramatically. This decline can potentially explain as much as one-third of rising housing prices in some cities (Schwartz, Susin and Voicu, 2003). The effect of declining crime rates on population levels is likely to be much smaller. We provide evidence on the greater tendency of people in cities to go to restaurants, concerts, museums and bars. All of these activities rise with income and most rise with education. As such, one plausible hypothesis is that urban resurgence can be understood as reflecting the rising demand for urban amenities caused by rising income and education levels nationwide.²

In the final section of this paper, we turn to the question of whether car-based living, or sprawl, as it is sometimes called, is destroying the social fabric of this country. Putnam (2000) argues that “the residents of large metropolitan areas incur a ‘sprawl civic penalty’ of roughly 20 percent on most measures of community involvement.” In fact, the data do not show any negative link between social capital and conventional concepts of sprawl.

² This hypothesis requires the income elasticity of demand for local amenities to be positive, which is shown by DiPasquale and Kahn (1999).

To be sure, there is no doubt that people who live in towns with less than 50,000 residents or rural areas are more likely to join social groups than those who live in bigger cities or their suburbs. But comparing small towns to metropolitan areas sheds no light on anything resembling the conventional concept of sprawl—low-density or car-based living within metropolitan areas. Big metropolitan areas are not sprawl and small towns are not the opposite of sprawl. In fact, it is small towns that have the lower population densities and greater automobile ownership usually associated with sprawl.³ Consequently, Putnam’s finding that social capital is higher in small towns does not mean that there is a “sprawl civic penalty.”

If anything, civic participation appears to decline in dense communities and rise in the suburbs. Putnam suggests that sprawl is an enemy because of longer commute times, but low-density/car-based living is associated with shorter, not longer commutes. Putnam’s language appears to give support to the view of some opponents of sprawl that suburbs are bad for social connection, but Putnam (1996) describes the evidence correctly: “even taking into account the educational and social backgrounds of those who have moved there, the suburbs have faintly higher levels of trust and civic engagement than their respective central cities, which should have produced growth, not decay, in social capital over the last generation.” As this quotation suggests, there is no evidence suggesting that discouraging medium-density, car-based living will improve social capital and there is some evidence to suggest the contrary.

II. Understanding the Resurgent City

We begin with an overview of facts about the resurgent city. We first recapitulate two essential elements of spatial economics. First, migration across cities ensures that cities that are more attractive along one dimension (e.g. having higher wages) are less attractive along some other dimension (e.g. having worse weather). This principle lies beyond the hedonic literature (e.g. Rosen, 1979) that estimates the value of urban amenities. Second, mobility of firms ensures that cities that provide one kind of producer advantage (like

³ The correlation between city population and car ownership per capita in the 2000 census was -.33.

high productivity) will have other production disamenities (like workers who demand high wages). This framework tells us simultaneously that high nominal wages imply high levels of productivity, and that high real wages (wages controlling for cost of living) implies consumer disamenities. If the high nominal wages weren't accompanied by high productivity, then the firms would leave. If the high real wages weren't accompanied by offsetting disamenities, then workers would flock to the city.

A large body of empirical work, like Roback (1982) and Gyourko and Tracy (1989), has shown the value of this framework. Glaeser, Kolko and Saiz (2001) use this insight to create an index of attractiveness and indeed find that the places with low wages relative to housing prices are generally all in California. The places with high real wages are generally in the colder or less pleasant parts of the country (e.g., Alaska).

This framework suggests the three common metrics for studying urban economics: population growth, income growth and housing price growth. Nominal income growth implies rising productivity. Housing price growth implies a greater willingness of consumers to pay to receive a place's bundle of wages and amenities. Population growth captures the quantity side of popular demand to live in a city. No measure on its own implies success, but taken together, the combination of rising population, income and jobs suggests urban health.⁴ Moreover, the three measures can together tell us something about the nature of success. High wages accompanied by stagnant housing prices and rising populations suggest an increase in productivity. Housing prices that rise faster than nominal wages suggest that consumption amenities are increasing in the city.

We start with urban population growth between 1950 and today. Table 1 shows population growth by decade for the ten cities that had the most people as of 1950. We have focused on cities (which are defined by their political boundaries) rather than metropolitan areas because cities better correspond to the traditional dense cores of urban

⁴ While employment, or jobs, in a city might seem like an attractive alternative measure, the correlation between this measure and population is 98 percent in 2000, and the correlation of change in employment and change of population in the 1990s is 90 percent. These correlations are sufficiently high that it is hard to examine employment separately from population.

areas. These cities no longer dominate America's urban landscape, but in the middle of the last century, these places characterized big cities in the U.S. Except for Los Angeles, they are all in the Northeast or Midwest and located on major waterways. Moreover, generally these cities grew large before mass automobile transportation. Eight of these ten cities were also among the ten largest cities in the United States in 1910 at the dawn of the automobile era.

The post-war period was generally not kind to these places. Eight of the ten cities today have less than 80 percent of their 1950 populations. Detroit, Cleveland and St. Louis have lost more than 47 percent of the 1950 population. As the table shows, the 1970s were the worst decade for all of these cities; every city had its lowest population growth during that period. It is true that U.S. population growth slowed during this decade, but it was still a respectable 11.5 percent and U.S. population growth was slower still in the 1980s, when these cities did much better. Moreover, population growth in the 1970s declined two percentage points relative to population growth in the 1960s, but the unweighted average of the growth rates of the cities declined from -4.6 percent to -14.1 percent between the 1960s and 1970s. The 1970s were certainly the great period of population decline for America's older cities.

But perhaps these data overstate the true significance of the 1970s. Urban decline is mediated by the durability of the housing stock (Glaeser and Gyourko, 2005). Cities often decline much more slowly than their economic situation might predict because housing remains and people want to live in the houses. This theory tells us that even if a city's decline is steady during periods of declining household size, the populations of declining cities will fall much more quickly than during periods of steady household size. American household sizes have declined steadily since 1940, when there were 3.5 people in a home, but the decline in household size in the 1970s was considerable. During this decade the average household size fell from 2.96 persons to 2.56 persons. Some of the extreme falls in population during this period surely reflect declining household sizes during that decade.

But there is evidence that confirms that this is not the only thing that is special about the 1970s. First, declining household size might mean that cities that are losing population should lose more population, but it would not mean that growing cities would start declining—yet New York City gained population in both the 1960s and 1980s but lost population in the 1970s. Boston, likewise, started to gain population again in the 1980s. Moreover, the data on per capita income growth and housing price growth also suggests that the 1970s were special.

In Table 2, we present housing price growth and per capita income growth for the ten largest cities in the United States as of 1970, in the 1970s, 1980s and 1990s. We have normalized income growth and housing price growth by subtracting the average growth of income and housing prices in the country as a whole. While this is a slightly different sample of cities, it remains true that for all of them except for Houston, population growth was lowest during the 1970s, despite the fact that U.S. population grew by more in the 1970s than in the 1980s.

The fourth, fifth and sixth columns show the difference in growth in income per capita between these cities and the U.S. as a whole. Again, for every city except for Houston, growth in income was lowest during the 1970s. Each of these cities, except for Houston, had a significant decline in per capita income over the decade of the 1970s relative to other Americans. This decline reflects both the fact that the economies of these cities were weakening and also the fact that wealthier people were fleeing these older cities, and often being replaced by poorer residents.

The final three columns show the change in self-assessed housing values for owned-occupied housing. Again, we have normalized by subtracting the growth in house values for the country as a whole. For four of the top five cities (Los Angeles is the exception), the 1970s saw huge drops in housing values relative to the U.S. as a whole: New York, Chicago, Philadelphia and Detroit all had plummeting housing prices relative to the U.S. The changes in housing values were somewhat more mixed in the smaller cities. Houston boomed in the 1970s. Washington, D.C. and Baltimore also had rising housing

price values. Dallas had only a very modest decline in housing values, but Cleveland's housing market was a disaster.

Table 2 confirms that along every dimension the 1970s were a remarkably bleak period for major American cities. Populations declined. Incomes fell relative to the country as a whole and housing prices in some places plummeted. During this period, people fled the older cities of the Northeast and Midwest for suburbs and for sun. Crime soared and the future of the city was very much in doubt. The dark period of the 1970s exemplifies the basic downward spiral that had struck so many of America's largest cities after the Second World War. This American decline was mirrored in the United Kingdom as London faced significant problems during the 1970s. The continental cities were different; Paris did not have the disappointing 1970s that New York and London did.

American cities suffered during the 1970s because of two great secular changes: the move to sun and the move to sprawl. During the 20th century, changes in transportation technology led to massive changes both within urban areas as people fled the central cities for suburbs and across regions as people have fled colder places for warmer climates. Both of these changes should ultimately be seen as the result of changing transportation technologies.

The move to sprawl is ultimately almost entirely the result of the rise of the automobile and its remarkable advantages as a means of moving about. Cars are particularly important for cities because they require a vastly different urban form from what walking cities require. Public transportation suggests high densities and centralization; cars require low densities and decentralization. High urban densities were required in a pre-car era because non-car methods of transportation ultimately require foot traffic to get to and from the public transportation stops. Centralization is also common because it is natural for the city to cluster around public transportation depots like Grand Central Station or the downtown port of New York. Land use regulation also contributed to these patterns.⁵

⁵ See, for example, Walker (1977).

In walking cities, where we still find high densities and much centralization, people are unable to take advantage of the benefits conferred by an automobile. Cars use massive quantities of land and centralization in a world of automobiles only leads to congestion. Figure 1, which shows the relationship between commute times and density across American cities, makes it clear that automobiles have not been able to eliminate the long commutes found in dense areas but are associated with much shorter commutes in less dense areas.

One might suspect that higher use of public transportation might make up for the ineffectiveness of the automobile in extremely dense traditional cities. On average, however, it turns out that public transportation is much slower than the automobile. The average commute by car is 23 minutes in the U.S. and the average commute using public transportation is 47 minutes. This shouldn't surprise us. Glaeser, Kahn and Rappaport (2000) document the 15-18 minute fixed cost associated with public transportation. For each form of public transit used, a rider must get to a pickup point, wait for the bus or train and then walk from the drop-off point to the final destination. Although clearly not a causal relationship, Figure 2 shows the significant positive association between commute times and public transportation usage across American cities.

Since cars provide an enormous benefit in facilitating movement outside of dense urban areas, we should not be surprised that the automobile has reorganized urban life and led to an exodus from urban areas. On the other hand, owning an automobile is expensive, can be dangerous, and requires learning how to drive. It is also associated with a different, low-density lifestyle which some people prefer and others dislike. The real wage data suggest that three decades ago, living at lower densities was an amenity for the bulk of people, but that today, preferences seem to have reversed for at least some cities whose amenities have increased.

The move to sun is also best seen as a result of the tremendous decrease in the price of moving goods over the 20th century. The urban agglomerations that once lined the great

lakes and the northern rivers of the United States had the great advantages that they were close to basic resources (like coal or lumber) and that they could access cheap water-borne transportation. As the real costs of moving goods declined by more than 90 percent over the 20th century (Glaeser and Kohlhase, 2004), the need to agglomerate around rivers or coal mines disappeared. Eventually, producer cities located in places to increase productivity were replaced by consumer cities located in places which had amenities that consumers wanted, like warmth. Of course, the attractiveness of warm places also increased with the advent of air conditioning and the eradication of malaria, hookworm and other diseases in the American South.

This initial technology-driven exodus from cold dense cities was complemented by the tendency of poorer people to live in the older, more centralized cities. Cars save time, but cost money, so it shouldn't surprise us that poorer people with less money and a lower opportunity cost of time decided to stay in the traditional urban areas (Glaeser, Kahn and Rappaport, 2000). Moreover, in declining cities, housing prices decline to offset decreases in wages. This will make those cities particularly attractive for those workers who have marginal attachments to the labor market, but who still need housing (such as those who live off government support), and for that reason we would expect urban decline to be accompanied by an influx of poor people (Glaeser and Gyourko, 2005).

The importance of these factors is well illustrated by the counter examples of France and some other European cities. In continental Europe extremely high gas taxes (often more than 300 percent) made cars far less attractive to middle-income workers. Moreover, smaller size and climactic homogeneity meant that there was no compelling factor pushing toward regional realignment. As a result, the traditional European cities never suffered the tremendous difficulties of the 1970s because they did not face the same exodus to sun and sprawl.

Somewhat surprisingly, as Tables 1 and 2 show, the post-war spiral of many of America's largest cities had already leveled off by the 1980s. For example, while New

York lost 10 percent of its population during the 1970s, in the 1980s it actually gained population. The turnaround in housing prices is even more dramatic. While 6 out of 10 big cities lost housing value relative to the U.S. as a whole in the 1970s, 6 out of the same 10 cities had relative increases in housing prices over the 1980s. Incomes rose with housing prices, and again, many of the same cities that had lost income (relative to the U.S. as a whole) in the 1970s, gained income in the 1980s.

Consumption vs. Production and the Resurgent City

Why did the resurgence of big cities in the 1980s and 1990s occur? To make some sense of this change, we must turn to basic elements of urban economics. Cities are the absence of physical space between people and firms. The comparative advantage of cities is reducing the costs of interaction through proximity. Much of economic geography focuses on the role that reducing transport costs play in attracting firms and increasing their productivity (e.g. Fujita, Krugman and Thisse, 1999). But the role that cities play facilitating interactions in non-market contexts may be just as important.

Cities are not just about production. As Terry Nichols Clark (2004) has written, they are also “entertainment machines.” Just as the elimination of transport costs between firms improves productivity, eliminating transport costs between people can radically alter social life. No one who has experienced the buzz of London or New York can doubt that big, dense cities have a feeling all their own and that this impacts every part of urban life. Of course, the impacts of proximity can be both negative and positive. The resurgence of big cities in the 1990s is connected both to a reduction in the negative social interactions and an increase in positive social interaction.

Cities are about both consumption and production, and in a sense, the first question is whether the urban renaissance after 1980 had more to do with improving urban productivity or increases in the quality of life in dense, urban areas. One approach to this question is to use the basic spatial economics framework discussed above and to look at changes in income and costs of living over time. If dense cities were becoming more

productive, relative to the U.S., then wages in those cities should be rising relative to the U.S. as a whole. If dense cities were becoming more pleasant and attractive places to live, then real wages—i.e., wages adjusted for local costs of living—should be declining in those cities relative to the U.S. as a whole. Following the basic framework, if urban resurgence has been based on consumer amenities, then wages controlling for local costs of living should have fallen in these big cities. If urban resurgence has been based on rising urban productivity, then wages divided by local cost of living indices might increase and nominal wages should certainly increase.

One piece of evidence on the relative importance of production and consumption is given by Table 2. In this table, the growth in housing values between 1980 and 2000 was much higher than the growth in per capita income for the big cities that did well like New York and Chicago. In the 1990s, none of the big cities had incomes that rose more than three percent more quickly than per capita income in the U.S. as a whole. Decadal changes in housing values are more volatile and New York actually lost housing value between 1990 and 2000 relative to the U.S., but when we combine the 1980s and 1990s, New York and Chicago had sizable increases in housing values and corresponding declines in the cost of living adjusted wage.

In Figures 3 and 4, we show the relationship between the logarithm of real wages in the city and the logarithm of city population in 1970 and 2000. The real wage variable is based on the Census Individual Public Use Micro Sample. We have used these data to first run wage regressions where we correct for age and schooling and then use the city-fixed effect estimated by this wage equation. In this context it is appropriate to control for human capital variables, but not variables that reflect local demand, so we do not control for local industry structure. In principle, we must be able to explain wage patterns both from the firm's and from the worker's perspective. For firms to pay higher wages, they must be more productive, so measures that predict productivity should also predict higher wages. But for workers to receive lower real wages in an area, they must

be receiving some other amenity. This regression is oriented towards understanding amenity levels by looking at the real wage, not towards understanding productivity.⁶

Figure 3 shows the relationship between the logarithm of population density in 1970 and real wages across 26 large metropolitan areas. There is a strong positive relationship. As metropolitan area population rises by 1 log point (approximately 100 percent), real wages rise by 0.042 log points (approximately 4 percent). The same relationship holds in 1980. By 1990, there is no relationship between city size and real wages and in 2000, the relationship is negative. Figure 4 shows the connection between real wages and city population across the same 26 metropolitan areas and shows that as metropolitan area population rises by 1 log point, real wages decline by 0.06 log points. This negative relationship also holds when we examine a more complete set of cities (local price data is unfortunately not available for this larger set of cities in 1970 or 1980).

The natural interpretation of these results is that in the 1970s, workers needed to be compensated for living in big cities. These cities suffered from crime and other disamenities. In 2000, crime rates had fallen and rising incomes led people to value urban social amenities more strongly. As a result, real wages are now lower in big cities than in smaller areas.

Figures 5 and 6 show how real wages declined. This decline does not come from declining nominal wages, but rather from rising prices in big, dense cities. Figure 5 shows the relationship between the change in the logarithm of median housing prices between 1980 and 2000 across metropolitan areas within the U.S. (Anchorage is excluded). The raw correlation is 40 percent and as density rises by 1 log point (approximately 100 percent), housing price growth was 0.08 log points higher (approximately eight percent). People's willingness to pay to live in these denser cities has risen dramatically as the crime rates in these areas have fallen and as these places have become more attractive places to live. Figure 6 shows the relationship between

⁶ If industries and occupations are seen as reflecting workplace amenities rather than firm productivity then controlling for them makes more sense. Still, the basic patterns of wages and urban size do not change when we add these controls (Glaeser and Mare, 2001).

changes in per capita income and the logarithm of density across metropolitan areas within the U.S. The relationship is strongly negative, as we would expect if cities have become more attractive with time and people have become more willing to live there.

In Table 3, we show the elasticity of per capita income, median housing values and median rents with respect to city population for cities in 1970, 1980, 1990 and 2000. The first column shows that the elasticity of income with respect to city population rises insignificantly over the time period from 0.085 to 0.095. The second column shows the elasticity of housing values with respect to city population which soars from 0.09 to 0.19 in 1990 and 0.15 in 2000. The third column shows a dramatic jump from .05 to .11 in the elasticity of median rent with respect to metropolitan area population between 1980 and 1990. The connection between housing prices or rents and city population has gotten much stronger over time. The connection between per capita income and population is essentially flat.

The flat connection between nominal income and city population over time certainly suggests that urban labor productivity is not rising relative to other areas, but there is other evidence that corroborates that claim. The decentralization of employment within metropolitan areas continued unabated during the 1990s as citizens chose to live in the suburbs and central city land became more expensive (Glaeser and Kahn, 2001). The increase in reverse commuting where people live in the city but work in the suburbs further supports the notion that the urban renaissance is driven by consumption, not production. Together with the evidence on housing prices, this evidence strongly suggests that people began to actively choose to live in cities in the 1980s and 1990s rather than just work there.

This evidence pushes us towards a consumption-based theory of urban renaissance. While it is true that big cities remain more productive than smaller places, this has not changed over time. The remarkable change has been in the desire of people to live in cities, not in the wages paid in these places. Figure 7 shows the time series of a survey question administered by DDB Needham (1998) asking people whether they would

prefer to live in a big city or a small town. The basic pattern is striking. Around 1985, survey respondents became much more enthusiastic about big cities than they had been previously. This survey evidence confirms what the data on real wages have already suggested. Big cities became much more attractive places to live after 1980. In Section III we try to understand why that occurred, but first we put this resurgence in perspective.

Resurgent Cities and Sprawl

In the previous section, we have argued that the twenty years since 1980 have been much better for America's biggest cities than the twenty years before 1980. While this is surely true, it should not blind us to the fact that the general trend to sun and sprawl has continued relatively unabated over the past 20 years. While some cities have improved relative to the catastrophic 1970s, the fundamental fact is that the places oriented around the car have continued to gain relative to places oriented around public transportation, that suburbs and edge cities have continued to grow relative to traditional downtowns and that density continues to predict decline.

First, Table 1 itself shows that even in the 1990s, every one of the 10 cities included lost population relative to the U.S. as a whole, which grew by 13 percent in the 1990s. In the 1990s, there was a weak negative correlation between population and growth and a strong -30 percent correlation between density and growth (Glaeser and Shapiro, 2003). Across metropolitan areas, the correlation between density and growth is -20 percent. Despite the claims of some new urbanists about how demand for high-density living is on the rise, more dense areas continued to lose population relative to denser areas in the 1990s.

Likewise, public transportation continues to predict urban decline. Across cities, the correlation between the percent of workers who drive to work and urban growth is also 30 percent. In a regression with controls for initial population, median age, land area and initial income, cities or metropolitan areas where more than five percent of the population takes public transportation grew at least five percent more slowly than cities where less than five percent of the population takes public transportation. Figure 8 shows the robust

correlation between cars per capita in 1990 and population growth between 1990 and 2000 across cities with more than 100,000 inhabitants.

Just as low-density, car-based living continues to disproportionately attract residents, the Sunbelt continues to grow at the expense of colder climates. Across cities the correlation between mean January temperature and metropolitan area growth is 42 percent. The correlation between this variable and city growth is 35 percent. The key point of these facts is that while New York, Boston and Chicago have seen a renaissance, the big story in American society continues to be that of car-based living in the warmer climates of the country. The good news from the 1980s and 1990s is that this rise doesn't need to mean complete disaster for the older cities.

III. Consumption and Urban Resurgence

In this section, we attempt to understand why the desire to live in cities like New York, Chicago and London surged in the 1980s and 1990s. While it is certainly true that the increasing value of information in the economy has helped the economies of big dense places, it is also true that rents have generally risen faster than wages in these areas, and that wages adjusted for cost of living have fallen in these places relative to other smaller cities. As such, we focus on the changes in consumer amenities in these places and the changes in demand for the consumer amenities that are provided primarily in the biggest places. We begin with a brief historical overview of cities as centers for consumption—rather than production. We then turn to understanding how cities changed as centers for consumption after World War II.

Consumption in Cities

Historically, the most important limit on city growth was an urban disamenity—disease. Until the 20th century, cities were killing fields. Just as physical proximity speeds the flow of products or ideas, it speeds the flow of germs and bacteria. The lack of health in urban areas should be understood as a negative social interaction. In a world without

massive public infrastructure for water and pipes, clean water was almost impossible to get in dense areas. Together these factors reduced life expectancy by five years or more for people living in larger cities before 1900.

The public provision of clean water is surely the single biggest improvement in the quality of urban life in history. Over the past 200 years, cities have increasingly made investments in aqueducts and sewage systems that have completely changed the health costs of living close together. Some of these improvements are the result of technology, but many owe as much to improvements in the quality of urban government and the ability to borrow (Glaeser, 2003; Cutler and Miller, 2005). All told, the success of cities in the late 19th and early 20th centuries owes a great deal to the reduction of urban health hazards and today, life expectancies are often longer in urban areas.

Offsetting the negative effect of urban disease, cities traditionally offered a much richer social life than rural areas. Before radio and television, proximity to other human beings provided the best form of entertainment and this was most available in big cities. Novels, like Dreiser's *Sister Carrie*, that discussed the move from rural to urban living in 19th century America emphasize the dreariness of low-density living and the relative charms of moving to a great city. Probably the main social advantage of cities in this time period was proximity to other people, but there were other advantages associated with city life such as live theater, restaurants and other commercial forms of entertainment. Cities specialized in these things both because these industries involve fixed costs which can be spread over a larger consumer base in cities and because dense urban areas reduce the travel costs for consumers and producers.

Over the first half of the 20th century, the urban social advantage abated because of entertainment technologies, including radio, movies, television and the car, that improved the social opportunities available in low-density living. The radio and television meant that consumers no longer had to travel to entertainment venues to hear music or experience theater. Movies allowed performers to stay in Hollywood and still entertain millions. The car meant that people found it easier to travel to restaurants despite living

in low-density areas. In a sense, all of these innovations can be seen as revolutions in transportation or reductions in the cost of delivering services over distance. As always, reductions in transportation costs tend to reduce the advantages that come from people living close together. Even if there hadn't been a collapse in urban safety, these technologies would have increased the consumption amenities in low-density places relative to dense cities.

The other important change in big cities in the post-war period was the rise in crime after 1960. Figure 9 shows the long run patterns of crime in New York City (from Monkkonen, 2001). This figure focuses on homicide because this crime statistic is best measured and the least likely to move because of changes in reporting technology. There have been three great periods of rising homicide rates in New York City. Between 1820 and 1870 the homicide rate increased by 0.15 per hundred thousand per year and essentially tripled over that 50 year period. This was the era when New York transformed itself from a town of 100,000 to a city of 1,000,000. Between 1890 and 1935, the homicide rate per hundred thousand rose by 0.08 per year on average which effectively doubled the crime rate. Some of this rise might be associated from the new immigration of the 1890s; some of the rise might be associated with prohibition. Crime rates fell between 1935 and 1960, possibly due to the end of prohibition and improvements in law enforcement.

As the graph shows, though, the most spectacular increase in crime occurred between 1960 and 1980. Over twenty years, the murder rate in New York City exploded, rising by 1.1 per hundred thousand per year. Homicides essentially quadrupled over a 12 year period. As the numbers and figure makes clear, this rise is of a completely different order of magnitude than any other comparable period in the history of New York City. In New York, the 1970s were a far more deadly decade than any time before or since. While crime rose everywhere in the U.S., the increase was concentrated in the big, dense cities, and by 1970 there was a powerful positive relationship between crime and city population (Glaeser and Sacerdote, 1999).

We shouldn't be surprised that there is more crime in big cities. Proximity facilitates crime as much as any productive activity—after all transport costs are particularly important when you are carrying illegal goods. Moreover, high levels of population often make crime solving more difficult, because in a large city there are inevitably more suspects for a given crime. Perhaps most importantly, cities appear to be related to social breakdowns of all sorts in part because it is easier to escape community sanctions (see Glaeser and Sacerdote, 1999, for a discussion). As a result, there has been a long-standing connection between urban size and crime and during much of the 20th century, the breakdown in urban law and order served to deter the resurgence of the largest cities.

The rise of crime in New York between 1960 and 1975 is mirrored in many of the great cities of the developed world. This period combined economic distress as manufacturing fled the older urban areas with increasing social freedom and an increasing unwillingness to allow the police brutality that had been such a part of crime prevention before 1960. It has been difficult to establish the causes of the great crime explosion of the 1960s and 1970s. The largest single correlate of crime rates across cities in those years was the share of households with single parent heads, which suggests the importance of breakdowns in traditional social structures. However, arrest rates also declined over this period and economic distress also increased in many of the larger American cities. Furthermore, an increasingly youthful population can explain some of the increase as well (about one-fifth of the rise over the period).

While it is difficult to establish the impact that crime had on urban distress in the 1970s, Berry-Cullen and Levitt (1999) show that an increase of one reported crime per capita reduces city population by one percent. Between 1960 and 1980, reported crimes per capita in New York rose from 0.02 to 0.1. This increase is spectacular, but the Berry-Cullen and Levitt coefficient estimate suggests that it would only predict a population decline of 0.08 percent. Given that New York's population fell by almost ten percent in the 1970s, this estimate suggests that the increase in crime can only explain a modest amount of the decline in population.

While the rise in crime cannot explain the fall in New York's population, it can potentially explain the decline in housing values. Schwartz, Susin and Voicu (2003) estimate an elasticity of property value with respect to the violent crime rate of 0.15. Thaler (1978) estimates a lower elasticity of 0.05. Violent crime rates increased almost tenfold from 0.0024 to 0.021 between 1960 and 1980. Even the lower Thaler estimate would predict a 40 percent drop in housing prices, which roughly coincides with the decline observed in New York relative to the country as a whole. Given this coefficient estimate, the drop in New York City property values can be explained by the increase in crime. In other large cities, with similar increases in crime, property value declines can also be attributed to the rise in crime.

Urban Amenities since 1980

In Section II, we argued that the evidence suggests that urban resurgence in the United States had more to do with rising consumer amenities than with rising productivity. The strongest evidence for this was the declining connection between real wage and city population. A secondary piece of evidence was the opinion polls which suggest an increased desire to live in big cities.

This change can conceivably come from two sources. First, city amenities may indeed have changed. For example, crime rates have plummeted since 1980 in many large cities. Some cities have invested more in quality of life. Second, the willingness to pay for urban amenities relative to the amenities of suburbs may have increased. For example, it may be the cities have always had more museums but that the value placed on proximity to museums rises with income and education. In this case, the increased attractiveness of the city comes from a greater willingness to pay for a constant bundle of urban amenities.

We will not be able to perfectly separate out these two explanations, but we will be able to put together some evidence on both of these hypotheses. We begin with changes in the crime rate. As Figure 9 shows, the period since 1980 and particularly since 1990 has seen a remarkable decrease in the crime rates in New York. Within the U.S. as a whole,

violent crime victimization declined by 50 percent since 1994. Almost all the decline has been centered in the large American cities (which, after all, had much more crime to begin with), and as a result the difference in crime rates between cities and smaller areas is much smaller than it ever has been.

Measuring crime other than homicides is problematic because reported crimes are potentially subject to changes in reporting tendencies and there is substantial mismeasurement in victimization surveys. Keeping this in mind, in Figure 10 we show the trends in victimization from both robbery and burglary in New York and Chicago. These figures show three year moving averages of the victimization rates from the National Crime Victimization Survey. In both cities, there has been a substantial decline in self-reported victimization from both types of crime. Comparing the peak to the trough, the burglary victimization rate declined from 5 percent in 1981 in New York to 1 percent in 1998. There are also significant drops in robbery shown in the table.

How much of the resurgence of New York and other cities can be attributed to the reduction in crime? Since 1980, the crime rate in New York has fallen from 0.1 to 0.03. Using the Berry-Cullen and Levitt estimate, this would predict a 0.07 percent increase in population over this time period. Just as crime cannot explain New York's decline in the 1970s, the rise in crime rates cannot explain the rise in population over the later time periods. Similar results occur for other cities. The Berry-Cullen and Levitt estimate, which is currently by far the best available, suggests that changes in population are unlikely to be driven by the reduction in crime.

There is a better chance that the decrease in crime can explain rising property values. Schwartz, Susin and Voicu (2003) estimate that approximately one-third of New York's housing price appreciation after 1988 can be explained through declining violent crime rates. After 1980, there was a fifty percent drop in the violent crime rate in New York City. Using the Thaler estimate, this would predict a 2.5 percent rise in housing values. The larger Schwartz, Susin and Voicu (2003) estimates suggest that this might explain a housing price increase of up to 10 percent, which is far less than the actual price increase.

Overall, we are led then to the view that crime rates are important, but declining crime can only explain a modest amount of increased demand for New York City and other big cities. Even though crime rates fell dramatically, the generally accepted estimates of the relationship between either prices or population and crime suggest that declining crime is only part of the story. We therefore now turn to other reasons for the increasing attractiveness of dense places as consumer cities.

While cities have always had negative social aspects—not all proximity is good—they have also had some positive social features. Certainly, the most obvious social advantage is the reduced cost of face-to-face contact with other human beings. The power of this advantage is most obvious in the tendency of many cities to attract single people and to act as a marriage market. By facilitating matching, cities make it easier to connect with a mate, just as cities make it easier to connect with the right employer. More generally, big, dense urban areas support connections of all kinds and this is part of what makes them fun.

Beyond reducing interaction costs, urban density also supports forms of consumption such as museums, restaurants, bars, movie theaters and concert halls. Most of these facilities have some form of fixed costs and higher densities make it possible to generate enough customers to cover the fixed costs. Figure 11 shows the relationship between the number of museums and metropolitan area population in 1990. As we all know, there are more museums in big places. Furthermore, since specialization and the division of labor is limited by the extent of the market, big cities allow there to be more types of museums, restaurants, bars and so forth.

To investigate whether cities actually facilitate different forms of entertainment, Table 4 uses the DDB Needham Life Style Survey (1998) and looks at the connection between central city residence and different forms of leisure activities. The DDB Needham survey presents categorical responses about how often these activities occur, e.g. never, between 1 and 4 times per year, etc. As such, the coefficients in the table are not easy to interpret.

Nevertheless, the table gives a qualitative sense about how big city living enables certain forms of entertainment.

We split the population into three groups: those who live in a central city with more than 50,000 residents, those who live in the suburbs of those cities, and those who live in cities with less than 50,000 people or outside of cities altogether. We also interact these variables with a dummy variable that takes on a value of one if the year is after 1990. This interaction is meant to capture the possibility that cities are getting better at delivering these activities over time.

We have also controlled for marital status, education, age, year (the survey data include results from 1975 to 1998), race, sex, the logarithm of income and dummy variables for whether the income variable, marital status variable and race variable are missing. The DDB Needham survey doesn't report income per se, but rather a range of different values for income. We have replaced this range with its midpoint and deflated so that all income is in 2000 dollars. Since many respondents refused to give their income levels, we assign those respondents the average income in the sample and include a dummy variable for missing income.

The first regression looks at the determinants of going to an art museum. Living in a central city positively predicts having visited an art museum. Living outside a city altogether strongly predicts not attending a museum. There is no significant interaction between place of residence and time. The population averages tell us that 49 percent of central city residents have attended a museum in the last year, 45 percent of suburbanites have attended a museum in the last year and 33 percent of non-city residents have attended a museum in the last year. In a probit formulation (not reported) with the same controls, central city residence raises the probability of attending a museum by 5 percent and living outside a city altogether lowers the probability of attending a museum by 4.5 percent. Of course, these coefficients represent both treatment and selection. Significantly, museum attendance rises with both education and income. As museum

attendance appears to be a normal or even a luxury good, economic theory would tell us that the demand for museums should rise as incomes rise in a country.

The second regression looks at the frequency with which people attend bars. Central city residence increases the frequency of this activity. Living in a suburb has no impact on the probability of this activity. In the regression, this coefficient is not significant, but in a probit (not reported) where the probability of having been to a bar at all in this last year is regressed on residence, non-city residents are 3.3 percent less likely to have gone out drinking and this difference is statistically significant. There is no significant interaction between this central city status and the dummy variable for being after 1990. However, the impact of suburbs on going to a bar or tavern does appear to have risen with time. The demand for this activity rises with income.

The third regression looks at having gone out to a restaurant for dinner. Central city residents are more likely to have been out to a restaurant than non-city residents, but this effect becomes muted after 1990. Suburbanites are also more likely to have gone out to dinner than non-city residents. Again, the income elasticity is positive.

In the fourth regression, going out to the movies is regressed on city residence. This is among the strongest coefficients in the table. Furthermore, the central city effect gets stronger over time. In a probit formulation, central city residents are 3 percent more likely to have attended more than 5 movies in the last year and non-city residents are 6 percent less likely to have attended more than 5 movies. This is also a leisure activity with positive income elasticity.

In the fifth regression, we examine having gone to a pop or rock concert. Again, central city residence strongly predicts more frequent concert-going and non-city residence predicts not going to a concert. In a probit formulation central city residence increases the probability of having been to a concert by 1.4 percent and non-city residence reduces this probability by 4.8 percent. These changes might seem small except that only 15 percent of the sample attended a concert at all.

The sixth regression examines going to a classical concert. Again, there is a strong central city effect and there is little interaction between this effect and time. The seventh regression looks at entertaining guests at home. Here there is a negative effect of living in a central city, but this effect disappears after 1990.

Taken together these coefficients suggest that city residence supports almost all social, leisure activities. Going to concerts, restaurants, museums and the movies are more common in central cities. However, the time effects are generally weak so there is little evidence that this effect has changed over time. As such, urban resurgence cannot be explained by changes in the accessibility of these activities.

However, another explanation is that the value placed on urban amenities has risen over time, especially by people who are rich enough to pay for big city residence. For each activity, income increases the tendency to engage in social activities in Table 4. In every case, except for going to a bar, education increases the tendency to engage in these social activities. As such, one reasonable view is that urban amenities have gotten more valuable over time as people have gotten richer or more educated. It is impossible to go from a table like Table 4 to willingness to pay to be in New York. As such, this must remain a conjecture, but it seems to us like the leading candidate for explaining the revitalization of downtown areas.

Immigrant Cities

No discussion of urban resurgence would be complete without recognizing the enormous importance that immigration played in buoying big city populations in the 1990s. In 2000, more than 35 percent of the population of New York City was foreign born. U.S.-born population growth in places like New York and Chicago continued to be negative in the 1990s; immigrants provided the increase in body counts. Across metropolitan areas, the correlation between log of total population and the foreign-born share of the population was 35 percent in 1970 and 48 percent in 2000. As such, the rise in

immigrant populations is not just the result of rising levels of immigration into the U.S., but also the result of immigrants' increasing attraction to be cities.

Historically, the link between immigration and big cities had at least three roots. Most simply, cities like New York and Boston were ports that served as gateways into America. In the 19th century, high transportation costs made it attractive for immigrants to stay where they landed. Over the 20th century, these transport costs have become less important but other factors continued to attract immigrants to big urban areas. We can separate these factors, as well, into consumption and production. First, big cities had a number of amenities, including existing concentrations of immigrants, making them natural places for recent immigrants to live. The fact that big cities don't require residents to own multiple cars continues to be a potent force attracting poorer immigrants to dense areas. Second, big cities have economies that do a better job of incorporating the foreign born, especially when those foreign born lack good English skills.

The influx of immigrant populations to large cities in the 1990s shows the continuing importance of these factors. Cutler, Glaeser and Vigdor (2005) show that recent immigrants have been particularly attracted to high-density areas with public transportation. While richer native populations have fled to car-based living in the exurbs, poorer immigrants remain drawn to the less expensive areas of traditional cities that allow them to avoid buying and maintaining cars.

IV. Cities, Sprawl and Social Capital

The social advantages of big cities that we have stressed might lead some people to think that cities have a real advantage in the formation of social capital, i.e. social groups and networks. Social capital, by its essence, involves externalities and if a social trend, like sprawl, is indeed destroying community in America, then it makes sense to think about policies that stemmed that social trend. In this section, we investigate whether, as Robert Putnam (2000) suggests, suburbanization appears to reduce social capital. After all, we have been arguing that cities facilitate various forms of social connection, so it might

well be reasonable to believe that the move to car-based living has generally reduced our interactions.

Putnam's *Bowling Alone* claims that the suburbanization of the American population is one of the prime causes of declining social capital. He particularly emphasizes long commutes as a distraction from civic engagement. His primary evidence for this claim is that people who live in small towns are more engaged in civic associations. This fact is certainly true, but it is hard to see how the prevalence of social capital in small towns provides evidence on sprawl and suburbanization. If sprawl is low-density, suburban living then central cities and high densities are its opposite—not small towns. If sprawl deters civic engagement then by definition we should expect to see more civic engagement in high-density places and less civic engagement in the suburbs.

In Table 5, we look at the determinants of civic engagement. We use the same DDB Needham survey data and our methodology is the same as in Table 4. We look at five different types of social engagement: attending church, working on a community project, writing a letter to a magazine or newspaper, contacting a public official and being a registered voter. For four of these five variables, central city residence predicts less social engagement than residing in a non-city area such as Putnam's small towns. Only in the case of writing a letter to the media does central city residence predict more civic engagement. Living in the suburbs also appears to have negative effects, but if anything these effects are less negative than those for center cities. Statistical tests confirm this finding. The final row of Table 5 reports the p -value for a t -test for the equality of the coefficients on city residence and suburban residence. Only two of the outcomes (writing a letter and contacting a public official) have a significant difference ($p < 0.05$) and one of these (contacting a public official) happens more in the suburbs. The fact that there is no positive correlation between central city residence and civic engagement should make us immediately skeptical about the view that sprawl is destroying social capital.

Since sprawl is ultimately about density, we now look at whether civic engagement is greater in high-density metropolitan areas. Figure 12 shows the relationship between

metropolitan area density and working on community projects. The regression line is fitted weighting the observations by the inverse of the square root of the number of observations of the dependent variable within the metropolitan area. This weighting is necessary to correct for the larger standard errors of the estimates of community engagement in smaller areas. The basic relationship is weakly negative. Denser, less sprawling places are less likely to have residents who work on community projects. Figure 13 repeats this using volunteering as the dependent variable. Again the relationship is negative.

Table 6 shows these relationships in a regression form. Again, all of these regressions have been estimated weighting by the inverse of the square root of the number of observations of the dependent variable. We have also controlled for the share of adults with college degrees, the median age in the city, the median January temperature and per capita income. In all of the first three regressions, density decreases civic engagement. Volunteering, working on community projects and going to club meetings all decline with population density. In the fourth regression, we find that attending church rises with density. The fifth regression shows results for another variable which is occasionally linked to social capital: believing that people are honest. Again, denser places appear to have less, rather than more, social capital.

It is hard to look at the figures and the table and think that dense living will increase social capital or that the rise of sprawl has hurt civic engagement. On the contrary, a more natural interpretation of the results is that whatever caused the decline in civic engagement (the television, perhaps) has been partially offset by sprawl. Yet Putnam's basic logic seems strong: living in the suburbs means long commutes and these commutes should crowd out other activities like civic connection.

The problem with Putnam's logic is that sprawl is not responsible for longer commutes and that, in fact, commutes are actually shorter in low-density metropolitan areas. Figure 1 shows the relationship between commute times and density level across metropolitan areas. A one log point increase in density is associated with a 2.4 minute increase in

average commute times. Lower density, sprawling areas are not associated with longer commutes, rather they are associated with shorter commutes. As such, it shouldn't surprise us that these places have more social capital. The longer commutes in dense places discussed in section II should deter social engagement.

While high-density living is certainly a plus for many forms of social connection, civic associations do not seem to thrive in higher density areas. Within metropolitan areas, there is no connection between central city residence and most forms of social capital. Across metropolitan areas, density is associated with less, not more social capital, perhaps in part because density is associated with longer commutes. Sprawl may have negative consequences along other dimensions, but it cannot be credited with killing social capital.

As a final note, it is worth remembering that dense cities are also places where racial segregation is higher. Figure 14 shows the relationship between metropolitan area density and racial dissimilarity in 2000. While it is sometimes thought that sprawl increases racial segregation, there is little evidence that this is true. Indeed, the figure suggests that suburbanization and integration are more likely to move together.

IV. Conclusion

The success and failure of big cities depends in large part on the urban edge in consumption, not production. Urban decline in the post-war period was caused in large part by changes in technology that made big cities less effective at catering to consumers' preferences. The automobile meant that commutes would be faster in car-oriented cities and suburban employment cities. Improvements in transport technology meant that people no longer needed to live near waterways, but could instead live in sunny, dry climates. As a result, people fled traditional cities built around older forms of transportation and moved to warm centers of sprawl. This effect was somewhat strengthened by rising crime between 1960 and 1980, which can explain falling housing prices (but not falling population) in big urban areas.

Since 1980, cities have rebounded, but this rebound shows up mainly in the form of higher housing prices. In 1970, real wages rose with urban populations. In 2000, real wages weakly declined with city size. The natural interpretation of this is that these cities have become much more attractive places to live. Some part of this increased attractiveness may be the result of declining crime rates. Another portion of this increase seems due to rising incomes and education levels which increase demand for urban amenities like museums, restaurants and concerts.

But these urban advantages do not mean that big cities today are centers of social capital or political engagement. People in the suburbs are as likely to volunteer or be registered voters as people in central cities. Across metropolitan areas, density is associated with less—not more—social capital. As such, it makes little sense to think that fighting sprawl is a good means of encouraging civic engagement.

Data Appendix

DDB Needham Life Style data

The data on social capital come from the DDB Needham Life Style data, compiled by DDB Worldwide (Chicago) from surveys administered from 1975-1998. These are the data used by Putnam (2000) and come from his website at <http://www.bowlingalone.com/data.php3>. They are extensively documented in Putnam (2000) Appendix I.

The DDB Needham survey presents respondents' answers to a variety of questions about the frequency of their participation in social activities. Most queries give respondents categorical options to quantify the frequency of their participation in the activity in question over the past year. In order to run regressions with the frequency of an activity as the dependent variable, we recode these categorical responses into individual numbers as follows:

- a. None (0)
- b. 1-4 times (2.5)
- c. 5-8 times (6.5)
- d. 9-11 times (10)
- e. 12-24 times (18)
- f. 25-51 times (38)
- g. 52+ times (52)

Income data are similarly coded at the midpoint of the reported range with answers "under \$x" coded slightly below \$x and answers "\$y+" coded slightly above \$y. Missing income data are assigned the sample mean so they can be included in the regressions, and a dummy variable equal to 1 for respondents who don't report their income is included in order to account for any difference in the dependent variable associated with differences between these and other respondents.

U.S. Census data

Cross-city and cross-metropolitan area data are from the decennial census data obtained and published by the U.S. Bureau of the Census. When results are reported by metropolitan area, 1993 metropolitan area definitions are used.

Crime data

New York City homicide data are from the Inter-University Consortium for Political and Social Research study # 3226: "Homicides in New York City, 1797-1999 [and Various Historical Comparison Sites]."

Burglary and Robbery victimization in New York and Chicago come from the Bureau of Justice Statistics' "Crime and Victimization in the Three Largest Metropolitan Areas, 1980-98," available online at <http://www.ojp.usdoj.gov/bjs/abstract/cv3lma98.htm> and compiled from the National Crime Victimization Survey.

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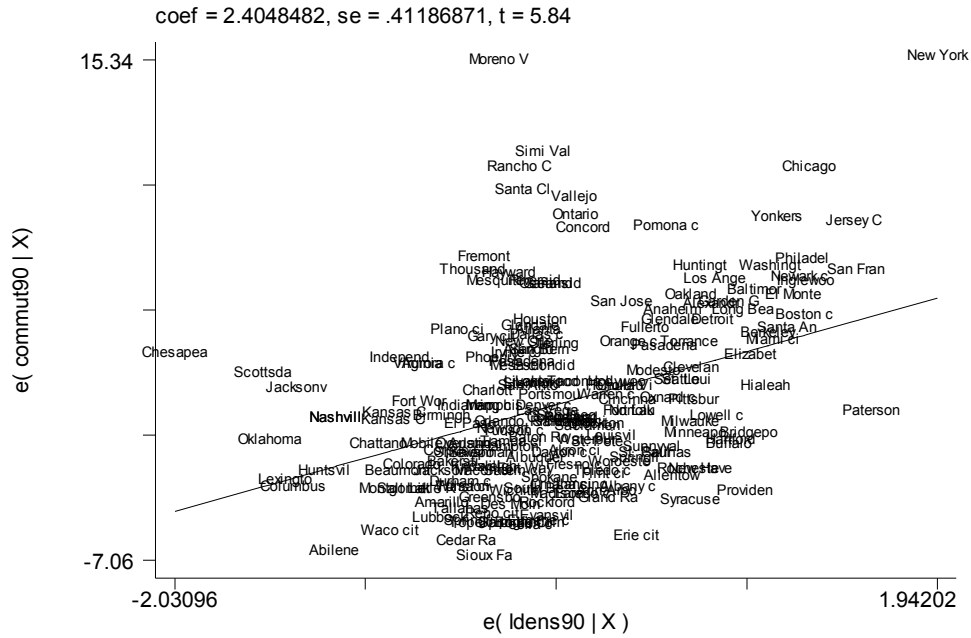


Figure 1: Commute Times and Densities Across Metropolitan Areas

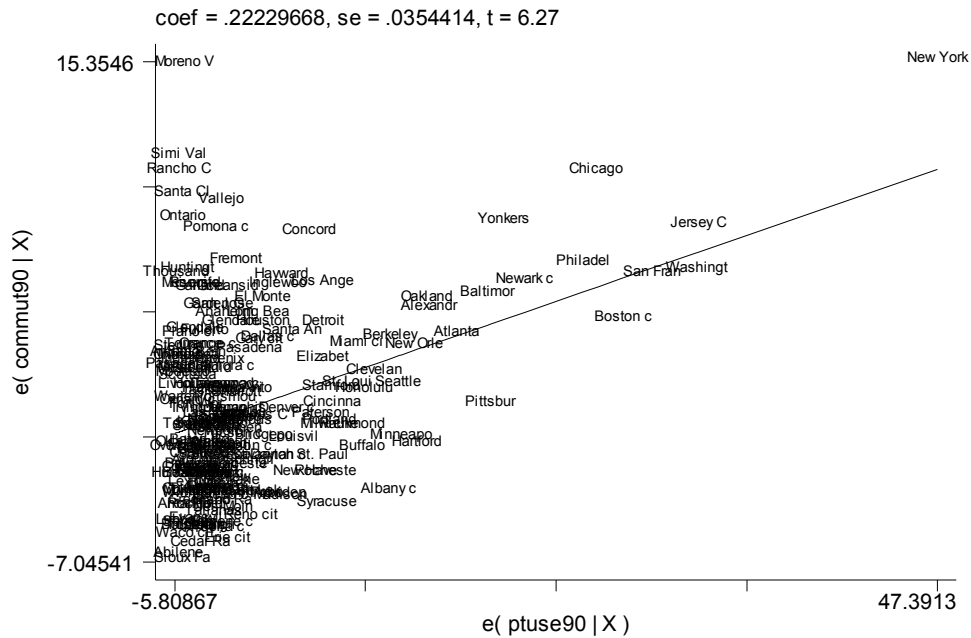


Figure 2: Commute Times and Public Transportation Use

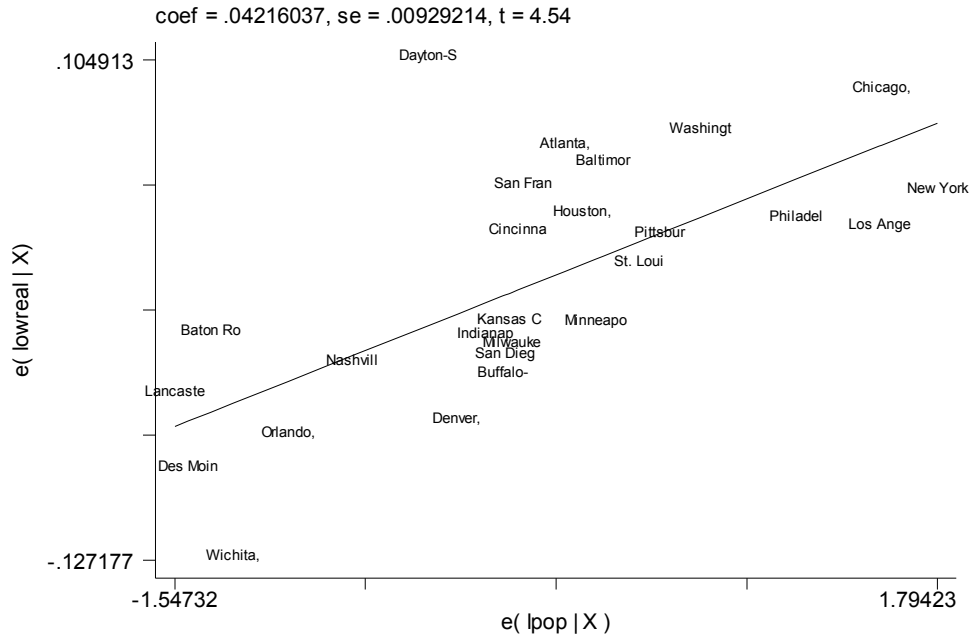


Figure 3: Log of Real Wages and City Size, 1970

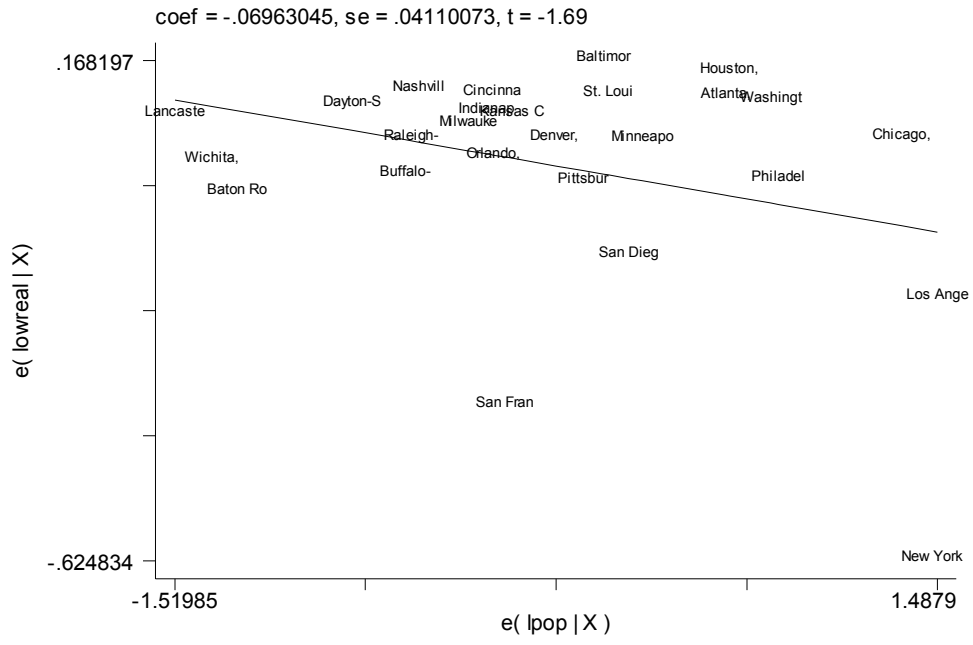


Figure 4: Log of Real Wages and City Size, 2000

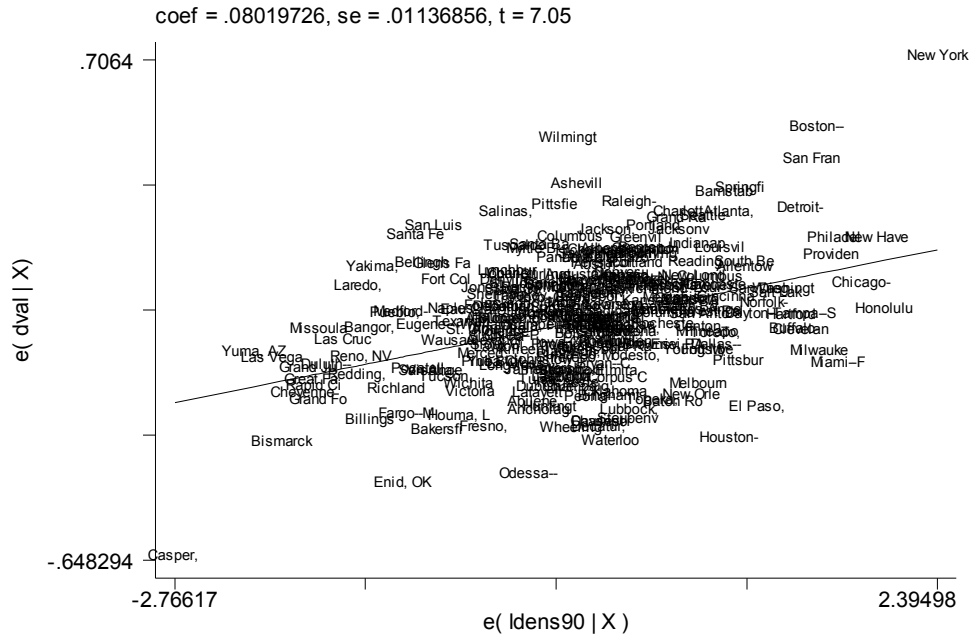


Figure 5: Housing Value Changes and Urban Density

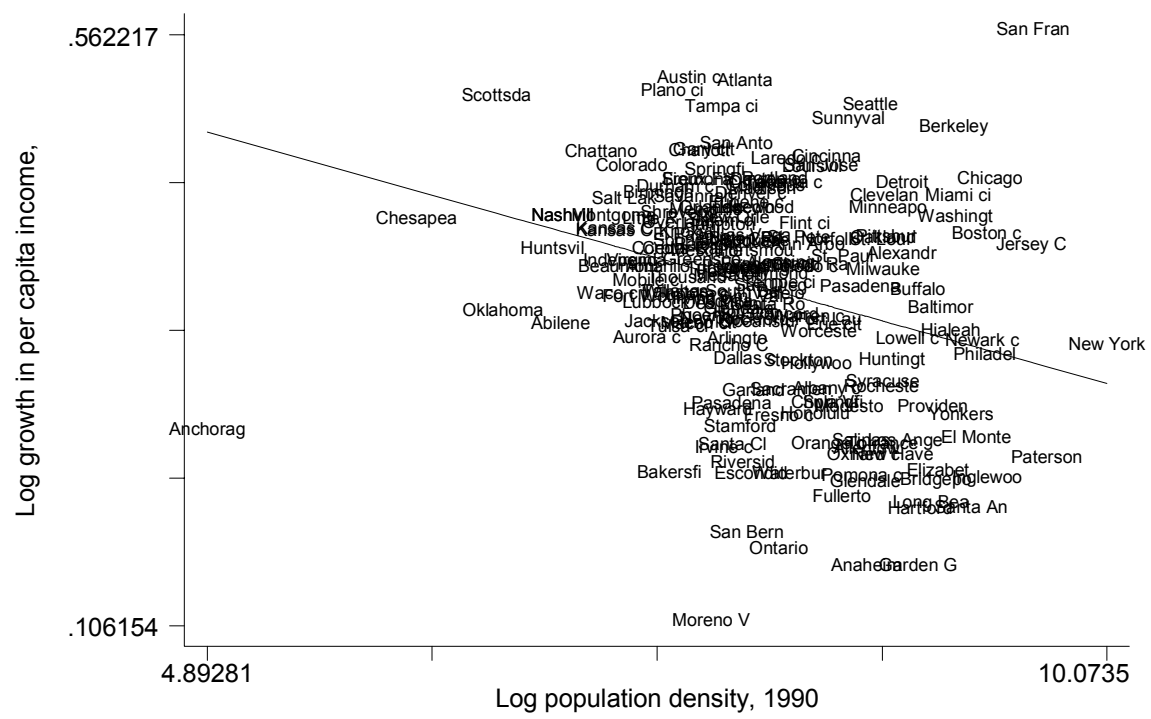


Figure 6: Income Growth and Population Density, 1990-2000

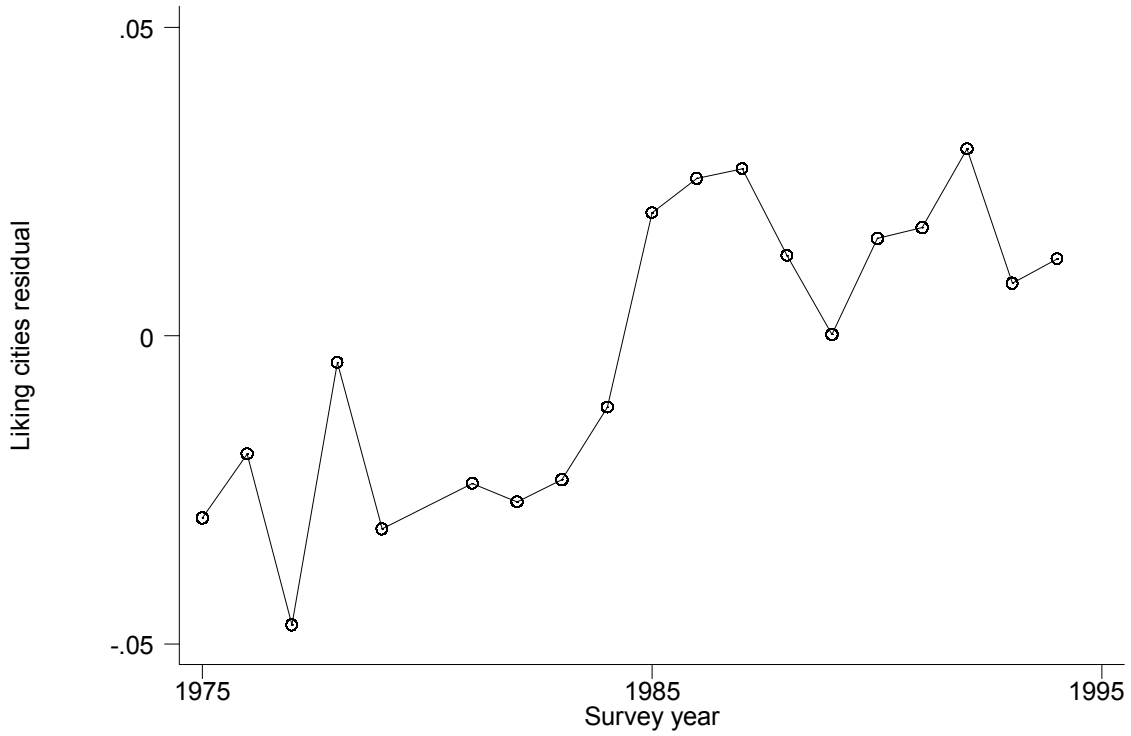


Figure 7: Time series on liking cities

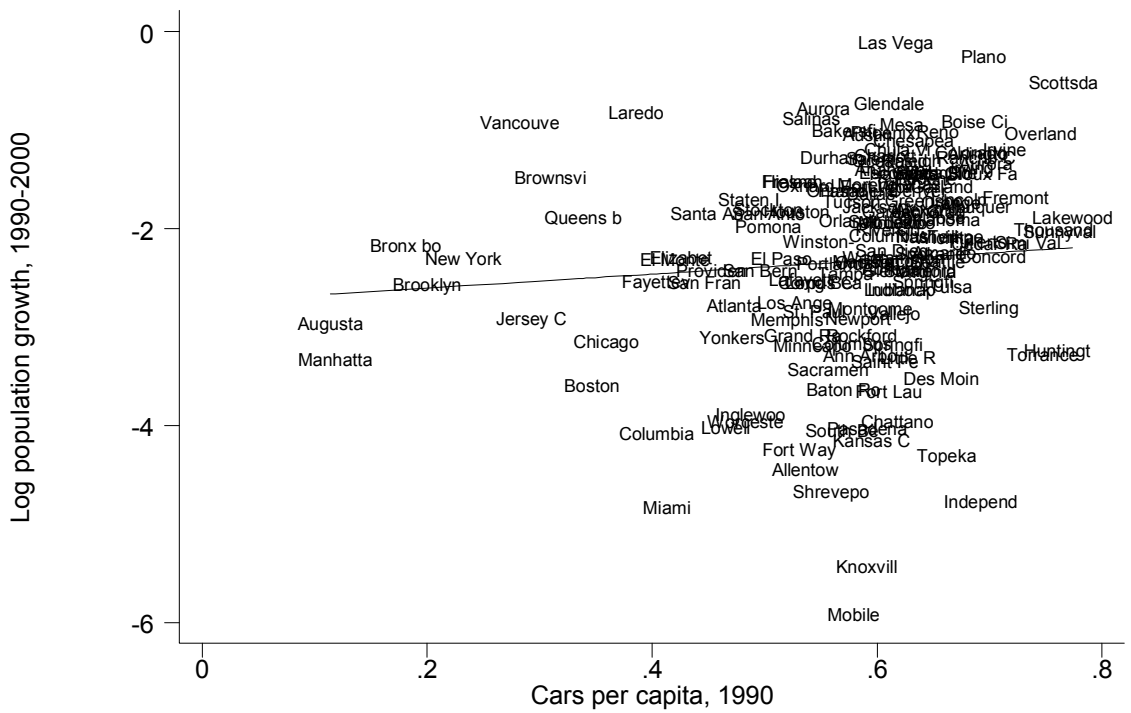


Figure 8: Population Growth and Cars per Capita, 1990-2000

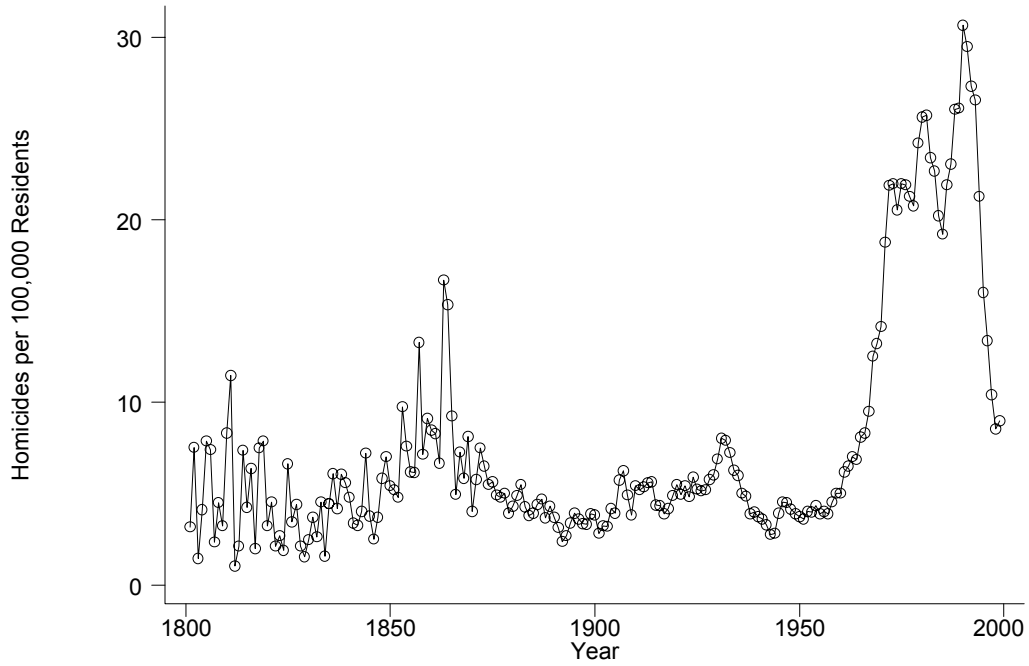


Figure 9: Homicides in New York City

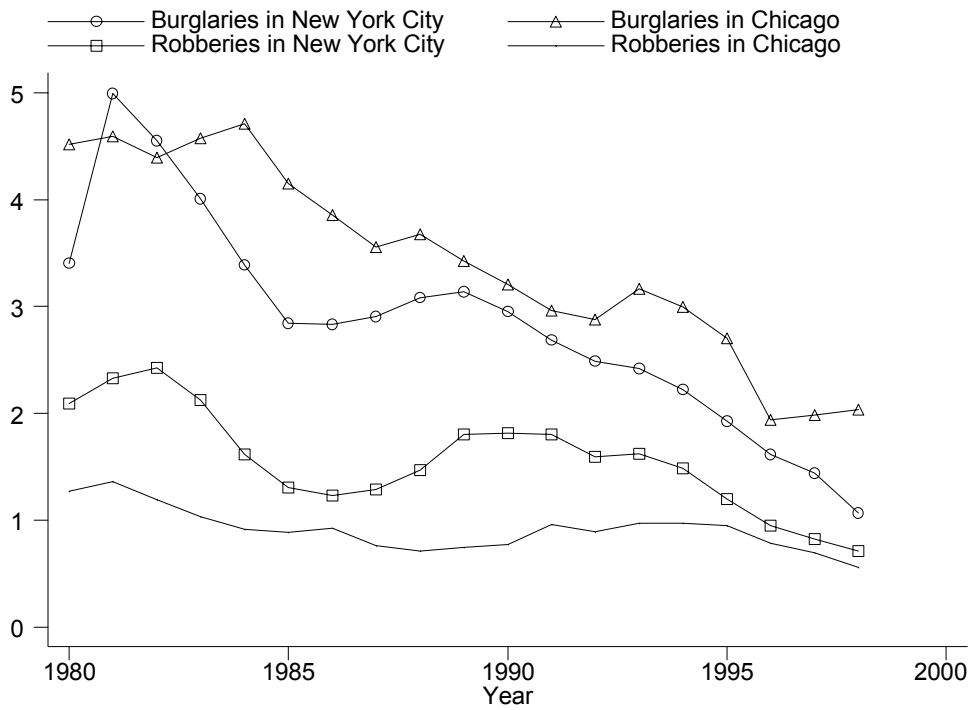


Figure 10: Crime victimization

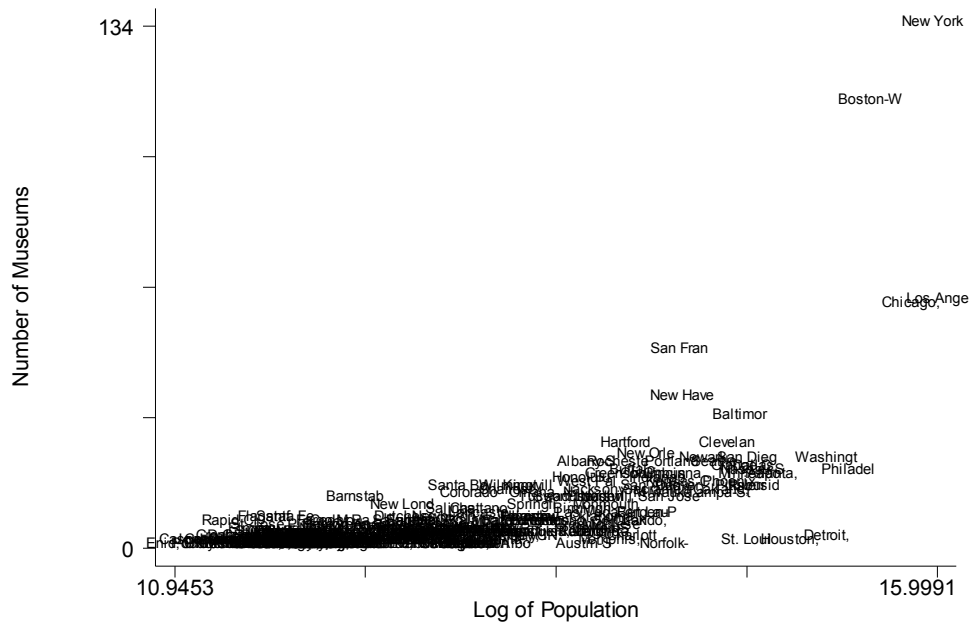


Figure 11: Museums and Metropolitan Area Population

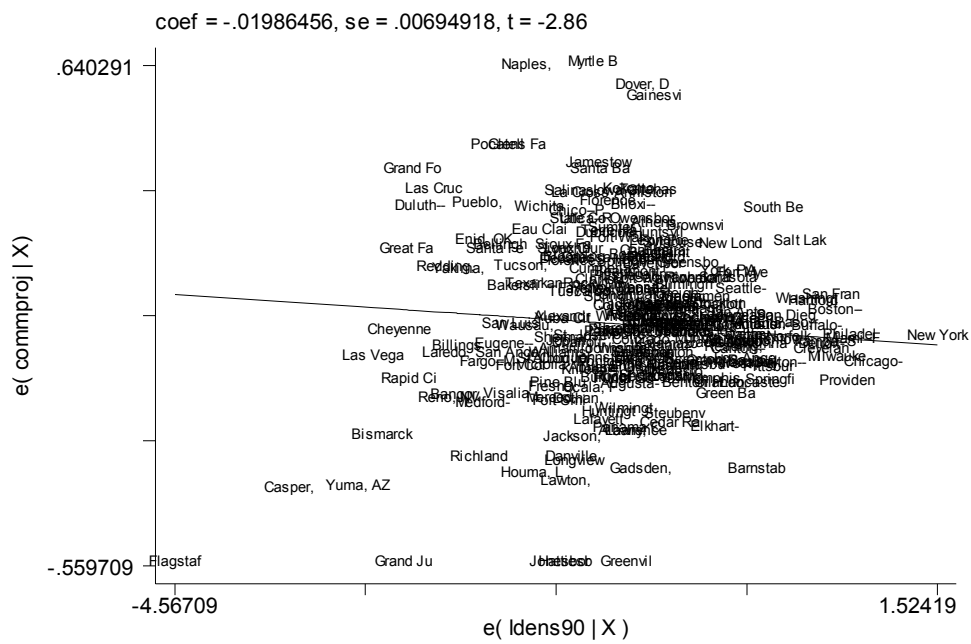


Figure 12: Community Activism and Urban Density across Metropolitan Areas
Note

Table 1 – Growth in Top 10 Cities by 1950 Population

City name	Population	Percent population growth					Population
	1950	1950s	1960s	1970s	1980s	1990s	2000
New York City, NY	7,891,957	-1.4	1.5	-10.4	3.5	9.4	8,008,278
Chicago, IL	3,620,962	-1.9	-5.2	-10.7	-7.4	4.0	2,896,016
Philadelphia, PA	2,071,605	-3.3	-2.7	-13.4	-6.1	-4.3	1,517,550
Los Angeles, CA	1,970,358	25.8	13.6	5.4	17.5	6.0	3,694,820
Detroit, MI	1,849,568	-9.7	-9.5	-20.4	-14.6	-7.5	951,270
Baltimore, MD	949,708	-1.1	-3.5	-13.1	-6.5	-11.5	651,154
Cleveland, OH	914,808	-4.2	-14.3	-23.6	-11.9	-5.4	478,403
St. Louis, MO	856,796	-12.5	-17.0	-27.2	-12.4	-12.2	348,189
Washington, DC	802,178	-4.8	-1.0	-15.6	-4.9	-5.7	572,059
Boston, MA	801,444	-13.0	-8.1	-12.2	2.0	2.6	589,141
United States	150,697,361	19.0	13.3	11.5	9.8	13.2	281,421,906

Note: All data are from the U.S. Bureau of the Census.

Table 2: Growth in Top 10 Cities by 1970 Population

City name	Percent population growth			Percent growth in income per capita relative to U.S. growth			Percent growth in owner-occupied house values relative to U.S. growth		
	1970s	1980s	1990s	1970s	1980s	1990s	1970s	1980s	1990s
New York City, NY	-10.4	3.5	9.4	-26.0	20.6	-12.6	-35.4	120.8	-32.0
Chicago, IL	-10.7	-7.4	4.0	-22.4	-4.2	2.7	-28.5	-0.6	13.8
Los Angeles, CA	5.4	17.5	6.0	-17.8	0.1	-20.6	41.6	56.8	-49.2
Philadelphia, PA	-13.4	-6.1	-4.3	-24.0	4.8	-13.4	-28.6	26.7	-24.7
Detroit, MI	-20.4	-14.6	-7.5	-27.3	-26.5	2.3	-72.8	-29.9	79.0
Houston, TX	29.4	6.4	15.1	6.2	-19.8	-9.8	30.6	-32.3	-11.8
Baltimore, MD	-13.1	-6.5	-11.5	-22.1	7.6	-9.4	6.1	14.2	-20.2
Dallas, TX	7.1	11.3	18.1	-7.5	-2.1	-13.8	-6.3	7.0	-30.3
Washington, DC	-15.6	-4.9	-5.7	-7.4	12.0	-1.0	26.8	5.0	-19.8
Cleveland, OH	-23.6	-11.9	-5.4	-22.0	-20.9	1.1	-49.8	-21.6	20.4

Note: All data are from the U.S. Bureau of the Census. Growth in income per capita and owner-occupied house values are expressed as a difference from national growth.

Table 3: Changes in Income and Housing Price Elasticity with Population

	Income Elasticity	Housing Value Elasticity	Rent Elasticity
1970	0.083 [0.007]	0.092 [0.012]	0.067 [0.010]
1980	0.077 [0.008]	0.088 [0.014]	0.050 [0.007]
1990	0.095 [0.008]	0.194 [0.019]	0.108 [0.009]
2000	0.095 [0.008]	0.15 [0.016]	0.103 [0.009]

Note: Income data are per capita income from the Bureau of Economic Analysis. Housing value is the median housing value reported in the U.S. Census for that year. Rent is the median rent reported in the U.S. Census for that year. All regressions report the coefficient where the logarithm of the dependent variable is regressed on the logarithm of metropolitan area. All estimates are based on a common set of 318 metropolitan areas.

Table 4: Social Activities and Cities

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Visited an art gallery or museum	Went to a bar or tavern	Went out to dinner at a restaurant	Went to the movies	Went to a pop or rock concert	Went to a classical concert	Entertained people in my home
City resident	0.1891 [0.0112]**	0.051 [0.0125]**	0.1071 [0.0112]**	0.202 [0.0111]**	0.1379 [0.0113]**	0.1479 [0.0112]**	-0.0606 [0.0112]**
Suburb resident	0.0808 [0.0100]**	-0.0049 [0.0112]	0.0636 [0.0101]**	0.1149 [0.0099]**	0.0749 [0.0101]**	0.0531 [0.0101]**	-0.0062 [0.0100]
City x after 1990	-0.0064 [0.0164]	-0.0057 [0.0173]	-0.0726 [0.0167]**	0.0497 [0.0163]**	-0.0008 [0.0166]	0.0093 [0.0165]	0.076 [0.0164]**
Suburb x after 1990	-0.0041 [0.0144]	0.0366 [0.0153]*	-0.0132 [0.0147]	0.0577 [0.0143]**	0.0092 [0.0146]	0.0136 [0.0145]	0.0435 [0.0144]**
Survey year	-0.0055 [0.0008]**	0.0022 [0.0011]*	-0.0023 [0.0008]**	-0.0065 [0.0008]**	0.0023 [0.0008]**	-0.009 [0.0008]**	-0.0307 [0.0008]**
College Graduate	0.3581 [0.0086]**	-0.0589 [0.0091]**	0.1339 [0.0086]**	0.1579 [0.0085]**	0.0569 [0.0086]**	0.3434 [0.0086]**	0.0103 [0.0085]
High School Dropout	-0.1658 [0.0114]**	0.0104 [0.0125]	-0.1834 [0.0115]**	-0.1152 [0.0113]**	-0.0074 [0.0115]	-0.1217 [0.0114]**	-0.1125 [0.0114]**
Age	0.0101 [0.0014]**	-0.018 [0.0016]**	0.008 [0.0015]**	-0.0288 [0.0014]**	-0.0285 [0.0015]**	0.0066 [0.0014]**	-0.0164 [0.0014]**
Age squared	-0.0001 [0.0000]**	0.0001 [0.0000]**	-0.0001 [0.0000]**	0.0002 [0.0000]**	0.0002 [0.0000]**	0 [0.0000]	0.0002 [0.0000]**
Female	0.095 [0.0071]**	-0.3808 [0.0076]**	-0.0411 [0.0071]**	0.0119 [0.0070]	-0.0329 [0.0071]**	0.068 [0.0071]**	0.1103 [0.0070]**
Log income	0.0747 [0.0050]**	0.0593 [0.0059]**	0.225 [0.0051]**	0.114 [0.0050]**	0.0564 [0.0051]**	0.046 [0.0051]**	0.0725 [0.0050]**
Income data missing	0.0515 [0.0194]**	0.0069 [0.0195]	0.0253 [0.0197]	0.0364 [0.0192]	0.032 [0.0196]	0.0741 [0.0194]**	0.0334 [0.0193]
Constant	9.687 [1.6537]**	-3.7707 [2.1055]	2.0709 [1.6697]	12.7154 [1.6384]**	-4.1534 [1.6711]*	16.9775 [1.6579]**	60.3858 [1.6488]**
Observations	80260	67802	76991	79849	80326	80224	79919
t-test for residence	0.0000**	0.0000**	0.0000**	0.0000**	0.0000**	0.0000**	0.0000**
t-test for interactions	0.8926	0.0163*	0.0005**	0.6295	0.5570	0.7995	0.0544

Notes: Data are from DDB Needham Life Style Survey. Standard errors are in brackets. * indicates significance at 5% and ** indicates significance at 1%. The last two lines reports *p*-values for *t*-tests of the null hypotheses that (a) the city coefficient equals the suburbs coefficient and (b) the coefficient on city x after 1990 equals the coefficient on suburb x after 1990. Controls for black, Asian, other race, missing race, marital status and missing marital status are included in the regression but coefficients are not reported. Data are from 1975-1998 except that question (2) was only asked from 1979-1998.

Table 5: Civic Engagement and Cities

	(1)	(2)	(3)	(4)	(5)
	Attended church or other place of worship	Worked on a community project	Wrote a letter to an editor of a magazine or newspaper	Contacted a public official	Are you a registered voter?
City resident	-0.1516 [0.0111]**	-0.1236 [0.0112]**	0.0427 [0.0204]*	-0.1631 [0.0340]**	-0.0568 [0.0325]
Suburb resident	-0.1401 [0.0099]**	-0.1068 [0.0100]**	-0.0003 [0.0188]	-0.0917 [0.0294]**	-0.0589 [0.0303]
City resident x after 1990	0.0178 [0.0163]	0.0496 [0.0164]**	-0.0063 [0.0245]		
Suburb x after 1990	-0.0113 [0.0143]	0.0273 [0.0144]	0.0179 [0.0224]		
Survey year	-0.0127 [0.0008]**	-0.0112 [0.0008]**	-0.0003 [0.0032]	0.4363 [0.2542]	0.1543 [0.1195]
College Graduate	0.1847 [0.0085]**	0.2242 [0.0085]**	0.0858 [0.0114]**	0.2075 [0.0311]**	0.1554 [0.0264]**
High School Dropout	-0.1974 [0.0113]**	-0.1442 [0.0114]**	-0.0192 [0.0169]	-0.1035 [0.0380]**	-0.4221 [0.0442]**
Age	0.0176 [0.0014]**	0.0141 [0.0014]**	0.0055 [0.0020]**	0.0306 [0.0055]**	0.0269 [0.0047]**
Age squared	-0.0001 [0.0000]**	-0.0001 [0.0000]**	0 [0.0000]	-0.0003 [0.0001]**	-0.0001 [0.0000]**
Female	0.2624 [0.0070]**	0.0808 [0.0070]**	-0.0121 [0.0096]	-0.1404 [0.0252]**	0.084 [0.0229]**
Log income	-0.0086 [0.0050]	0.0385 [0.0050]**	-0.0043 [0.0075]	0.0475 [0.0259]	0.161 [0.0182]**
Income data missing	-0.0131 [0.0192]	0.0155 [0.0193]	0.0218 [0.0227]	-0.0109 [0.1041]	0.0622 [0.0664]
Constant	24.3441 [1.6346]**	21.4723 [1.6508]**	0.4044 [6.4533]	-865.5804 [503.7789]	-310.1723 [238.3129]
Observations	79686	80069	45037	6396	7232
<i>t</i> -test for residence	0.2687	0.1095	0.0207**	0.0235**	0.9374
<i>t</i> -test for interactions	0.0820	0.1860	0.2916		

Notes: Data are from DDB Needham Life Style Survey. Standard errors are in brackets. * indicates significance at 5% and ** indicates significance at 1%. The last two lines reports *p*-values for *t*-tests of the null hypotheses that (a) the city coefficient equals the suburbs coefficient and (b) the coefficient on city x after 1990 equals the coefficient on suburb x after 1990. Controls for black, Asian, other race, missing race, marital status and missing marital status are included in the regression but coefficients are not reported. Data for questions (1)-(3) are from 1975-1998, question (4) was only asked in 1981-1982 and question (5) was only asked in 1994-1995.

Table 6: Social Capital and Density Across Metropolitan Areas

	Volunteering	Working on a Community Project	Gone to a Club Meeting	Attendance at Church	Believe Others are Honest
Share of Adults with College Degrees	0.0095 [0.0038]	0.0093 [0.0021]	0.0006 [0.0036]	0.0074 [0.0077]	0.0049 [0.0029]
Log of People per Square Mile	-0.0869 [0.0174]	-0.0316 [0.0094]	-0.0074 [0.0165]	0.0940 [0.0351]	-0.0531 [0.0129]
Median Age	0.0020 [0.0053]	0.0046 [0.0029]	0.0121 [-0.0050]	0.0226 [0.0106]	0.0154 [0.0039]
Mean January Temperature	-0.0024 [0.0008]	-0.0003 [0.0004]	-0.0023 [0.0008]	-0.0170 [0.0016]	-0.0032 [0.0006]
Per Capita Income 1989	0.0122 [0.0096]	-0.0062 [0.0052]	0.0026 [0.0091]	-0.1208 [0.0193]	0.0056 [0.0071]
Constant	2.4791 [0.1834]	1.5001 [0.0993]	2.0602 [0.1739]	4.9571 [0.3694]	3.5132 [0.1361]
Observations	270	271	271	271	271
R-squared	0.1539	0.1362	0.0649	0.4786	0.1833

Note: Data are from the DDB Needham Life Style Survey, 1975-1998, and from the 1990 U.S. Census. Observations are weighted by the inverse of the square root of the number of DDB Needham respondents within each metropolitan area. Standard errors are in brackets.