The Economic Cycle and Los Angeles Neighborhoods; 1987-2001

Report to the John Randolph Haynes and Dora Haynes Foundation

Submitted by

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EXECUTIVE SUMMARY

Changes in the economic conditions are responsible for broad gains and losses across a region, but the ways that these changes play out at a neighborhood level throughout the region are not uniform. Neighborhoods may benefit or suffer disproportionately according to their mix of jobs and income sources, and the ability to respond to new conditions depends on the resources available to residents. Spatial differences in economic outcomes have been linked to secular economic changes, in which the economy undergoes structural transformations. Communities are also influenced by the short-run up and down variation that are collectively referred to as the business cycle. In the past, little attention has been given to the effects of cyclical contractions and expansions on neighborhoods.

The lack of research on this topic is understandable given the difficulties in performing such analysis. The major obstacle involves obtaining suitable data. There are numerous indicators used to measure the business cycle, but most are hard to obtain at sufficiently regular intervals and at a level of geography as small as the neighborhood. Studies relying on census data, for instance, track secular changes from peak to peak and fail to capture the recessions and recoveries. Another related issue is in defining what is meant by a neighborhood. For this report, we use a planning-based definition, and we look at the following indicators for evidence of cyclical changes in the business cycle:

- Retail jobs
- Home values
- Income
- School lunch program participation
- Building permit values

Only two indicators cover the entire business cycle of the 1990s – school lunch program participation and building permits. The latter, unfortunately, is available only for the City of Los Angeles, whereas the rest of the data is available for Los Angeles County. Despite the data limitations, the analysis paints a consistent picture of differential neighborhood outcomes according to the stage of the business cycle and neighborhood characteristics.

Major findings of this study include:

- There is substantial variation in the severity of business cycle effects across neighborhoods in the Los Angeles region.
- The magnitude of the business cycle varies systematically with socioeconomic characteristics of neighborhoods.
- The safety net for the poor does not increase in proportion to increased need in poor neighborhoods during economic downturns.

This report represents an important first step in understanding the dynamic nature of neighborhood response to cyclical economic fluctuations, but more study is clearly required. To facilitate such studies, we strongly recommend new efforts to make existing data available to researchers and to explore new avenues of data collection.

CHAPTER 1: ECONOMIC CYCLES AND NEIGHBORHOODS

Understanding the impacts of economic change on neighborhoods is a central element of urban planning and policy analysis. The national, state, and regional economies are dynamic, and their changes have potentially serious ramifications for economic opportunities, social development, and the quality of life. The same is true at the neighborhood level. There are two types of temporal movements of interest. Cyclical fluctuations are the short-term recurring ups and downs experienced by market economies, while secular changes are the more fundamental long-term changes in the mix and characteristics of economic activities.

Short-run impacts on neighborhoods are significant, and the consequences should be of grave concern to policy analysts and planners. A period of recession means high unemployment, lower income, and less consumption. These adverse impacts create consider additional hardships on neighborhoods that are disadvantaged even in the best of times. One key question, then, is whether marginal neighborhoods bear a relatively greater burden of cyclical downturns. There is no *a priori* reason to believe that answer is yes or no. These communities may be disproportionately subject to the economic problems of a downturn because their residents hold more precarious jobs. On the other hand, one could argue that employment and income levels are already so low in these geographic areas that there is not much room to fall. An associated issue is whether the

social safety net provides a cushion to ameliorate some of the hardships generated by the business cycle, particularly in disadvantaged communities.

Unfortunately, the existing literature does not give concrete answers to these issues. There is an extensive literature on the movements of the regional economy, but there is a glaring void in the research when it comes to the question of how economic changes affect neighborhoods. In particular, little attention has been paid to cyclical phenomena. The available neighborhood-level data, which come primarily from the decennial census, constrain analyses to long-run changes; consequently, we fail to understand and fully appreciate the short-run implications of cyclical fluctuations on neighborhoods. To help partially fill the void in the literature, this study examines the case of Los Angeles to shed light on how neighborhoods react to economic contractions and expansions. This report focuses on the relative change of several economic variables over the short run. Clearly, these variables affect and interact with the physical, social, and other dimensions of each neighborhood, but the research is narrowly focused on economics.

Los Angeles is a useful case study for assessing the impact of economic cycles on neighborhoods because of long-standing spatial inequalities and a history of policy interventions to address them. The methods of analysis utilized in this paper provide a model for any cross-sectional neighborhood study and for future refinements to the study of neighborhoods in this region.

From a policy perspective, a neighborhood cyclical analysis may inform a better understanding of neighborhood-based social changes. For example, there is much evidence that economic inequality underlies many social and political conflicts (Alesina and Parotti 1996; Benhabib and Rustichini 1996). Defining a spatial mismatch between

manufacturing jobs and the low-skilled labor force, Kain (1968; 1992) has examined the importance of job location in creating unemployment and urban poverty.[1] Moreover, Kain – among others such as the Kerner Commission (1968) – has focused on the link between the neighborhood economic base and urban unrest. This argument asserts that without jobs and economic security, adults and youth at the low end of the economic spectrum face disproportionate social challenges associated with unemployment and working poverty. When these individuals and families are spatially concentrated, poor neighborhoods can additionally create significant "environmental" barriers for the poor. In this way, problems such as crime, drugs and gang activities associated with chronically poor neighborhoods that have roots in the larger economy create an environment within which specific and isolated events can erupt into large-scale unrest.

The Los Angeles riots of 1992 are salient evidence of this relationship. It is no coincidence that the worst urban unrest in California – and likely the country – occurred during an economic recession. From 1990 through 1993 California saw unemployment rates double and disposable incomes lag behind inflation, slowing growth for all Californians. Los Angeles was hit particularly hard because of its industrial mix. Chapter 2 provides a detailed discussion about this recession. One point that is worth noting here is that large numbers of disadvantaged people were affected. Los Angeles was, and still is, a center of dense concentrations of working-class and low-income minorities. The problem is accentuated by large wage differentials between those at the top and those at the bottom (Ong and Zonta 2001). It is easy to see retrospectively the connection between larger economic forces and the deepening social divisions of the early 1990s, and the

[1] For overviews of the spatial mismatch hypothesis and its critics see Spencer (2000) and Holzer (1991). For an analysis of the spatial mismatch hypothesis for Los Angeles see Stoll (1999).

association with violence, drugs, gated communities, rapid increase in gangs and the growing isolation of the poor. In hindsight, it is these conditions that contributed to the unrest of 1992 in South Central Los Angeles and other poor neighborhoods at this time. Monday night quarterbacking, however, is not productive unless it leads to improvements. One lesson that we should have learned is that public policy should certainly tackle long-term structural inequalities but also be attentive to potential short-term economic hardships that may escalate social discontent to precipitous levels.

In order to understand what policy interventions can achieve, researchers must have the ability to predict how general cyclical economic change affects different neighborhoods. However, there has been little explicit research on the experience of such neighborhoods during expansions and recessions compared with other neighborhoods. Do communities such as South Central Los Angeles experience a recession disproportionately? Do they experience the prior growth period differently from other poor neighborhoods? From middle class ones? Answers to these kinds of questions can help policymakers, leaders, and planners develop strategies sensitive to these background economic conditions.

However, if policymakers and others confuse cyclical change for secular changes in the economy, then they stand a chance of missing the mark with policies and programs. If a rapid increase in income during an expansion is mistaken for a long-run improvement, and decision makers act on this misinterpretation, then they would be lulled into a complacency believing that the increase will continue. Short-term run ups are inevitably followed by cyclical downturns. On the other hand, if we can distinguish cyclical change from secular change *and* understand the different effects of economic cycles on

neighborhoods, then policymakers and other leaders may be able to design policies and programs that build on the regional economic trends rather than run counter to them.

This report is broken into four chapters. This first chapter defines secular and cyclical economic changes, which will frame the analysis throughout the rest of the report. This chapter also briefly reviews the literature on neighborhoods, and describes some of the methodology and data issues of our analysis. Chapter 2 describes the most recent economic cycle and the economic and residential heterogeneity in the Los Angeles region. Chapter 3 defines discrete neighborhoods in Los Angeles County and describes the distribution of the economic base among these neighborhoods. Chapter 4 examines these impacts of the business cycle on 53 neighborhoods in order to determine if the cyclical economic effects were more severe in some areas than others, and also examines the influence of socioeconomic factors on the degree of neighborhood volatility. The report concludes with some implications that these varying cyclical economic differences may have for policy development and program selection.

Economic Cycles and Policy Relevance

While it is difficult to clearly isolate regular cyclical fluctuations in the economy from major structural shifts, it is important to distinguish some of the characteristics of each type of change. Secular economic change, sometimes known as structural shifts or trends, describes the long-term growth patterns of economic variables. In general, this kind of change is important for those interested in understanding the relatively "irreversible" changes that occur in economies. In some cases their sum constitutes the overall development and evolution of economies. Perhaps the most clear secular economic change has been the shift from agricultural to industrial economies. Although often oversimplified, some authors' use of this transition case study can show clearly the

nature of secular change. Rostow (1971) for example, has described the shift from a labor-based, land-intensive agricultural economy to a more technology-based industrial economy and the five stages of progressive development that this kind of economic change comprises. These changes are largely based on innovations in technology, such as mechanized agricultural equipment, that lead to production increases and labor cost savings. Ehrenberg and Smith (1997) describe the process that can lead to structural – or secular – unemployment during these kinds of transitions as a mismatch between skills demanded by firms and the skills available in the labor supply.

Walker and Storper (1989) describe a more recent structural shift in technology related to the microprocessor that created a market for computers, required workers with greater expertise and education, and transformed the daily nature of work. This change in production process and organization was felt across all sectors of the economy from steel production to agriculture, each of which incorporated microprocessing technology to reduce labor costs and increase production. According to our definition of secular economic change, once this technology is in place, the modes of production it generates remain in place until another structural shift obviates them. These new technologies and workplace innovations will continually be replaced by even newer ones, but it is not expected that the economy will ever revert back to a previous form of production. Although much of the secular trend is due to technological innovation, it may also be partly driven by large-scale political change such as post-1945 loss of European manufacturing and its effect on competition for American industrial products. In either case, these technological and geopolitical causes are irreversible in nature and differ significantly from those that drive cyclical change.

The business cycle, on the other hand, tracks much shorter-term economic fluctuations around this long-term secular trend. Black (1997) refers to the trade cycle (or business cycle) as "a tendency for alternating periods of upward and downward movements in the aggregate level of output and employment, relative to their long-term trends." These alternating periods are generally called expansions and recessions, with relative high points known as "peaks" and relative low points known as "troughs. The National Bureau of Economic Research (NBER) describes the business cycle as the period between peaks in economic activity on any given indicator; a recession is defined as the time elapsed from the first peak to the following trough, or the moment at which economic activity reaches its nadir and begins to increase. Between this trough and the next peak, the economy is expanding. The definition of periods of expansion and recession vary depending on what constitutes a sustained pattern of growth and decline. In general, however, the NBER tracks monthly data to define these periods. Relatively long periods of expansion are usually followed by brief recessions, as was the case for the most recent national expansion from March 1991 through March 2001.

The standard monthly economic indicator of the business cycle is employment.[2] However, personal income and other variables related to individual assets, consumer behavior, the volume of business sales and industrial output are also useful for determining the business cycle. Thus our understanding of the cycle, its length, and the measurement of peaks and troughs depend on the type of variable measured. Nonetheless, if a variable measures economic change, then it should follow patterns similar to other economic variables even if the specific dates of change vary slightly.

[2] See Ehrenberg and Smith (1997) for a definition of cyclical "demand-deficient unemployment."

The reasons for secular change and cyclical change changes are different, and therefore one must distinguish between them in order to implement and evaluate effective policies. At any given moment, it is difficult to determine which patterns are long-term structural shifts and which are short-term cycles, and thus it is difficult to predict which indicators are likely to return to previous levels and which are not. Despite this difficulty, it is important to identify the conceptual distinction between the two because these changes influence our understanding of the causes of economic hardships among all members in the economy, and perhaps more importantly among those with fewer opportunities.

Whether policymakers and planners distinguish between secular and cyclical change can influence their decisions in different ways. This is not just a hypothetical possibility. An example is the recent debate around revising and possibly increasing transit fares in Los Angeles. A permanent change in transit fare must consider structural change because it is not temporary; consequently, secular trends should be considered. One of the factors considered by the local agency was the trend in income for the bottom quartile of households (the 25% with the lowest income). Initially, the proposed analysis was to compare income during the early- or mid-1990s with income in 2001. Unfortunately, the change in income using that period was dominated by a recovery, and the increase was purely cyclical. While other factors were important in the decision, using that income increase to justify higher transit fares would be misleading because the upward cyclical movments in income do not coincide with secular trends. In fact, the average (median) income for the bottom quartile decreased from peak-to-peak years.[3]

[3] Douglas Miller and Paul Ong, "Income Trends for Bottom Quartile of Households," memorandum to James De la Loza, Planning Director, MTA, November 20, 2002.

The business cycle can also affect public policy through other channels. For example, means-tested programs for both individuals and neighborhoods use baseline criteria to determine eligibility. The point on the business cycle at which criteria are established determine the people and places eligible for participation. When the eligibility rules change infrequently, the criteria will affect groups in the future, even when the cyclical conditions do not hold. In this way, the timing of eligibility criteria plays a key role in determining future prospects. Similarly, the point on the business cycle at which a policy is evaluated can have significant influence on the conclusions about its relative effectiveness. A primary example is the evaluation of welfare reform. Because the changes were enacted in 1996, most of the existing evaluations have focused on the dramatic decrease in the use of public assistance and the increase in employment of welfare recipients that occurred during a robust economy. These positive outcomes, however, are likely to be specific to this time of economic expansion, and it would be a mistake to assume that the welfare rolls and employment levels will continue on the same trajectory as the economy slows (Ong and McConville 2001). Finally, in addition to the necessity of understanding the impact of the business cycle on policies in general, policy analysis and planning should be sensitive to the implications for neighborhoods. The interpretation of neighborhood statistics and descriptions depends heavily on the point of the business cycle at which they are measured. If neighborhood reinvestment levels, for example, are measured during an investment peak, then any conclusions may be different from those that one would draw if they were measured during a trough. The following literature review of neighborhoods and the economy suggest that a cyclical approach for

neighborhood analysis might provide further insight on how to interpret neighborhood statistics, descriptions and trends.

Neighborhoods and Regional Economies: the Literature

There is a literature on the impact of economic change on neighborhoods, but it focuses on long-term effects. That literature agues that conditions prevailing in poor neighborhoods are tied to, and a result of, regional, national, and global changes. The research focuses on how investment opportunities and economic niches are geographically defined by comparative advantages, economies of scale, agglomeration effects, and locational characteristics. Consequently, these external forces structure and direct secular changes neighborhood by neighborhood.

The industrial change literature suggests that the development of poor, inner city neighborhoods is related to the process of deindustrialization during the 1970s and early 1980s. Many accounts have documented the shift of American cities from centers of manufacturing goods and a low-skilled labor force to centers of information exchange, administration and financial transactions (Kasarda 1985, 1993; Noyelle 1987). These observers see the creation of large urban ghettos as primarily a result of structural economic shifts that have changed the range and nature of jobs available in older urban areas (Deskins 1996). This change, they propose, has been the result of both technological change which has led to the disappearance of lower-skilled manual jobs (Berman, Bound and Machin 1997) and overseas outsourcing, though the first has had a much larger effect (Freeman 1995).

This hypothesis is compelling because of the history of African American neighborhoods in older industrial cities. As durable manufacturing industries expanded in

the Northeast and northern Midwest during the post-war period, southern African Americans took advantage of plentiful low-skilled manufacturing jobs in northern cities, and settled in predominantly African American neighborhoods (Lemann 1991). Once the manufacturing jobs disappeared from cities, the low-skilled African American majority in central cities became unemployed. William Julius Wilson (1997) has chronicled the devastating effect this job loss has had on social behavior, families, and poor neighborhoods in Chicago. For him, the inner city represents the residual of a regional manufacturing boom and bust cycle that completed itself in the early 1980s, leaving the spatially concentrated poor with no stable employment base or social institutions. Although this phenomenon was initially identified with primarily African American neighborhoods, it would be a mistake to limit analysis to a single racial or ethnic group, particularly in an area as diverse as Los Angeles. The neighborhood process we anticipate is a general result of poverty and skills deficits.

The historical account of African-American neighborhoods examines only the experience of inner-city areas, and only their initial development and decline through deindustrialization. It treats inner cities as initial drivers and subsequent victims of structural change. Being historical in nature, studies such as Wilson's are instructive regarding the current position of poor neighborhoods in the regional economy. However, since they analyze structural change it is difficult to see how the conclusions they make can effectively inform policy and program development.

The second body of literature relating poor neighborhoods to the regional economy takes a less historical approach. Some researchers who focus on racial and ethnic enclaves suggest that residents of poor neighborhoods have a nascent power to stem

regional economic divestment by creating jobs and business opportunities in inner cities. They argue that low-income ethnic minorities have been able to build on ethnic affinities to stimulate local markets for business development and job creation that serves both the poor neighborhoods themselves and the larger region (Light and Karageorgis 1994; Waldinger 1986; Portes and Manning 1986).

In addition, advocates of community reinvestment suggest that poor neighborhoods can help to reverse regional economic declines by capitalizing small entrepreneurs to take advantage of regional economic niches. This argument for community-based capitalism has come from the urban policy research literature (Harrison 1974), the social activist literature (Foster-Bey 1997), and the business literature (Porter 1997). Such arguments suggest that inner city neighborhoods are homes to latent entrepreneurs, house an untapped low-wage labor force, and serve large untapped retail consumers. These resources, they argue, are attractive to regional and national firms searching for ever-cheaper labor and real estate, as well as new consumer markets. In this way, the community reinvestment literature suggests that there is a high demand for the resources available in poor neighborhoods.

While it is absolutely critical to understand the long-term structural changes discussed above, it is also important to understand that neighborhood conditions can also change dramatically on the short-term as markets expand and contract. The very channels that link neighborhoods to broader secular changes are also the nexuses that allow cyclical forces to buffet neighborhoods. Like the region and nation, the level of economic activity at the very local level is contingent on timing. Unfortunately, the industrial change literature tends to neglect the business cycle with its focus on secular change, and the

reinvestment literature focuses only on a single moment in time. Neither body of research, therefore, offers the policymaker a strong basis to estimate shorter-term variations that may influence policy implementation in relatively predictable ways.

Conceptual Problems of Neighborhood Analysis

Moving to a more systematic study of the neighborhood-level impact of the business cycle faces a number of problems, including the challenge of conceptualizing the unit of analysis. There are numerous definitions, but in general, the concept of the neighborhood incorporates aspects of physical space, social networks, daily patterns of interaction among individuals, and institutional relationships with those individuals. Moreover, these sets of interactions vary by region and even within regions depending on the degree to which individual residents interact on a local level. Nonetheless, the neighborhood does play an influential role in creating a social, institutional, and physical environment within which individual residents live. Whether this neighborhood environment is dense, socially active and economically diverse or dispersed, more individually focused, and residential, the local environment is the daily context within which any resident lives, even though the influences of this environment on the individual may vary dramatically.

The neighborhood unit of analysis must be treated differently from the individual resident unit of analysis. Each neighborhood is an aggregation of residents, as well as businesses and institutions. These categories interact at the neighborhood level, and our analysis tries to focus equal attention, where possible, on each. In general, we are interested in the ways that these categories interact because we believe that they have important impacts on the individual residents living in them rather than because we believe that neighborhood units are inherently important. Thus, as we examine a variety

of neighborhood characteristics we try to focus on those aspects and conclusions most relevant to residents of the neighborhoods.

As part of the distinction between residents and neighborhoods, it is important to recognize that neighborhoods are not static with respect to their residents. People move into and out of neighborhoods over time, thereby changing the demographic composition, the socioeconomic characteristics and the institutions. Moreover, these rates of change can vary significantly across different neighborhoods. Since these changes in resident makeup can contribute significantly to the variables that we examine, it is important to remember that the analysis of neighborhoods may tell us little about the individual experiences of residents, but that it tracks the environment within which any given resident is likely to interact. This distinction is particularly important for policy implications for neighborhood analysis.

Quinn and Pawasarat (2001) have discussed some of these issues of neighborhoods and their residents in their discussion of measuring changes in welfare usage in one neighborhood in Milwaukee. Their analysis focuses on one particular poor neighborhood and collects information on demographics, socioeconomic status and welfare policy implementation. In doing so, they explore how a neighborhood-level analysis can be useful for exploring welfare policy approaches to assist poor residents that go beyond regional aggregate analyses of individuals. Their neighborhood approach allows policy makers to determine how the impact of welfare policy is distributed across the region and take steps to reduce this inequality.

In their analysis they had to select a set of neighborhood boundaries based on the characteristics they thought important for creating a local environment within which

residents interact. This process of boundary definition addresses a second problem of neighborhood analysis. It is important to note that there are few shared empirical definitions of neighborhoods. The term is used to describe general clusters of residents that share similar characteristics. However, drawing the boundaries of neighborhoods depends on what characteristics the analyst finds important and what levels of these characteristics are important to isolate from one another. We will discuss in further depth these empirical issues in our discussion of defining Los Angeles' neighborhoods in Chapter 3.

Methodological and Data Issues

Along with the conceptual issues of differentiating short- and long-run effects and in defining the unit of analysis, the study of the business cycle and neighborhoods faces major methodological and data challenges. As with the nation and region, it is critical to separate secular changes. Different neighborhoods are exposed in varying degrees to the secular changes in the economic base of a region because neighborhoods themselves are constantly changing, as mentioned above. At any given time, a neighborhood may be maturing or declining. The size of a neighborhood may be increasing or decreasing, or the boundaries may be expanding or contracting. Finally, the population may change significantly due to migration, and neighborhoods could become gentrified or go in the opposite direction. The underlying population dynamics are significant. According to the 2000 census, only about half of all residents of Los Angeles had lived in their homes for five or more years.

Another way in which secular changes may vary across neighborhoods is the existence of exogenous "shocks" to a neighborhood. These are changes that had not been anticipated or planned for in these neighborhoods. An example of an exogenous shock is

the Northridge earthquake in 1994. While the earthquake certainly affected neighborhoods across the rest of the Los Angeles metropolitan region, the community of Northridge was particularly affected. Another type of exogenous shock may be a change in public policy, such as the implementation of welfare reform. Again, while affecting many neighborhoods in a region to some extent, some neighborhoods in Los Angeles were certainly more drastically affected than others.

These secular changes and exogenous shocks are important but are not the focus of this report.[4] Long-run changes, however, are important because they can confound the analysis of short-run effects, and we must look the data available for conducting this analysis. Metropolitan-level data for Los Angeles are readily available because of the large size of the region. Direct estimates of unemployment, consumption, income, and the real estate market are all regularly reported. However, it is difficult to find this type of data at the neighborhood level.

For our analysis of cyclical and secular economic changes at the neighborhood level, we want a data set that tracks income, unemployment, consumption, investments, and the use of safety net programs. Additionally, we want this data set to be unbiased, longitudinal, consistent, and geographically disaggregated. Unbiased means that the data represent all relevant members of the area observed, i.e., the incomes of all residents of a neighborhood. Longitudinal means that the data are recorded at regular intervals, preferably at least annually. Consistency requires that a data set are collected and reported in the same manner over time. Finally, the data must be available for

[4] For a discussion of the long-run changes, see Shannon McConville and Paul Ong , "The Trajectory of Poor Neighborhoods in Southern California, 1970 – 2000," UCLA Ralph and Goldy Lewis Center for Regional Policy Studies, Submitted to the Brookings Institute, forthcoming, 2003.

neighborhoods or smaller geographic units that can be easily tabulated into neighborhoods.

Unfortunately, very few data sets meet these criteria. No agency or research organization conducts annual surveys with sufficient sample sizes to produce periodical neighborhood-level profiles. This is understandable because the cost is enormous and cannot be justified. Most regional surveys can only reliably report findings for the region (for example, the Los Angeles County Social Survey). The few existing "neighborhood" surveys (such as the L.A. Family and Neighborhood Survey) are restricted to a sample of representative neighborhoods. Only the U.S. Bureau of the Census has sufficient resources to collect comprehensive neighborhood-level data, and it does so only once every ten years as a part of the decennial census. One interesting characteristic of the last four decennial censuses is their timing relative to business cycles. The collected data, particularly the income data, coincide with peak or near peak years of the business cycle. Decennial census data, then, are very useful to study secular changes from decade to decade. What is missing is information on economic conditions for the valleys that occur between these peaks. That may change if the American Community Survey is fully implemented, but that is not likely to happen soon.

The alternative is administrative records that are generated by government as an integrated part of public programs, and in a few cases, by the private sector. Depending on the program, these data sets can be sufficiently large to disaggregate to the neighborhood level. Moreover, the data are collected regularly for the life of the program. Administratively based data, however, do not make ideal research data sets, since understandably, the data are collected purely for the operation of programs. They include

only those who participate in the programs or are required to report. The information submitted and collected may change with policy and regulations. The information is also protected (and appropriately so) by confidentiality laws, making access for research very limited. While data may exist, they may not be reported for small geographies (for example, revenues covered by sales tax). Despite these limitations, administratively based data are the most readily available source of information to analyze the impact of the business cycle on neighborhoods. Table 1.1 summarizes the characteristics of these data sources.

To examine income, we used tax return data from the Internal Revenue Service. This data set is slightly biased, as it only collects data from those individuals and households who file their taxes. Additionally, the data are not fully longitudinal, and are only available for the years 1991, 1997, and 1998. Because data are only available for these years, the data set is not consistent and only covers the recovery period of the last business cycle.

To examine the impact on jobs, we looked at retail employment measured by the Economic Census. This data set is relatively unbiased, as it includes data from the large majority of employers in Los Angeles County. However, the data are not fully longitudinal, as are only available for 1987, 1992, and 1997. Additionally, in 1997 a slightly different categorization scheme was used in measuring retail jobs, and we did not use the data for this year. Finally, by using data from 1987 and 1992, we were only able to examine this variable for the downturn period of the last business cycle, making this data set somewhat inconsistent.

To examine use of safety net programs assisting the poor, we looked at data for participation in reduced lunch programs provided by the various Los Angeles area school districts. This data set is somewhat biased because it only measures a population of public school students. However, it is fairly longitudinal and consistent, and data are available for the years 1988-2001, allowing us to measure participation across all of the most recent business cycle.

To examine long-term investment, we gathered data on home values from Los Angeles-area realtors. This data set is slightly biased, for it only examines home sales as a component of investment. The data has been collected annually, but it does not exist prior to 1992, so there is a lack of consistency in this data set, and we are only able to examine this variable for the recovery period of the last business cycle.

Finally, to examine short-term investment, we gathered data on construction permits issued in Los Angeles. This data set is also slightly biased, but it is longitudinal and consistent, covering the period from 1990 to 2001, allowing us to measure this variable across all the years of the most recent business cycle. The most serious drawback is that the data set only covers permit activity in the city of Los Angeles. Because of this limitation, analysis of this data source in this report is limited, but it is used extensively in an accompanying report on the use of place-based investment strategies.[5]

The various limitations of each of these data sets make it difficult to provide a wholly comprehensive analysis of economic changes at the neighborhood level. However, by using these data sets in combination with each other, we have been able to provide a rough analysis of the changes in these various economic measures in Los Angeles

County, as well as measure the varying effects of the business cycle on different neighborhoods. Before performing this analysis, though, we will first look closely at the Los Angeles region and examine its most recent business cycle and the heterogeneity of its neighborhoods.

[5] James Spencer and Paul Ong, "Place-based Investment Strategie An Analysis of the Los Angeles Revitalization Zone," Report to the Dora and Randolph Haynes Foundation, LA: Ralph and Goldy Lewis Center for Regional Policy Studies, 2003.

Table 1.1: Characteristics of Data for Neighborhood Analysis

Characteristics	Tax Returns	Retail Jobs	Lunch Program	Home Values	Permit Value
Source	IRS	Economic Census	School Districts	Realtors	LA City
Economic Dimension	Income	Consumption, jobs	Safety Net	Assets	Construction
Continuous or Sporadic	Sporadic	Sporadic	Continuous	Continuous	Continuous
Years	1991, 1997, 1998	1987, 1992, 1997	1988-2001	1992-2001	1990-2001
Consistent over time?	Yes	No, 1997 not used	No		
Bias	Filers only		Public Schools	Sales only	LA City Only
Basic Geographic Unit	Zip code	Zip code	Elementary School	Zip Code	Addresses
Portion of Cycle Covered	Recovery	Downturn	Full cycle	Recovery	Full Cycle

CHAPTER 2: THE LOS ANGELES CASE STUDY

The purpose of this chapter is to provide background on the economic and demographic characteristics of the Los Angeles (LA) metropolitan region. The first part of the chapter examines the characteristics of the recent business cycle in Los Angeles County in the 1990s, and discusses changes in the labor market, patterns of consumption, home values and construction activity. The second part of the chapter examines the geographic distribution of the economic base across Los Angeles County, as well as residential patterns of segregation by race and income.

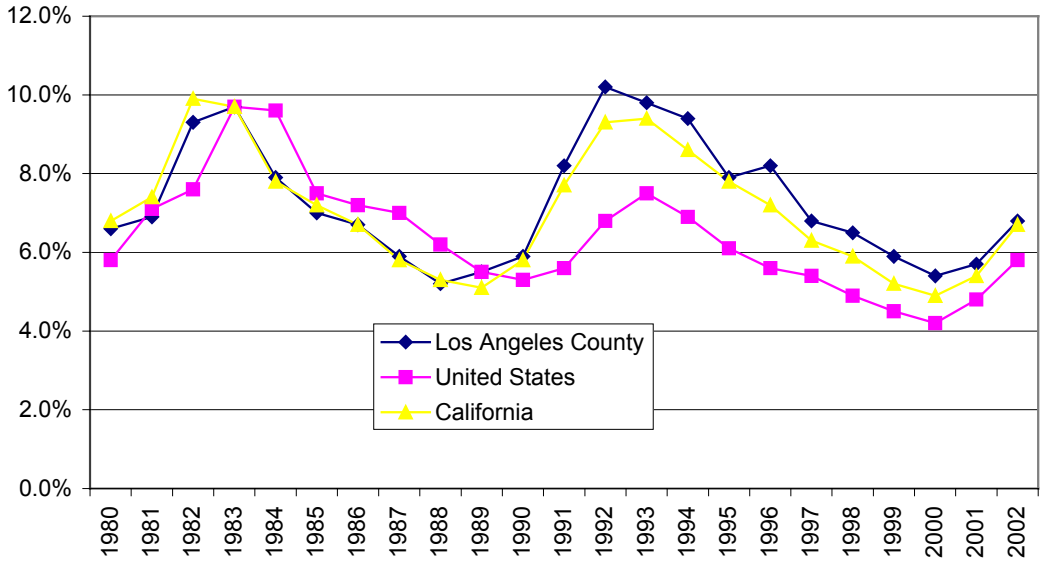
The Business Cycle

Los Angeles County has experienced accentuated cyclical economic variation over the past two decades. Following the disappearance of the durable manufacturing industries such as glass, steel, rubber and automobiles in the late 1970s and early 1980s (Bluestone and Harrison 1982; Soja, Morales and Wolff 1983), the Los Angeles manufacturing sector became increasingly reliant on low-wage immigrant labor–based industries such as garment and furniture production (Scott 1988; Levy 1987). By the early 1990s, heavy manufacturing clearly had become a greatly diminished sector. Employment in professional services had overtaken durable goods production, with entertainment, recreation, construction and other non-professional services showing the fastest sectoral growth (Grant 2000). This secular change in the early 1990s from

traditional mass-production manufacturing to services and new forms of flexible manufacturing marked the beginning of the most recent economic cycle.

Additionally, throughout the period from the early 1970s through the early 1990s, government-funded defense industries, especially the aerospace industry, had also contributed significantly to the Los Angeles regional economy, taking up employment slack when other sectors slowed. With government cutbacks in the early 1990s, however, this source of jobs also ran dry. Because of its reliance on defense spending, Los Angeles was not only impacted by the general economic slowdown starting in the early 1990s, but also suffered disproportionately from these simultaneous defense cuts. The net results were higher unemployment and a prolonged recession for Los Angeles County (Ward and Ong 2002; Ong and Lawrence 1995).

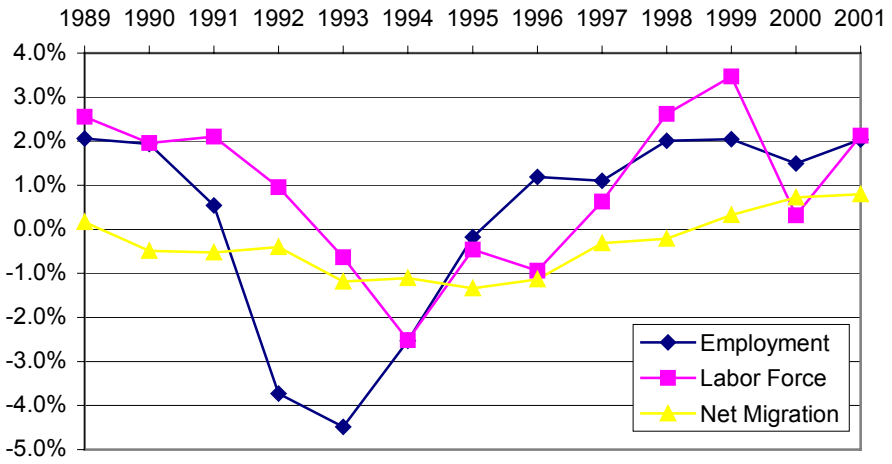
Figure 2.1: Unemployment Rates



The depth and duration of the recession can be seen in Figure 2.1, which shows the unemployment rate for all workers in Los Angeles County from 1980 through 2000. The unemployment rate measures the level of unemployment as a percent of the total labor

force. A person is unemployed if he or she is not working for pay but actively seeking employment, and the labor force is comprised of both employed and unemployed persons. Throughout the late 1990s, unemployment in Los Angeles County remained higher than in the rest of the nation. Using unemployment as an indicator, the economic growth cycle in Los Angeles peaked in 1988 – one year before it did for the state as a whole – with an unemployment rate of 5.2%. The growth cycle bottomed out four years later at about 10%, as it did with the rest of the state at a slightly lower rate of 9%. However, in a region such as Los Angeles where in-migration rates are high, unemployment rates are driven by both the process of economic expansion and contraction and the related process of labor force growth.

Figure 2.2: Annual Changes



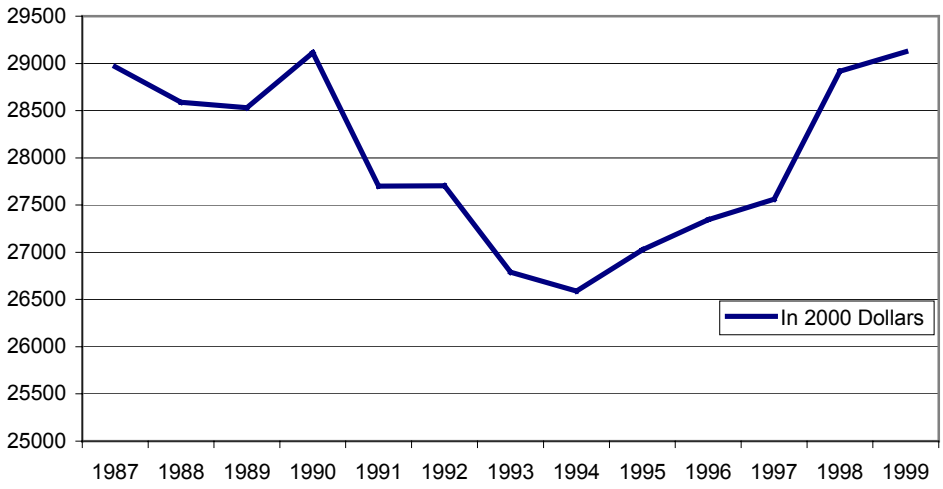
The size of the labor force is affected by changes in the labor force participation rate (the percent of the working age population either working or seeking employment) and migration of participants. Both of these factors are affected by the business cycle. During a recession, the size of the labor force declines because there are more discouraged workers who have given up looking for a job, while in-migration simultaneously slows.

The reverse holds true during an economic expansion. Figure 2.2 captures these effects in terms of annual changes in these different measures. Between 1987 and 1992, when the unemployment rate jumped from 6% to 9.5%, the labor force decreased by approximately 150,000 workers, while during the period from 1992 to 1997 it increased by 60,000. Conversely, during the period from 1992-97, when the unemployment rate began to drop significantly to about 7%, the labor force experienced slight growth by about 60,000. These measures show that new entrants into the labor force do not seem to be a major cause of increased unemployment rates.

The changes of the business cycle can also be seen in fluctuations in income. Figure 2.3 tracks the trend in per-capita income for Los Angeles County in constant (inflation adjusted) dollars. When the economy took a downturn, income dropped by a little less than a tenth. By 1999, per capita income had recovered to the level of the prior peak. The cyclical impact on low-income households appears to have been more severe. Income for the typical household at the bottom quarter of the economic ladder fell by a third between 1989 and 1994, and failed to return to its pre-recession peak by the end of the decade.[1]

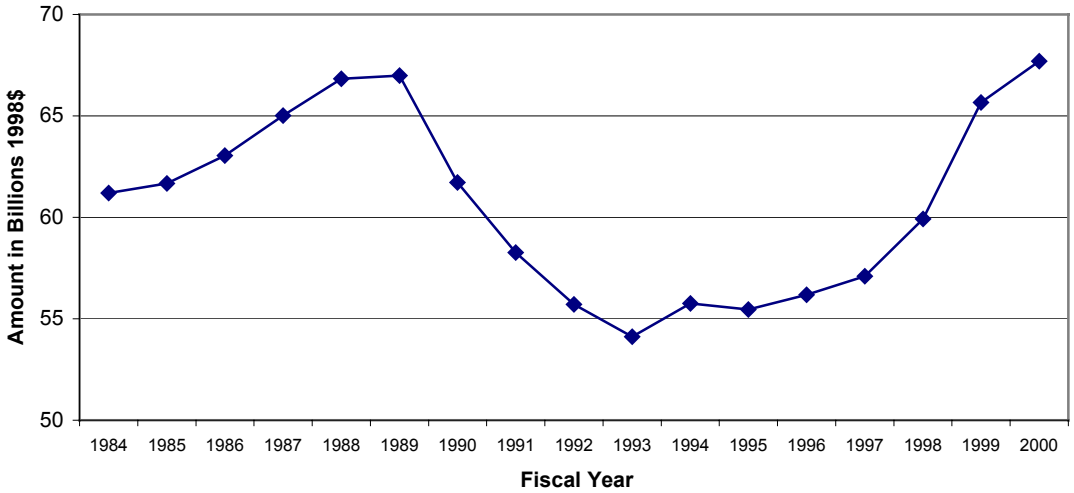
[1] The data for this pattern are based on the median income for households in the bottom quartile as reported in the March Current Population Survey.

Figure 2.3: Los Angeles Per Capita Income Trends 1987-1999
(Bureau of Economic Analysis)



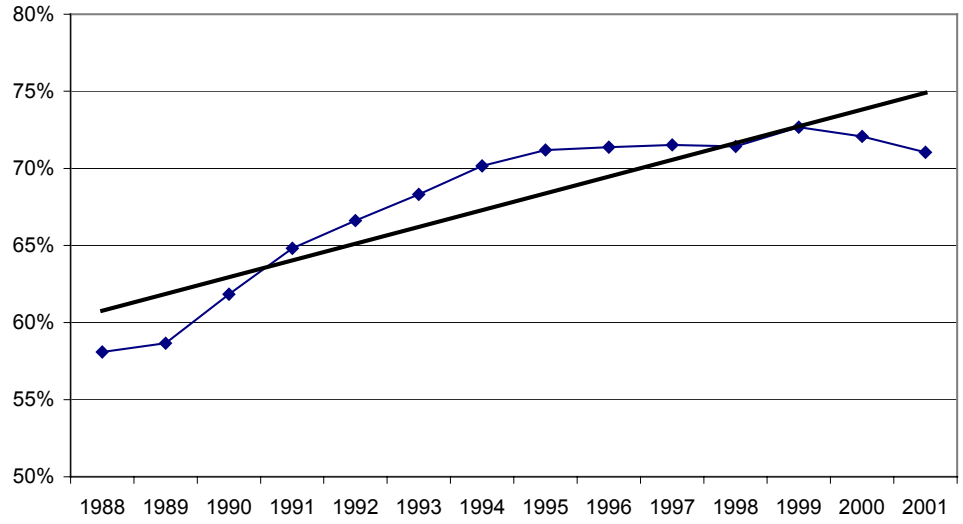
As income dropped during the recession, so did consumption. This can be seen in the figures for retail sales in Figure 2.4. From peak to trough, sales decreased by nearly one-fifth. By the end of the decade, sales had once again recovered to pre-recession levels.

Figure 2.4: Adjusted Taxable Sales of Retail Stores in Los Angeles County



The recession-induced drop in private expenditure is partially offset by an increase in the use of programs assisting the poor, or "safety net" programs. One indication of this is the percent of students participating in free or reduced lunch programs. Because eligibility is based on income, the drop in income due to the recession pushed up the participation rate, which can be seen in Figure 2.5. The cyclical pattern is confounded by a secular increase in participation; however, the fluctuation around the trend line is clearly correlated with the recession and expansion periods. The trend line is based on fitting a linear line to the data, and it provides an estimate of what would have happened in the absence of the business cycle. After adjusting for the secular increase, the data indicate that usage increased from the start of the period until 1994. Since 1995, the rate remained fairly stable and declined relative to the trend line.

Figure 2.5: Percent of Students in Free/Reduced Lunch Program



The business cycle also has an impact on the real estate market, and this can be seen in measures of home value and construction activities. Figure 2.6 shows the 1990s trend for single-family home values in Los Angeles. Values were low during the years 1994-

96, when unemployment was declining from a high period, and recovered to the 1992 levels in 1999.

Figure 2.6: Single-Family Home Values in Los Angeles

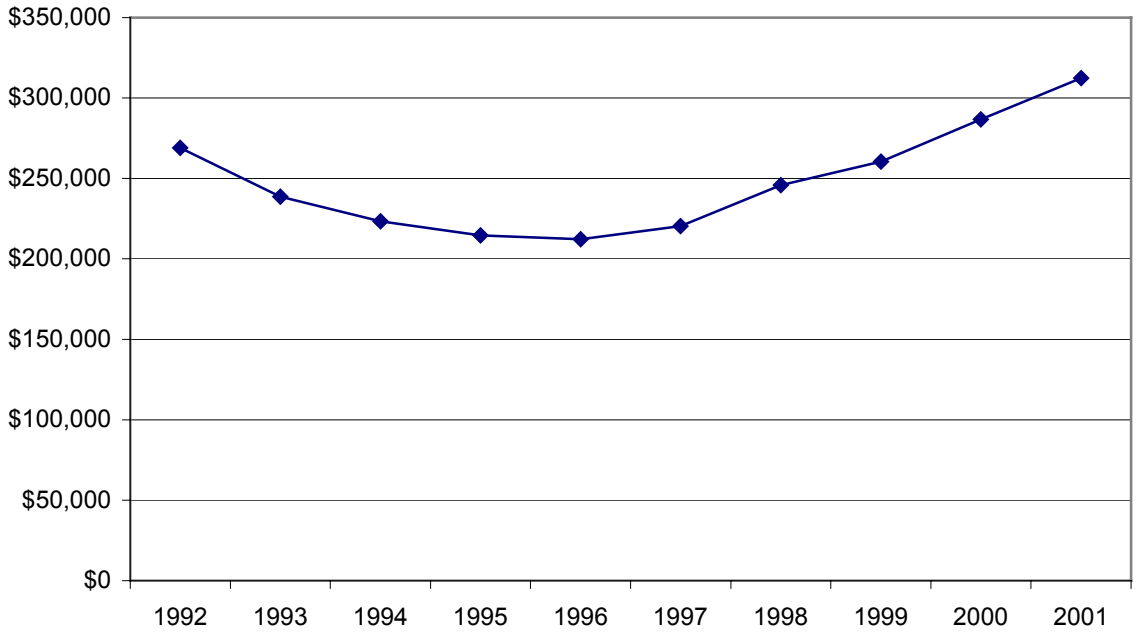
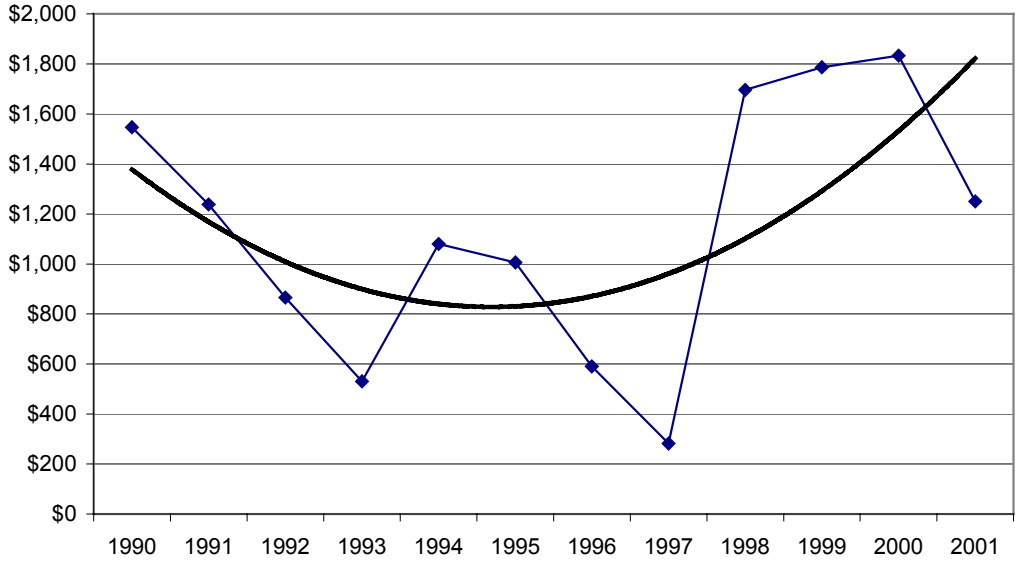


Figure 2.7 presents the data on the aggregate value of building permits approved during the 1990s in the City of Los Angeles. This is a leading indicator of economic activities in construction because permits are required prior to the start of construction activities. Although this indicator generally follows the business cycle, there are also other changes that demonstrate that not all measures have a consistent, smooth pattern. Late 1993 was the low-point of investment in home and business improvements. There was a short-lived upturn in 1994 prior to a full economic recovery. This brief period of investment seems to have a subsequent dampening effect. When the economy expanded in the early 1996 and 1997, the value of new building permits dropped, due perhaps to a large "stock" of yet-to-be-used permits. However, permit values rose steeply from late

1997 through 2001. Despite the fluctuation during the mid-1990s, a fitted time line for the value of building permit does follow the business cycle.

Figure 2.7: Value of Building Permit (Millions 1998$)



All of the indicators discussed followed the business cycle, although the specific patterns are influenced by secular trends (e.g., free/reduced lunch participation) or within cyclical forces (e.g., the value of building permits). There is also some indication of differences in timing. To get a sense of possible differences across measures, Table 2.1 summarizes the key indicators for the downturn, which is more completely covered by the available data. There is a fair amount of consistency in when the recession started, indicating that different sectors of the economy moved together during the downturn. There is, however, remarkable variation in the levels of decline for the various indicators. Employment and per capita income are fairly consistent, but the decline in consumption and home values may have been twice as great. The impact on construction was even more severe. There were also differences in the year when the recovery started, with consumption and construction leading, and home values lagging.

Table 2.1 – Key Indicators of Los Angeles County Business Cycle

	Peak Year	Trough Year	Percent Change
Employment	1990	1995	-11%
Per Capital Income	1990	1994	-9%
Retailing	1989-90	1993-94	-19%
HomeValue	1989-90	1996	-20%
Permit Value	1990	1993	-65%

Table 2.1 reviews the variation in the impact of the business cycle on various important sectors of the economy. As mentioned earlier, the downturn appears to have had more serious impacts on those at the bottom of the economic ladder and on those in the aerospace industry. There are probably other significant differences. Because the population is not randomly distributed across Los Angeles County, it is likely that some areas are home to a disproportionately high number of people working in sectors that were much more heavily affected by the business cycle. In the next section of this chapter, we will look at the unequal distribution of both the population and the economic base across the county.

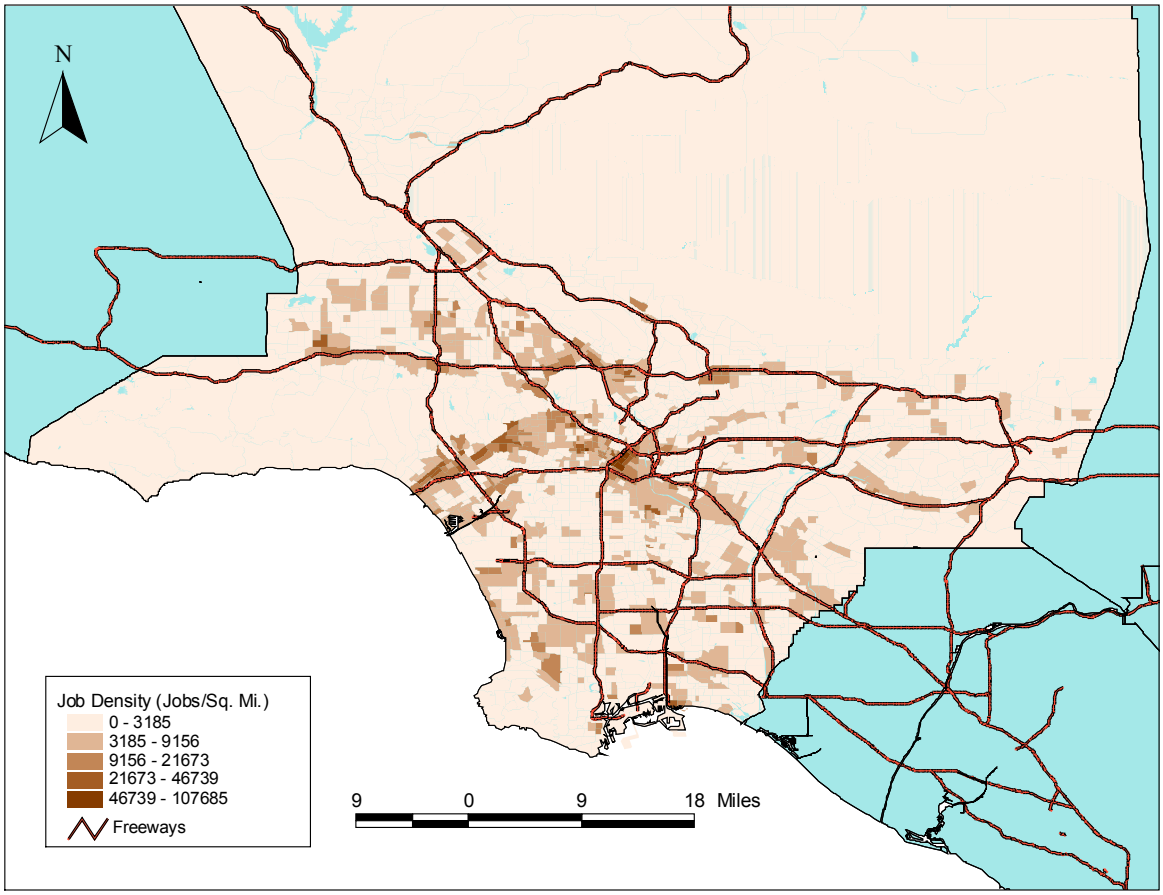
Geographic Heterogeneity

Examining the geographic heterogeneity of the Los Angeles metropolitan region is important because the localized impacts of the business cycle vary with the economic characteristics of various subareas. Jobs are very unevenly distributed geographically in Los Angeles County, as shown in Figure 2.8, which shows job density by zip-code areas in the urbanized part of Los Angeles County. Employment is highly concentrated in an arch starting at the Pacific Ocean proceeding along the Wilshire corridor and steadily

southeast into a manufacturing based zone.[2] In general, downtown held the highest levels of employment, with a strong concentration of jobs falling between the US 101 freeway just to the northwest of downtown, south of Santa Monica Boulevard and north of I-10 freeway east of the I-405 freeway. The westernmost side of the arch begins with the City of Santa Monica and extends south all the way to Palos Verdes with strong job presence west of the I-405 freeway. The eastern side of the arch begins just east of downtown and extends southeast through the neighborhoods of Pico Rivera, Montebello, El Monte, Bell, Downey, and further on through Cerritos. While slightly less clustered along this line, the eastern side of the arch bounds a large pocket of low employment beginning in the crease south of downtown in Crenshaw through South Central Los Angeles, Carson, Compton, Gardena, Torrance and reaching into parts of Long Beach. In addition to the horseshoe, there are significant, but less contiguous strips of strong job presence stretching west from Glendale through Burbank, Van Nuys, and North Hollywood.

[2] These data are normalized by geographic area to give a sense of the neighborhood concentration of economic activity.

Figure 2.8: Los Angeles Urbanized Area Total Employment Density, 2000



The areas with the lowest job density tend to be poor and predominantly minority communities. This is associated with residential segregation by income and race/ ethnicity. Understanding residential segregation is important because it is key to understanding cyclical economic differences in neighborhood. In other words, if there is residential segregation for cross-sectional indicators then one would expect to find differences in neighborhood economic cycles.

In fact, Los Angeles is a highly segregated region. This can be seen in the Dissimilarity Index (DI), a widely used measure of residential segregation (Duncan and Duncan 1955; Massey and Denton, 1987; Frey and Farley, 1996). This index compares the distribution of two groups in a population, and tells how segregated those two groups

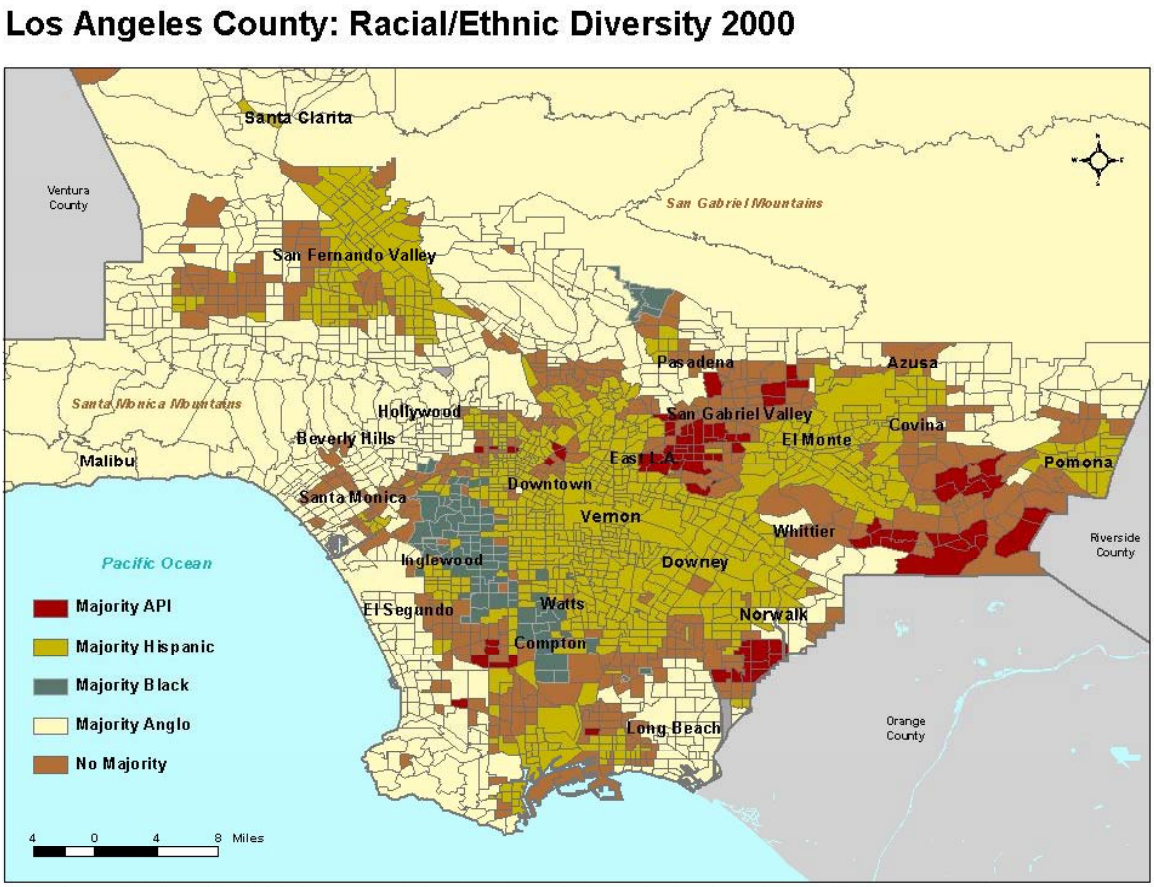
are across a chosen geography. The lowest possible dissimilarity index value is 0, when the two groups are perfectly blended. The highest index value is 100, when the two groups are totally separated. The Dissimilarity Index is computed using the following equation:

$$DI = \frac{1}{2}\sum_{i=1}^{n}\left[\frac{N_{1i}}{N_1} - \frac{N_{2i}}{N_2}\right]$$

where N_{1i} is the population of a racial/ethnic group in i^{th} census tract, N_{2i} is the population of non-Hispanic whites in i^{th} census tract, N_1 is the total population of a racial/ethnic group in the MSA, and N_2 is the total population of non-Hispanic whites in the MSA. The index indicates to what extent groups would have to be redistributed to achieve integration – a DI score of 67 for African Americans indicates that 67% of African Americans in a metropolitan area would have to move in order to be evenly distributed among non-Hispanic whites in the region.

The index reviews two patterns. First, relative to all metropolitan areas, Los Angeles scores higher than average on the Dissimilarity Index. The index for African Americans using Census 2000 data is 67.3, while the average for 311 other metropolitan areas is 64.4. The corresponding scores are 63.4 and 51.0 for Hispanics, and 48.1 and 41.4 for Asian Pacific Americans. The numbers also reveal variations among the minority groups. African Americans have been the most segregated group in recent history, but their DI level has declined slightly over the last two decades. While the DI levels for Hispanics and Asian Pacific Americans are lower, they have increased in recent decades.

Figure 2.9: Los Angeles Racial/Ethnic Diversity, 2000



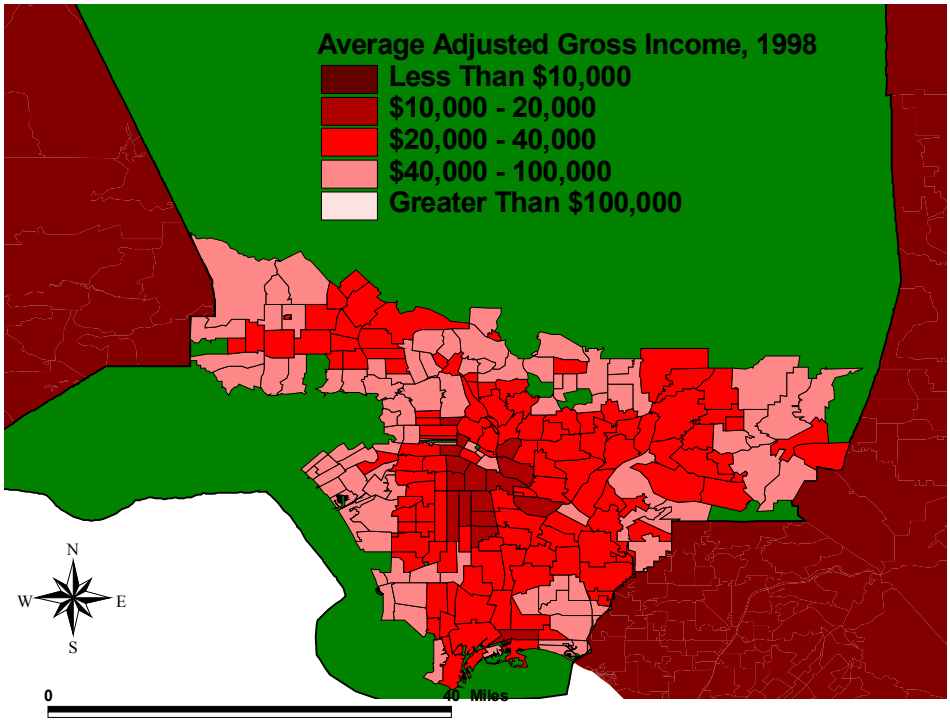
Data Assembled by Michela Zonta and Paul Ong, UCLA Lewis Center for Regional Policy Studies

Figure 2.9 shows the geographic distribution of census tracts by the dominant racial group in 2000. African Americans are heavily concentrated in the area southwest of downtown, which includes the southwestern half of South Central Los Angeles, and a small historical pocket in Pasadena. Asian-dominated tracts are located north of downtown in Chinatown, in the western half of the San Gabriel Valley and in the southeastern part of the county. Hispanic-dominated tracts are located towards the center of the county and the eastern part of the San Fernando Valley. Finally, non-Hispanic whites dominate the beach and canyon areas.

Along with racial/ethnic segregation, Los Angeles County is geographically segregated by income, as shown in Figure 2.10, which maps the per-capita income in

1998 by zip code area based on IRS returns. There is a distinct concentric pattern, with the lowest income in the core area, which includes South Central, and the highest income along the edge, particularly along the oceanfront and foothills.

Figure 2.10: Average Adjusted Gross Income, 1998



Segregation by income can also be seen in the spatial distribution of the poor. The poor are defined as those living below the federal poverty line, which was $18,100 for a family for four in 1999, and the poverty rate is defined as the percentage of the population below the poverty line. Los Angeles County's poverty rate rose from about 11% in 1970 to 18% in 2000. In 2000, nearly 1.7 million people were poor. Moreover, poverty has become more spatially concentrated in Los Angeles. This can be seen in Table 2.2. "Very Poor" areas are defined as census tracts where the poverty rate is 40 percent or higher, and "Poor" areas are census tracts that have poverty rates between 20

percent and 39 percent. In 1970, over two-thirds of the poor lived in Non-Poor tracts. Three decades later, only one-third did.

Table 2.2: Distribution of Poverty, Los Angeles County, 1970 and 2000

	1970		2000	
Distribution of Census Tracts				
Very Poor	36	2.3%	137	6.7%
Poor	205	12.9%	634	31.1%
Non-Poor	1,343	84.8%	1,270	62.2%
TOTAL	1,584	100.0%	2,041	100.0%
Distribution of Total Population				
Very Poor	84,457	1.2%	537,251	5.7%
Poor	765,088	11.1%	3,009,264	32.2%
Non-Poor	6,040,320	87.7%	5,803,256	62.1%
TOTAL	6,889,865	100.0%	9,349,771	100.0%
Distribution of Poor Population				
Very Poor	42,939	5.7%	249,088	14.9%
Poor	204,958	27.2%	843,926	50.4%
Non-Poor	504,657	67.1%	581,585	34.7%
TOTAL	752,554	100.0%	1,674,599	100.0%

Figure 2.11: Neighborhood Poverty in Southern California Metro Area, 2000

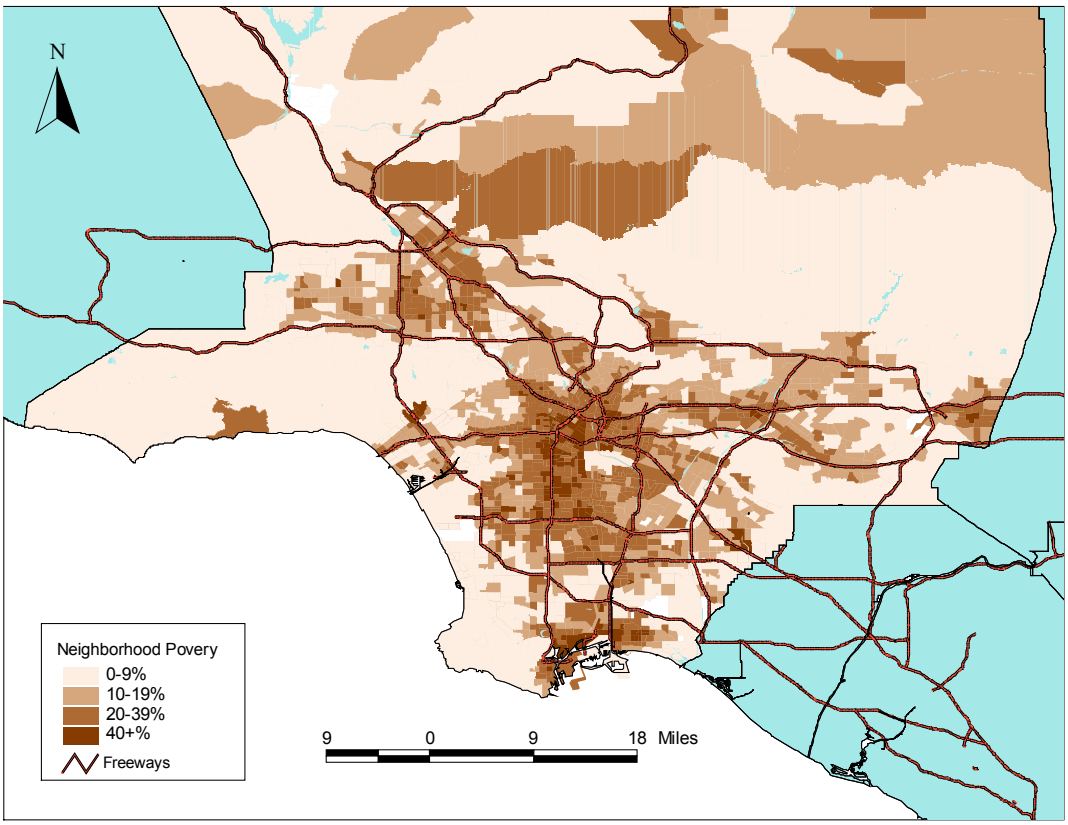


Figure 2.11 shows the geographic distribution of census tracts by poverty level. The Very Poor areas are heavily concentrated in the downtown and South Central areas of Los Angeles. There are also pockets near the Long Beach port area, in the cities of Inglewood and Hawthorne, and the eastern part of the San Fernando Valley.

The demographic composition of Poor and Very Poor areas has changed dramatically, as shown in Table 2.3. In 1980, more than half of residents in Very Poor areas were African Americans. A generation later, African Americans made up less than one-fifth of the population in Very Poor neighborhoods. Hispanics have emerged as the dominant population, now comprising about two-thirds of the population in Poor and Very Poor neighborhoods.

Table 2.3: Changing Demographics of Poor Areas of Los Angeles

	1980			2000		
	Very Poor	**Poor**	**Total**	**Very Poor**	**Poor**	**Total**
Los Angeles						
Racial/Ethnic						
Black	52%	37%	13%	18%	16%	10%
Latino	31%	46%	27%	66%	66%	43%
White	12%	10%	53%	6%	7%	31%
API	3%	5%	6%	8%	8%	13%
Other	1%	2%	2%	2%	2%	3%
Home Ownership	17%	22%	48%	16%	22%	48%
Foreign Born	24%	36%	22%	47%	49%	36%
Less Than High School	58%	59%	30%	63%	56%	30%
Unemployment	17%	11%	6%	17%	13%	8%

Concluding remarks:

Overall, this chapter has described the economic cycle in Los Angeles County from the late 1980s through the early 2000s. The region experienced a deep and prolonged recession in the 1990s, affecting the labor market, the real estate market, and consumption. Additionally, this chapter has described geographic variations in the socioeconomic composition of the Los Angeles metropolitan region. These differences

are potentially important because different neighborhoods faced different risks from fluctuations in the business cycle. The following chapter begins assessing these impacts by examining cyclical changes for six neighborhoods in Los Angeles County.

CHAPTER 3: NEIGHBORHOODS IN LOS ANGELES

Business cycles are common to all neighborhoods but their effects differ in their intensity and timing. The purpose of this chapter is twofold. The first part of the chapter discusses some of the theoretical and methodological challenges posed by defining neighborhoods. There are several ways to define neighborhoods conceptually, and the availability of data further complicates the decision about which definition to use. This is particularly true when attempting to define neighborhoods for the study of a socio-economically heterogeneous area such as Los Angeles. After discussing the selection of a pragmatic definition of Los Angeles neighborhoods that can be useful for policy and planning purposes, the second part of this chapter illustrates how business cycles affect different neighborhoods at varying degrees. To illustrate variations across different neighborhoods, the chapter describes in detail the impact of the business cycle on six neighborhoods representing some of the socioeconomic and spatial contexts that can be found in the Los Angeles region.

Neighborhood Definitions: Literature Review

There is generally little consensus on how to theoretically define neighborhoods, although most uses of the term have in common a physical component as well as certain social elements conferring neighborhoods some degree of homogeneity and cohesion. Such

elements, however, usually reflect the perspectives of individual disciplines.[1] Often neighborhood boundaries can be quite fluid, especially when major physical features are absent.[2] Residents themselves have difficulty describing their neighborhoods' boundaries and often express divergent views on neighborhoods' geographic size and institutional development. Discrepancies also exist between researcher and resident-defined neighborhoods, as a recent pilot study on residents' perceptions of neighborhoods has shown (Coulton et al. 2001). Residents often exhibit little consensus even on specific names of the neighborhoods they live in. Unless neighborhoods are physically and socially isolated or of historic importance, urbanites "do not generally identify the subareas they live in by name or distinct boundaries" (Keller 1968:99). In addition, the names and boundaries of neighborhoods often fluctuate over time (Jargowsky 1997).[3]

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[1] Sociologists, for instance, have variously depicted neighborhoods as forms of social organizations or social interaction [See Park (1952), Park and Burgess (1967), McKenzie (1968), Shevky and Bell (1955)]; others have focused on the social network nature of neighborhoods (Freeman 2001); and several studies have proposed models of neighborhood effects on criminal behavior, achievement orientation, and attachment to work, among other phenomena (Keller 1968; Olson 1982; White 1987; Burton et al. 1997; Ellen 2000). Wilson's work (1980, 1987, 1996) has focused on Chicago's community areas to illustrate how the loss of central-city jobs has resulted in the growth of the underclass. Wilson's work has inspired similar studies on inner-city poverty and the underclass (Anderson 1990, 1999; Brooks-Gunn et al. 1997; Jencks and Mayer 1990; Jencks and Peterson 1991; Kasarda 1989; Jargowsky 1997) as well as recent analyses of how neighborhoods affect school completion and childbearing (Crane 1991); criminal behavior (Sampson and Laub 1994); teen childbearing and child cognitive development (Brooks-Gunn 1993).

[2] Keller (1968) suggests that a neighborhood should be regarded as (1) a physically delimited area characterized by a particular configuration of activities and usages; (2) an area containing particular facilities used both by its residents and by outsiders, i.e. shops, schools, public transportation; (3) an area representing certain values both for the residents and for the larger community, i.e. safety, social solidarity, political cohesion, ethnic or religious compatibility; and (4) a combination of forces giving an area a special connotation, i.e. an immigrant ghetto, a middle class suburb, or a skid row area. After combining the elements identified by Keller, Schwirian defines a neighborhood as "a population residing in an identifiable section of a city whose members are organized into a general interaction network of formal and informal ties and express their common identification with the area in public symbols" (Schwirian 1983:84).

[3] Neighborhood definitions might be also interpreted as rational responses to the social and physical position of the respondent within urban society (Guest and Lee 1984). For instance, neighborhoods might be smaller for poorer residents who tend to move in smaller radii (Altshuler 1970). Residents often perceive their neighborhoods as extending to the point where they personally perceive that the socioeconomic status of residents changes (Coleman 1978). Finally, definitions of neighborhoods might differ based on whether they refer to areas located in the inner-city or in the suburbs. Suburban residents, for instance, tend to perceive their neighborhoods as nothing more than their own home and those of their immediate surroundings (Haney and Knowles 1978).

The lack of consensus on how to conceptually define a neighborhood is reflected in the difficulty in identifying a common operational measure in order to perform statistical analyses of neighborhoods. White (1987) suggests that the absolute size and geographic boundary of neighborhoods and the importance of neighborhood or community homogeneity represent the two major issues regarding practical neighborhood definition. As for theoretical definitions, the various operational neighborhood definitions encountered in research usually depend on the outcome or process of interest.[4]

Early analyses of neighborhoods have variously attempted to provide practical definitions on the size and geographic boundaries of neighborhoods.[5] However, researchers generally rely upon administrative units for which data are readily available, despite the fact that administrative territorial divisions rarely coincide with popular conceptions of neighborhood boundaries and size. At present, the areal unit that is most commonly used as a reasonably accurate approximation of statistical neighborhood is the census tract. The spatial size of census tracts varies widely depending on the density of the settlement, and their boundaries generally follow permanent, visible physical features. Moreover, boundaries are established with the intention of being maintained over a long time so that statistical comparisons can be made from one census to the next.[6]

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[4] "For some purposes, the relevant neighborhood is the block on which an individual or family resides; for other purposes, it is the group of blocks immediately surrounding the residence; for still others, it encompasses a wide physical area that includes shopping areas, schools, and community facilities" (Gephart 1997:10).

[5] According to Clarence Perry (1933), for example, neighborhoods should contain approximately 6,000 residents and their physical boundaries should coincide with the attendance area of a local elementary school. Jane Jacobs (1992) identifies three different levels of neighborhood, with the block representing the smallest level, a community or district of about 100,000 representing the middle level, and the city as a whole as the third level. Additionally, a number of historical analyses use wards – large spatial units of 6,000 to 12,000 people representing political subdivisions of a city– to approximate neighborhoods.

[6] "Census tracts are small areas with generally stable boundaries, defined within counties and statistically equivalent entities, usually in metropolitan areas and other highly populated counties. They are designed by local committees of data users to be relatively homogeneous with respect to population characteristics, economic status, and living conditions at the time they are established. Census tracts average 4,000 persons,

The Census Bureau requests that at the time each census tract is established, it contain a population whose housing characteristics are similar. Census tracts, however, may become less homogeneous in succeeding censuses, due to population growth and mobility as well as physical changes. Blocks, on the other hand, tend to be more homogeneous and provide the opportunity for a finer grained analysis compared to census tracts. However, block data are not always available, due to suppression for confidentiality purposes. Therefore, analysts usually employ tracts for they are the smallest available geographic unit with a large amount of published information.

Although analysts generally agree that census tracts represent a good compromise in terms of size and data availability (White 1987), some argue that they might fail to accurately represent certain neighborhood conditions.[7] For example, the geographic areas covered by census tracts might prove to be too large in studies on the development of neighborhood niches of young children and might not facilitate the analysis of the range of heterogeneous outcomes evident in smaller settings (Burton et al. 1997). In this case, face-blocks may represent the most appropriate unit of analysis to study neighborhood effects on young children, but this unit may have decreasing significance as children enter adolescence (Earls and Buka 2000). Furthermore, the use of census tracts might preclude assessments of neighborhood sociability (Burton et al. 1997).

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but the number of inhabitants generally ranges from 2,500 to 8,000 persons" (Bureau of the Census 1990:59). Census tracts are occasionally split or combined due to population growth and suburbanization. Census blocks, the smallest geographic area for which the Bureau of the Census collects and tabulates decennial census data, typically contain fewer than 1,000 inhabitants. Block groups – a combination of census blocks within a census tract or block numbering area –are the level between tracts and blocks in the geographic hierarchy.

[7] "For some factors, such as crime or vandalism, it might be conditions on a family's block that have an impact. For others, it might be conditions in a larger geographic area, such as a school enrollment area. In general, if researchers are measuring neighborhood characteristics at the wrong scale, they are likely to understate the importance of neighborhood conditions in affecting individual outcomes" (Ellen and Turner, 1997:844).

The choice of larger geographic units of analysis may be more appropriate for issues of service delivery, schooling and the labor market (Earls and Buka 2000). For instance, some research (Brooks-Gunn et al. 1993) has used zip codes as approximations of neighborhoods to study the effects of neighborhoods on school-related outcomes. Similarly, Jencks and Mayer (1990) have used a very broad definition of neighborhoods, which, besides census tracts, includes elementary school attendance areas as well as high school attendance areas and postal zip code areas.

There are several ways to define neighborhoods conceptually and each approach has its strengths and weaknesses. The determining factor in which definition to use should be the underlying purpose of the analysis to be performed.

Defining Neighborhoods in Los Angeles

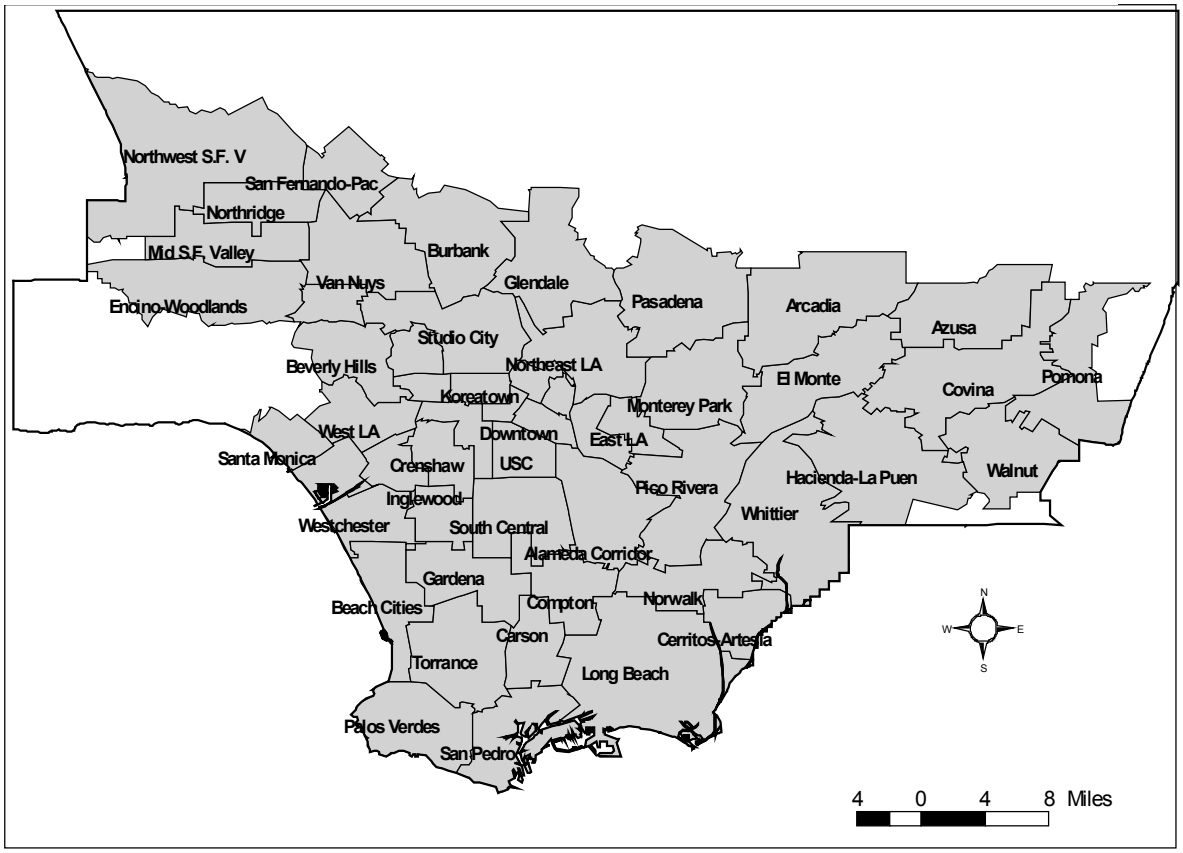
As for other metropolitan areas, researchers have based their analyses of Los Angeles neighborhoods on a variety of neighborhood boundary approximations depending on specific research questions and on data availability. While some studies have adopted census tracts as operational definitions of neighborhoods for data collection and analysis (Sastry et al. 2000), others have referred to broader communities (Zubrinsky 2000). Some definitions of neighborhoods in Los Angeles are geared toward social policy and planning objectives or to political representation and public administration purposes. These include the Los Angeles County service planning areas, each encompassing several zip codes for which much information is available (United Way of Greater Los Angeles 2002). Other definitions consist of proposed neighborhood council areas.[8]

This study adopts a definition of neighborhoods that is relevant for the analysis of business cycle–related changes in socioeconomic and labor market indicators. Since this

study relies heavily on economic data available only at the zip code level, our definition of neighborhoods in Los Angeles County[9] is based on the aggregation of zip code areas into larger geographic units corresponding to socially and/or historically recognized communities, which are characterized by a distinct racial composition and income distribution (Figure 3.1). Specifically, we revised the boundaries of communities in Los Angeles service planning areas provided by the United Way of Greater Los Angeles. While we maintained the same proposed boundaries for some of the neighborhoods (i.e., West Los Angeles, Santa Monica), we disaggregated or aggregated other communities based on variations and/or commonality in racial composition in 1990 and 2000 as well as recent immigration history. We also looked at the homogeneity of income distribution across geographically contiguous zip code areas in aggregating or disaggregating certain communities.

[8] See Department of Neighborhood Empowerment, City of Los Angeles, http://www.lacityneighborhoods.com/ home.htm.
[9] Specifically, the urbanized area of Los Angeles County.

Figure 3.1: Neighborhood Definitions, Los Angeles, Urbanized Area

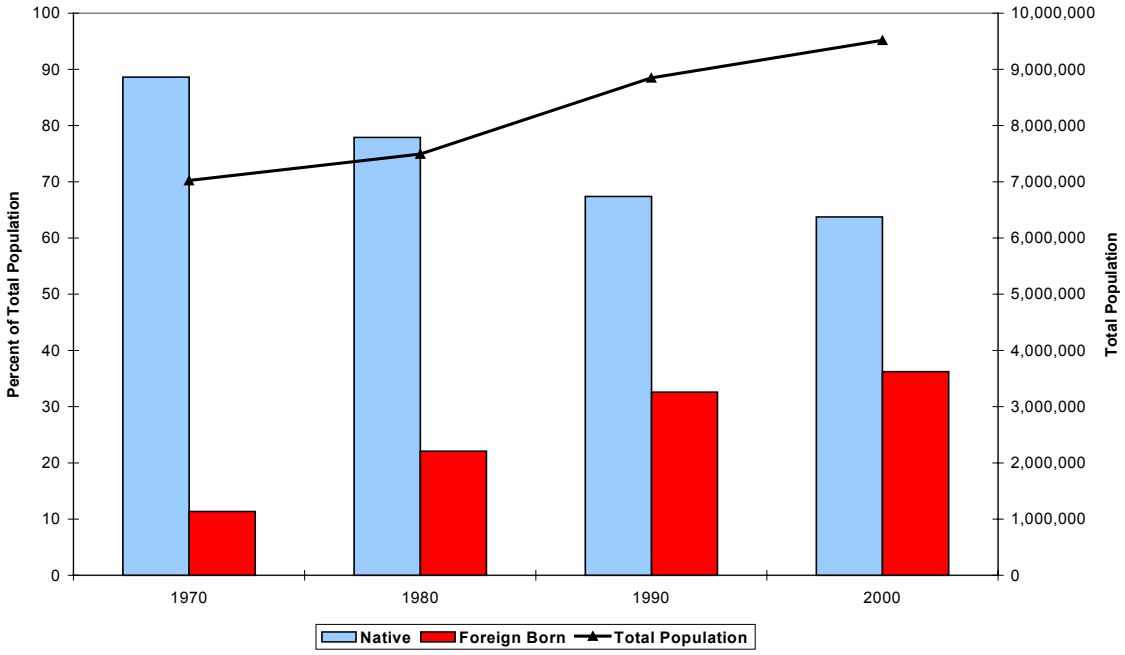


Given the long history of both involuntary and voluntary residential segregation by race/ethnicity in this country, the choice of racial/ethnic composition as a boundary-delimitating criterion of neighborhoods seems appropriate for the purposes of this study. It is relatively easy to identify particular ethnic and immigrant neighborhoods in Los Angeles, especially in light of recent immigration trends. During the past thirty years, Los Angeles has experienced tremendous population growth due mainly to changes in immigration law.[10] Today, Los Angeles represents the main area of destination of immigrants to the United States and the preferred place of destination for Mexicans – the largest immigrant

[10] In particular, the Hart-Celler Act of 1965, which overturned the quota system based on national origins, race, or ancestry, had a tremendous impact on immigration to Los Angeles, especially from countries that had been underrepresented since the Second Quota Act of 1924. Both documented and undocumented immigration to the Los Angeles increased considerably after 1965. In addition, the resettlement programs of

group in the nation – as well as Salvadorans, Filipinos, and Koreans. According to Immigration and Naturalization Service data, in fiscal year 2001 nearly 99,000 immigrants (9.3% of total admitted immigrants in the country) indicated Los Angeles-Long Beach MSA as their intended place of residence (U.S. Department of Justice 2002). At the end of the 20th century, the foreign-born population accounted for over 36 percent of the total population of Los Angeles County, and was over four times the foreign-born population of 1970 (Figure 3.2).

Figure 3.2: Population Growth in Los Angeles County, 1970-2000



Although the most recent immigrant populations are largely dispersed throughout the region, clearly identifiable ethnic enclaves have emerged in historical Chinatown and Little Tokyo; Koreatown in the central city; the suburban Chinatown of Monterey Park; Little Armenia in Glendale; the Japanese clusters of Sawtelle in West L.A., Montebello, Monterey Park, Gardena and the South Bay; and growing concentrations of Asian Indians

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the 1970s and the passage of the Refugee Act of 1980 contributed to the steady inflow of immigrants from non-European countries.

and Southeast Asians at the boundaries of Los Angeles and Orange counties. The names of shops, languages spoken, and community institutions usually signal the ethnic character of such immigrant neighborhoods. Moreover, some neighborhoods have intentionally built entries or erected signs to mark their boundaries, like Chinatown, the recently established Thai Town, the Byzantine-Latino Quarter, Little Tokyo, Little Armenia, Koreatown, Little Ethiopia, and Filipinotown.

Racial/ethnic characteristics usually coincide with specific income configurations. Like other metropolitan areas, Los Angeles' urban space is characterized by a central low-income area, hosting a predominantly African American and Hispanic population. This area is characterized by higher poverty and unemployment rates, welfare dependency, and cheaper housing with respect to the rest of the county, as described in the previous chapter. In contrast, several affluent neighborhoods and wealthy gated communities are located in peripheral areas and tend to host higher percentages of non-Hispanic whites with respect to inner-city neighborhoods. Since such communities do not usually display any specific ethnic character, we relied mainly on income distribution in order to define their boundaries.

Baseline Profiles

This chapter examines in detail the impact of the economic cycle on six specific Los Angeles neighborhoods, for which this section provides a baseline profile. The selected neighborhoods exemplify six different spatial, socioeconomic, and cultural contexts within the Los Angeles region. The choice of such neighborhoods is purely illustrative and is not meant to outline a typology of all Los Angeles neighborhoods.

- Encompassing a fairly large area south of downtown, between Central Avenue – the historical area of African American settlement – and Culver City, Inglewood,

Hawthorne, and Compton, **South Central Los Angeles** represents the traditional inner-city neighborhood. Inhabited predominantly by low-income and welfare-dependent African Americans and increasing numbers of Hispanics, this area has received much media and academic attention in the wake of the racial tensions that have culminated in the 1965 and 1992 riots.

- Located in East Los Angeles, **Boyle Heights** has historically been attractive to a number of foreign-born groups, including Jews, Italians, Russians, Poles, and Mexicans. As a result of urban renewal and the Bracero Program of the 1950s, the neighborhood has become predominantly Mexican.
- Like South Central and Boyle Heights, **Koreatown** is located close to Downtown. This neighborhood exemplifies the Asian enclave, featuring the spatial concentration of numerous Korean-owned firms and a high percentage of foreign-born residents.
- **San Pedro** stands out as a major economic node in the region, due to its location in close proximity to the Port of Los Angeles and at the ending point of the Alameda Corridor. It is characterized by a sizeable white and Hispanic population and mixed income levels.
- **West Los Angeles** exemplifies a predominantly non-Hispanic white neighborhood, featuring high property values and high average income levels, partly reflecting its proximity to the coastline as well as to such wealthy areas as Beverly Hills.
- Finally, **Northridge**, located in the traditionally non-Hispanic white and conservative San Fernando Valley, represents an emerging suburb featuring

increasing racial diversity, high home ownership rates, and economic growth, despite the significant damage brought about by the 1994 earthquake.

Table 3.1 contains a number of demographic and housing indicators computed from 1990 census data for each of these neighborhoods and for Los Angeles County. As of 1990, the Hispanic presence was far more substantial in Boyle Heights (93%) than in any other study area and the county as a whole (36%), although the percentages in Koreatown, San Pedro, and South Central Los Angeles indicate a significant presence of Hispanics in those neighborhoods as well. While South Central Los Angeles was predominantly inhabited by African Americans (57%) and Hispanics (41%), non-Hispanic whites made up the majority of the population in West Los Angeles and Northridge (65% and 58% respectively). Both Koreatown and San Pedro did not present any majority group in 1990. While Koreatown was inhabited primarily by Hispanics and Asians (45% and 29% respectively), San Pedro hosted predominantly Hispanics and non-Hispanic whites (45% and 43% respectively). Koreatown and Boyle Heights stand out as the neighborhoods with the highest percentage of recent arrivals, i.e., persons 5 years old and older who were living in a foreign country in 1985 (21% and 10% respectively), while the other study areas are characterized by a percentage of recent arrivals similar to the county's average (7%).

Table 3.1: Neighborhood Profiles, Census

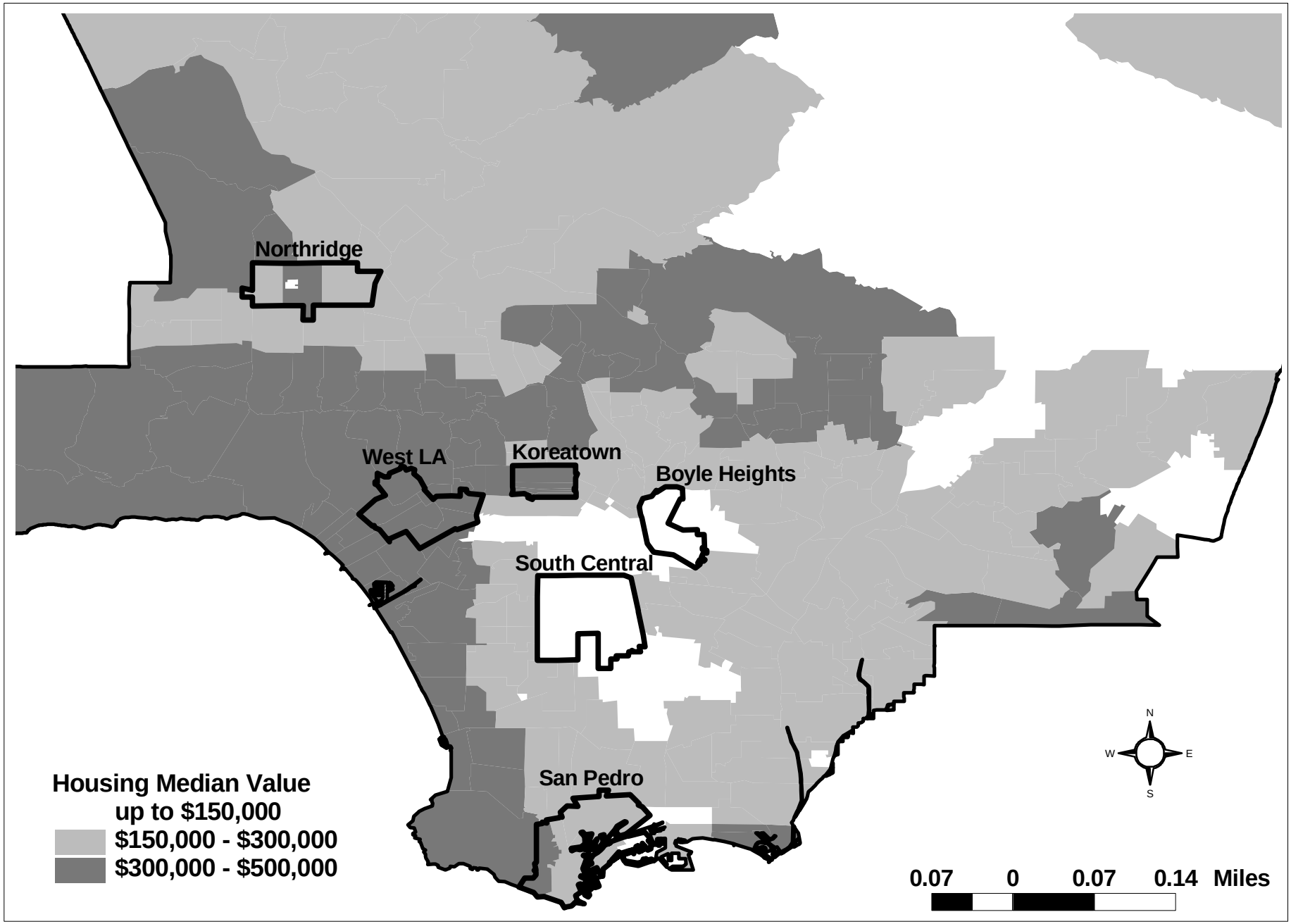
	Neighborhoods						Los Angeles County
	Boyle Heights	Koreatown	Northridge	San Pedro	South Central	West LA	
Racial/Ethnic Composition							
Non Hispanic White	2%	18%	58%	43%	1%	65%	41%
African American	1%	7%	5%	6%	57%	9%	11%
Asian/Pacific Islander	3%	29%	10%	6%	1%	12%	11%
Latino	93%	45%	27%	45%	41%	13%	36%
Other	1%	1%	1%	1%	1%	1%	1%
(N)	104,458	140,362	101,397	141,690	313,583	182,008	8,863,164
Recent Immigrants							
Resident in Foreign Country in 1985	10%	21%	7%	6%	5%	8%	7%
(N)	104,458	140,362	101,397	141,690	313,583	182,008	8,863,164
Educational Attainment							
Less than High School	74%	37%	22%	35%	53%	13%	30%
High School	13%	19%	20%	23%	22%	16%	21%
At Least Some College	13%	44%	57%	42%	25%	72%	49%
(N)	51,025	89,523	63,242	82,767	160,894	126,153	5,481,222
Income and Poverty							
Families Below Poverty Level	28%	21%	8%	13%	32%	7%	12%
(N)	20,033	30,633	23,959	31,689	66,863	37,253	2,036,104
Average Household Income	$25,228	$35,042	$53,928	$41,025	$25,385	$57,014	$47,252
Household on Public Assistance	19%	10%	6%	9%	29%	4%	10%
(N)	24,042	50,921	34,120	44,612	85,987	83,188	2,994,343
Labor Force Characteristics							
Employed	86%	91%	94%	92%	84%	95%	93%
Unemployed	14%	9%	6%	8%	16%	5%	7%
(N)	44,040	77,487	57,185	64,462	117,563	109,924	4,538,364
Housing Stock Characteristics							
Vacant	3%	8%	5%	5%	6%	8%	5%
Built between 1980 and 1990	9%	17%	16%	19%	8%	20%	17%
Built before 1960	69%	51%	37%	49%	70%	44%	51%
(N)	24,898	54,862	35,872	47,224	91,227	90,525	3,163,343
Owner Occupied	22%	13%	55%	44%	41%	31%	48%
Renter Occupied	78%	87%	45%	56%	59%	69%	52%
(N)	24,114	50,459	34,169	44,694	85,955	83,214	2,989,552

Heavily minority and immigrant areas are generally characterized by high poverty rates, high welfare dependency, low educational levels, and high unemployment rates. South Central Los Angeles, Boyle Heights and Koreatown, in particular, feature the highest

percentages of families with incomes below the poverty level (32%, 28%, and 21% respectively), whereas West Los Angeles and Northridge present poverty rates that are below the county's average (7% and 8% respectively). Welfare dependency figures show similar patterns. The percentage of the population 25 years and older with a low educational attainment is particularly striking in Boyle Heights and South Central Los Angeles (74% and 53% respectively), whereas Koreatown features relatively high percentages of residents with at least some college compared to other immigrant areas, reflecting the socioeconomic heterogeneity of new immigrants in the Los Angeles region. Koreatown also displays lower unemployment rates compared to other minority areas.

Inner-city minority neighborhoods in Los Angeles are generally characterized by housing units older than the county's average as well as by lower average housing values (see Figure 3.3). Seventy percent of housing units in South Central Los Angeles and Boyle Heights were built before 1960. In contrast, the majority of housing units in Northridge and West Los Angeles were built within the past thirty years. Northridge stands out as the neighborhood with the highest homeownership rate (55%), compared to the other neighborhoods in which homeownership rates are generally lower than the county's average. Immigrant areas, in particular, are characterized by substantial percentages of renters. Eighty-seven percent and seventy-eight percent of housing units in Koreatown and Boyle Heights, respectively, are renter-occupied. Additionally, West Los Angeles and Koreatown present vacancy rates higher than the county's average.

Housing Median Value, Los Angeles County 1990



Data Source: Census 1990

The Business Cycle in Six Los Angeles Neighborhoods

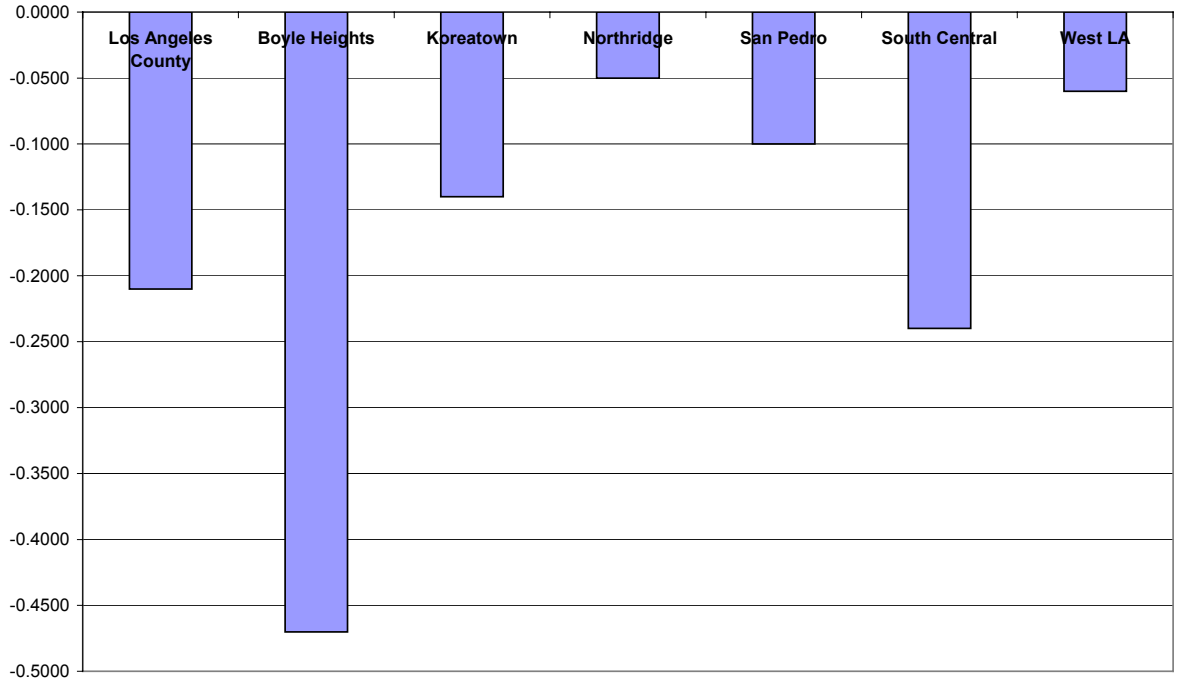
The six neighborhood profiles described in the previous section help to illustrate the wide range of socioeconomic contexts that can be found in Los Angeles County. Most importantly, they can help us start to classify the 53 Los Angeles neighborhoods into specific socioeconomic categories in order to clarify the impact of the business cycle on different types of neighborhoods.

To answer the questions of how and to what extent the business cycle impacted Los Angeles neighborhoods during the past decade, we examined how selected economic variables performed across the six neighborhoods described above, each exemplifying a different socioeconomic and geographic context in Los Angeles County. In order to examine the relative cyclical change across the six neighborhoods, we employed the *difference-in-differences* approach described in Appendix A. By isolating cyclical from secular changes, this method produces symmetrical peak-trough-peak points for each indicator that can easily be represented on graphs. Figures 3.4 through 3.10 illustrate impacts of the business cycle on various measures of employment, income, neighborhood poverty, and long-term investment for the six neighborhoods and for Los Angeles County as a whole.

Since income and employment data are only periodically available, the difference-in-differences analysis of such indicators can be performed only on a limited number of data points for each neighborhood. Specifically, the analysis of cyclical impacts on retail jobs is based on 1987, 1992, and 1997 data, whereas the analysis of income change is based on 1991, 1997, and 1998 data.

Substantial cyclical changes in employment – measured by the number of jobs in the retail sector – impacted low-income Hispanic neighborhoods, characterized by high rates of population growth, as well as inner-city African American neighborhoods. This is shown in Figure 3.4. In contrast, the magnitude of cyclical change in retail employment in wealthier communities, such as Northridge and West Los Angeles, appears to have been quite small. In addition, retail employment in neighborhoods characterized by growing ethnic economies, such as Koreatown, have been affected by cyclical changes at lower magnitudes than the county as a whole.

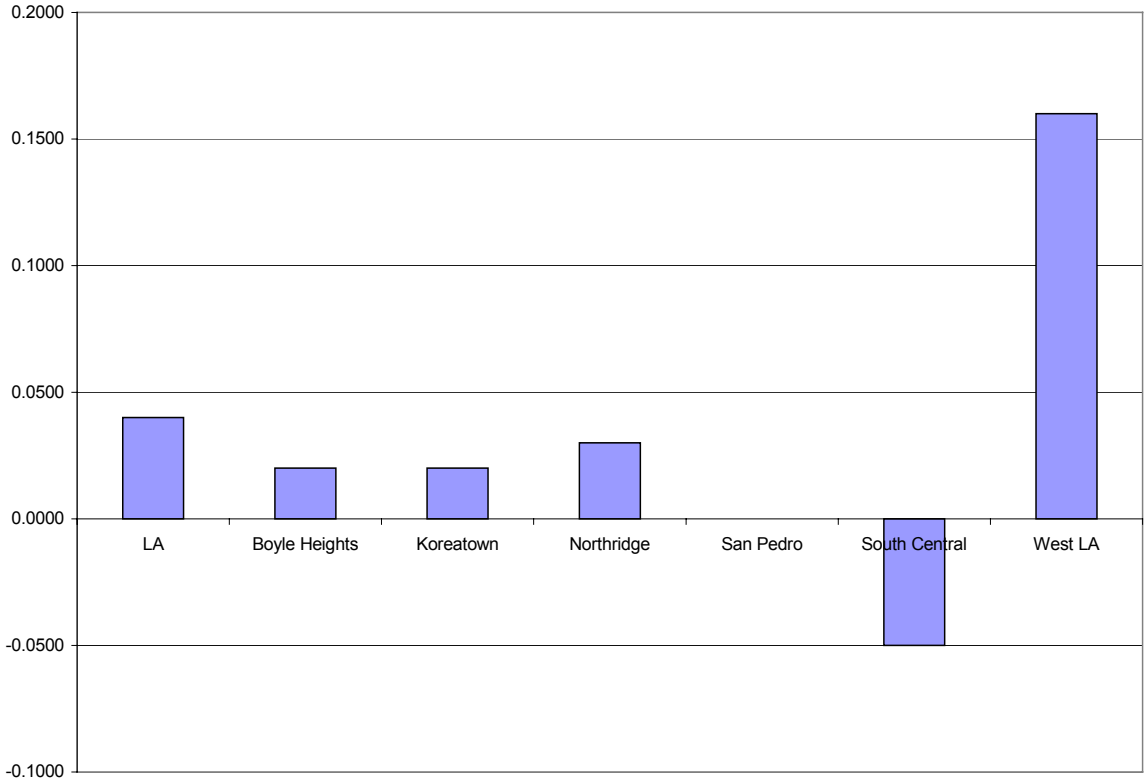
Figure 3.4: Difference in Difference Analysis
Retail Jobs (1992)



In general, cyclical employment changes were reflected in income trends. The impact of the business cycle on income levels, however, presented varying magnitudes among different neighborhood types, as shown in Figure 3.5. In particular, both wealthy and inner-city communities show large cyclical change in income levels. In contrast, business cycle

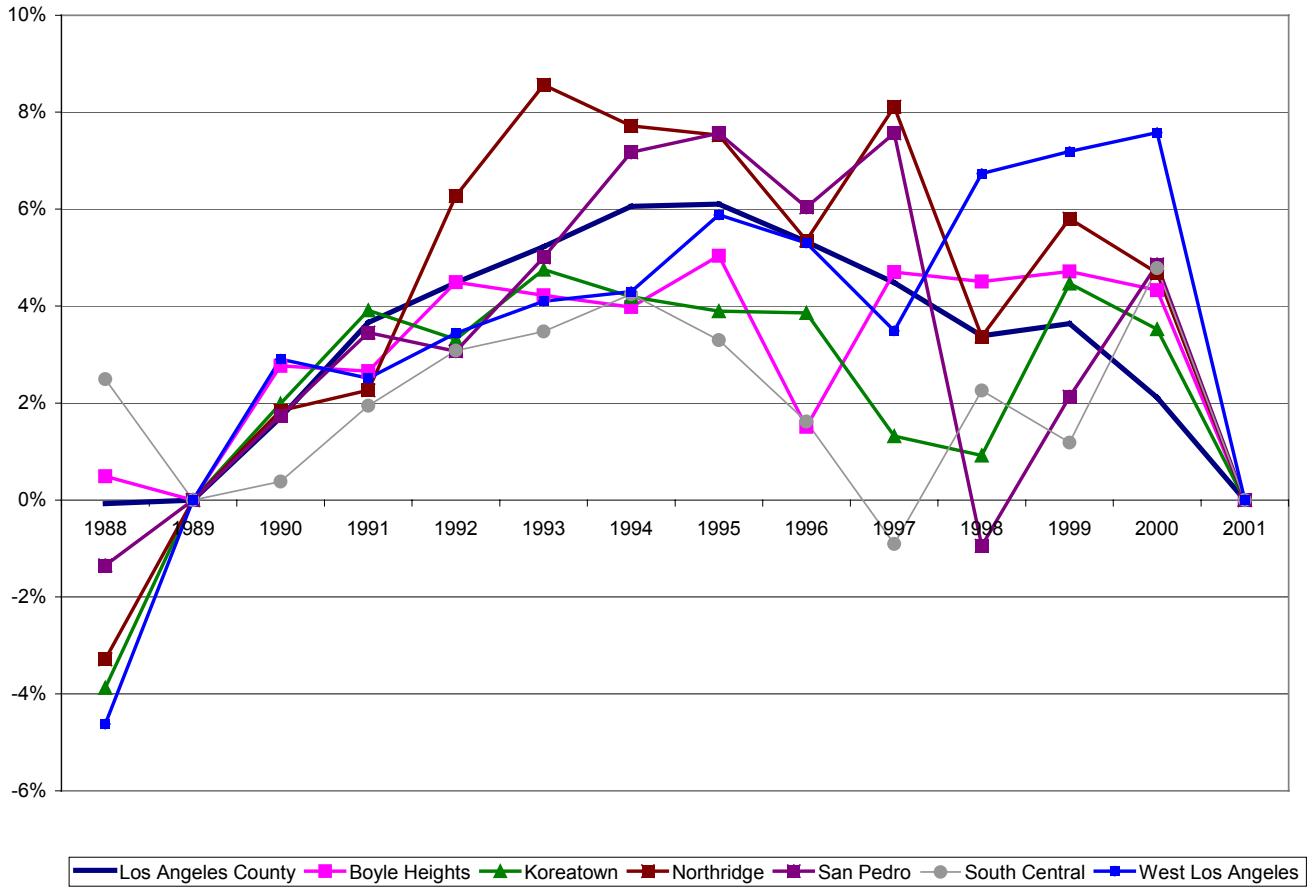
impacts on income levels in other types of communities were smaller than the regional average.

Figure 3.5: Difference in Difference Analysis
Income (1997)



We used yearly percentages of elementary school students receiving free or reduced price lunches as an indicator of neighborhood poverty. As Figure 3.6 illustrates, the business cycle affected neighborhood poverty levels during the past decade, with some variations among the study areas. In particular, the magnitude of cyclical change in high-poverty and immigrant areas such as South Central, Boyle Heights, and Koreatown appear to have been smaller than the regional average, whereas it is larger in middle-income areas such as Northridge and San Pedro. In addition, Boyle Height and, to a lesser degree, South Central Los Angeles seem to have recovered earlier than wealthier areas.

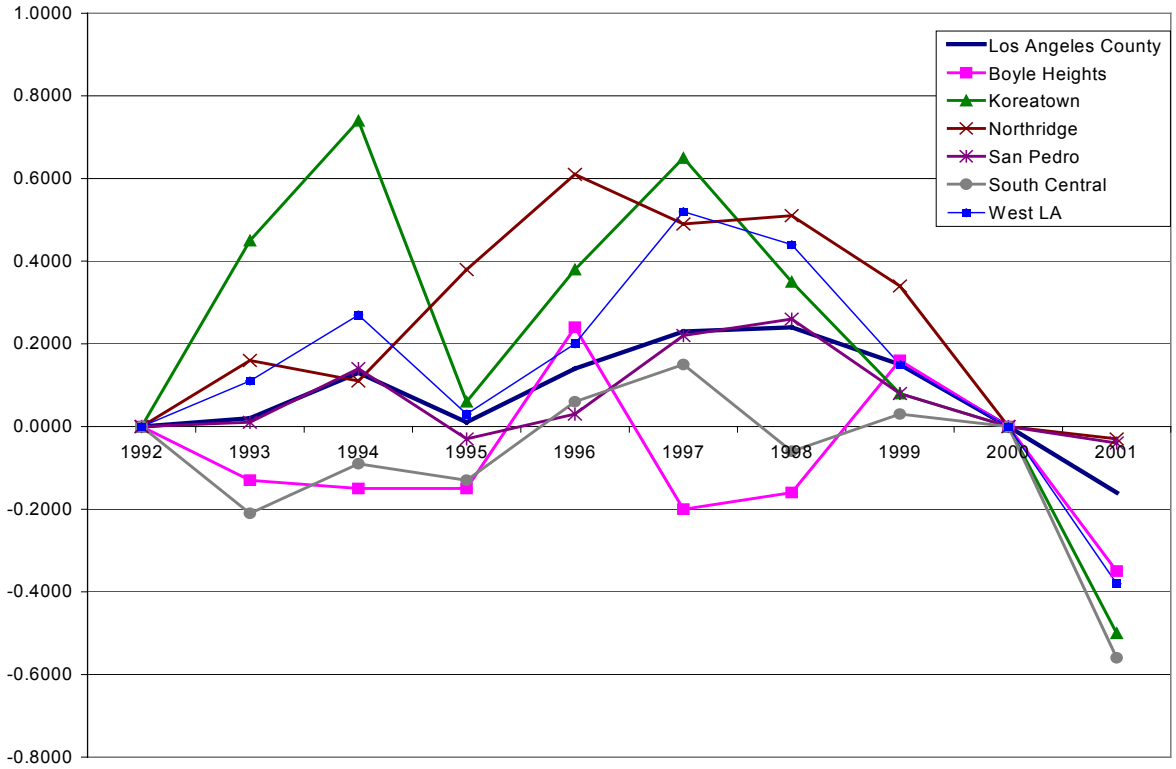
Figure 3.6: Difference in Difference Analysis
Free/Reduced Lunches



Cyclical trends in long-term investments partly mirror those in employment and disposable income. The business cycle, for instance, impacted home sales to different degrees across the six neighborhood types, as shown in Figure 3.7. Low-income and immigrant neighborhoods such as South Central and Boyle Heights generally present smaller magnitudes of cyclical change in long-term investment compared to other neighborhoods. Northridge, Koreatown, and West Los Angeles, in contrast, experienced the largest magnitudes of cyclical change in home sales during the 1990s, part of which

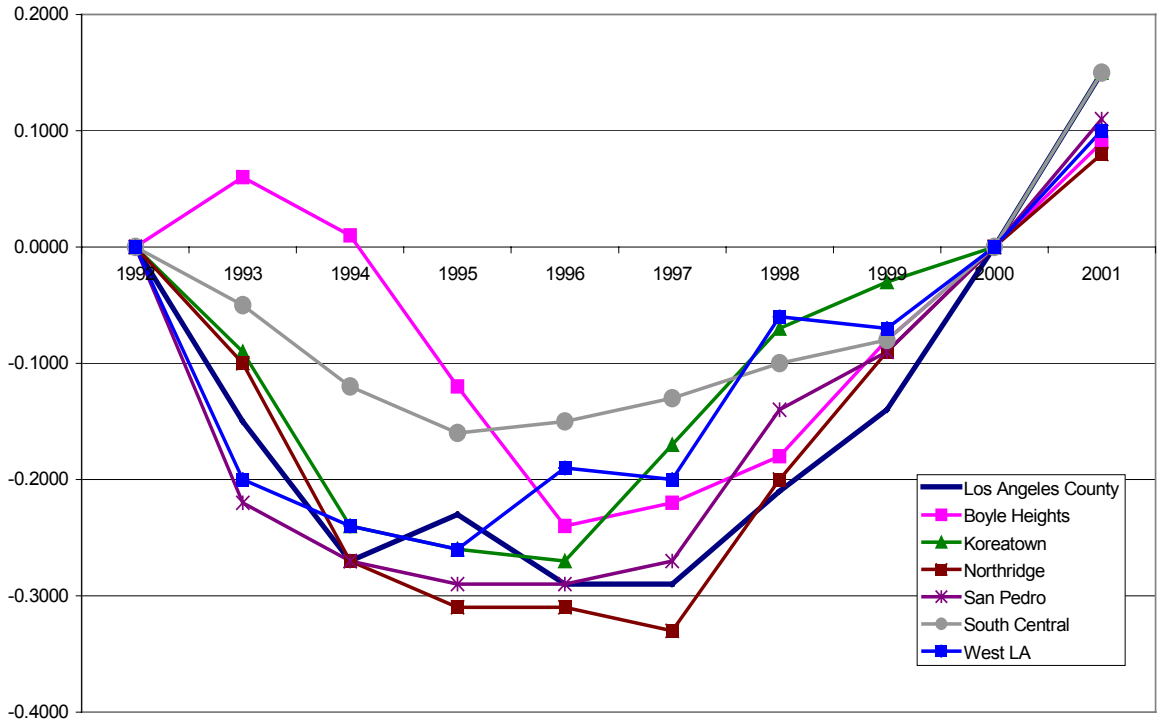
might be attributed to the impact of the 1992 Los Angeles riots on investment in Koreatown, and the 1994 earthquake on Northridge and West Los Angeles.

Figure 3.7: Difference in Difference Analysis
Home Sales



Variations in home sale levels across the six neighborhoods are reflected in the varying degrees of cyclical change in home values shown in Figure 3.8. While Northridge and San Pedro experienced relatively large cyclical changes in home values with respect to the other neighborhoods, South Central and Boyle Heights experienced the smallest changes. At the same time, while the curve representing the cyclical change in South Central Los Angeles is fairly smooth, the business cycle seems to have produced various degrees of fluctuation in home values across the other neighborhoods.

Figure 3.8: Difference in Difference Analysis
Home Values



The difference-in-differences analysis of building permits transactions and values (Figures 3.9 and 3.10) yields similar results, although the availability of data is limited to the City of Los Angeles. As for home sales, the Northridge earthquake and the 1992 riots seem to have affected construction activity in Northridge, West Los Angeles, and Koreatown. The peak in construction activity in those neighborhoods is reflected in the city trend. In contrast, no major fluctuations seem to have occurred across the other neighborhoods. Building permit values, however, present some degree of variation in their response to the business cycle across the various neighborhood types. In particular, as one would expect, the magnitude of cyclical change is larger in Northridge compared to other neighborhoods due to the extensive rebuilding occurring there after the earthquake.

Figure 3.9: Difference in Difference Analysis
Building Permits

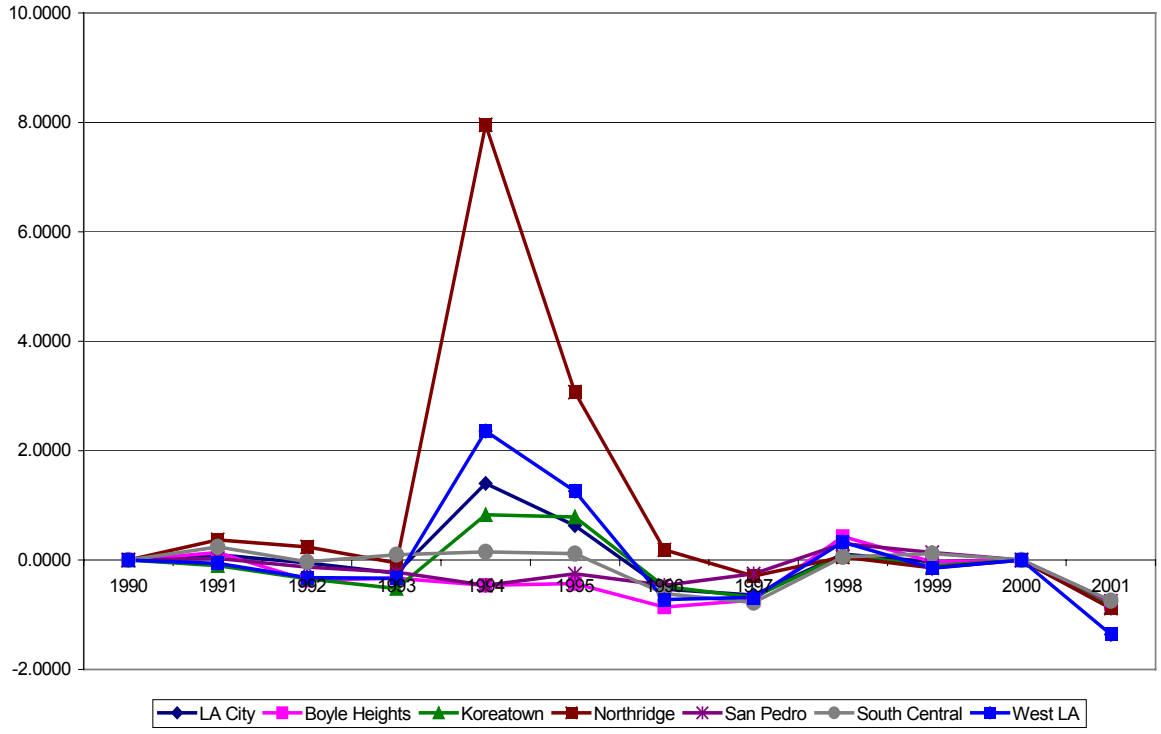
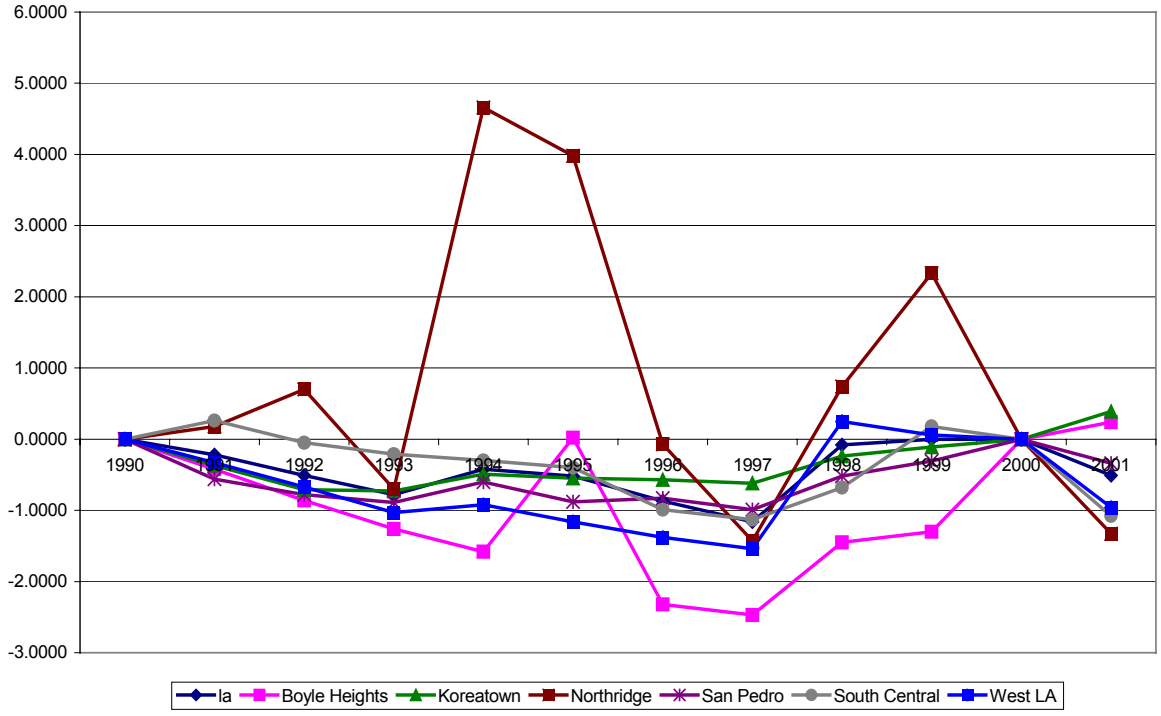


Figure 3.10: Difference in Difference Analysis
Building Permits Values



Conclusion

This chapter has reviewed the difficulties in identifying neighborhood boundaries and characteristics, and has put forth a definition of Los Angeles neighborhoods that allows for an economic analysis of cyclical trends occurring in these neighborhoods. We have identified six specific Los Angeles neighborhoods that exemplify different socioeconomic and geographic contexts in Los Angeles County. And finally, we have used the difference-in-differences technique to examine the varying effects of the business cycle in the respective neighborhoods, and have shown that there are certainly different magnitudes of these effects in different neighborhoods. The next chapter will extend this analysis to a group of 53 neighborhoods across the Los Angeles metropolitan region.

CHAPTER 4: INTER-NEIGHBORHOOD VARIATIONS IN THE BUSINESS CYCLE

The previous chapter illustrated the effects of the business cycle on six Los Angeles neighborhoods, and showed that there were considerable differences in the relative size of the cyclical fluctuations across the neighborhoods. The results suggest that the variation in cyclical effects is systematically related to the socioeconomic characteristics of neighborhoods, as well as any idiosyncratic factors (e.g., the Northridge earthquake). This chapter expands on that analysis by examining the impact of the business cycle on 53 neighborhoods in the urbanized areas of Los Angeles County. Given the larger number of observations, it is not possible to examine the changes in detail for each area. Instead, the purpose is to examine the variation across neighborhoods to determine if the business cycle was more severe in some areas relative to others.

The chapter summarizes the size of the variation across neighborhoods, maps the geographic pattern of variation, examines the influence of socioeconomic factors on the degree of volatility, and explores the implication for the relative ranking of neighborhoods by key economic indicators. The data show a considerable range in the magnitude of cyclical changes among neighborhoods, revealing that some were hurt more by the downturn than others. The maps show distinctive clustering of neighborhoods that were less impacted and of neighborhoods that were more impacted by the downturn. Parsimonious regression models are estimated to determine if the degree of volatility is correlated with poverty level and the racial/ethnic composition of the neighborhood, for, as discussed in Chapter 2, Los Angeles is

spatially segregated by income and race/ethnicity. Because the size of the fluctuations across neighborhoods varies significantly (and systematically), our understanding of the relative position of neighborhoods also fluctuates with the business cycle. This is demonstrated in the final section of this chapter, which examines short-term changes in the economic ranking of neighborhoods.

Variations in the Size of the Cyclical Effect

We use our measures of income, retailing, participation in free/reduced lunch program, and home values for the analysis of the 53 neighborhoods in Los Angeles County. As mentioned in Chapter 1, many of the data series are limited across time and geography. For example, only the expansionary impacts are examined for income and home value, and the impacts of a contraction are examined for retailing. Data on lunch programs are sufficient to cover an entire business cycle, which also allows us to examine changes for both the downturn and upturn. Permit values are not examined because the data cover only the City of Los Angeles.

Figure 4.1 summarizes the range in the cyclical fluctuation for these measures. The solid bar represents the median (the value dividing the 53 neighborhoods equally into those with higher and those with lower values), and the 75^{th} and 25^{th} percentiles are represented by the I-bar. The income statistics capture the percent growth in income from 1991 to 1998; the retailing statistics capture the percent decline in retailing jobs from 1987 to 1992; the statistics on lunch programs capture the change in the participation rate from 1988 to 1995; and the home-value statistics capture the percent increase from 1995/96 to 2001. The choice of starting and ending years are based on the timing of the indicator-specific business cycle for the region (the increase in lunch-program usage from 1988 to 1995, and the increase in home values from 1995/96 to 2001) or on the availability of data (1991 and 1998 income data from

IRS, and 1987 and 1992 retailing jobs from the Economic Census). Income and home values are adjusted for inflation, and the changes for these measures are dominated by increases during the recovery. Participation in the free/reduced lunch program is counter-cyclical (i.e., unlike the other indicators whose values tend to fall with the onset of a recession, this indicator tends to increase in magnitude). The changes for retail jobs and lunch programs are dominated by the effects of the recession.

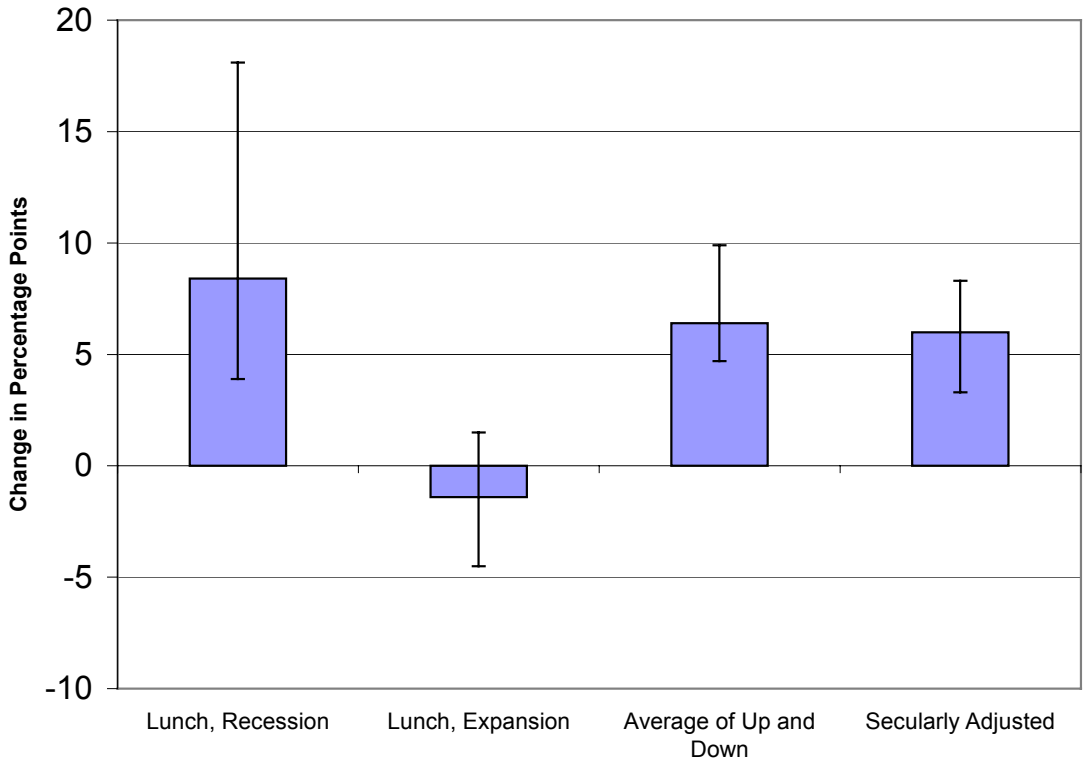
Figure 4.1: Cyclical Volatility Across Neighborhoods

The data reveal considerable variations. Not surprisingly, there are large differences in the magnitude of cyclical movements (as measured by the median) across indicators, with home values showing the largest changes and participation in retailing jobs showing the smallest changes. The comparison is a little misleading because three of the indicators are not adjusted for secular changes due to incomplete data; nonetheless, these differences across indicators are consistent with the secularly adjusted pattern for the entire region, as discussed in Chapter 2. Within each indicator, the size of the cyclical change varies significantly. For income growth and participation in the lunch program, the value at the 75th percentile is about five times greater than the value at the 24th percentile. The ratio for the change in retailing jobs is

even greater. While the $75^{th}/25^{th}$ percentile ratio for the increase in home value is only 2 to 1, this indicator has the highest absolute size. Taken together, the data show large variations in the severity of the effects of the business cycle among neighborhoods.

There is some indication that the neighborhood-to-neighborhood variations are correlated across indicators. This is expected, since neighborhood economies are tied to the larger economy. Thus, when the regional economy slows, so does the very localized economy (and vice versa). This relationship is driven by a temporal correlation, where the up and down movements of the two economies tend to move in parallel over time. What is more interesting is the question of whether the severity (magnitude) of the fluctuation along one economic dimension (e.g., income) within a given neighborhood is matched by a similar severity of the fluctuation along another economic dimension (e.g., participation in a safety net program). The evidence suggests that this is true in some cases. For example, the size of the changes in income is correlated with lunch participation rates during an expansion ($r = -0.426$ and p-value = 0.002). The same holds for home values and lunch-program participation rates ($r = -0.317$, p-value = 0.021). In other cases, the correlation is not statistically significant (e.g., the changes in retailing jobs and lunch-program participation rate during the downturn, and the increase in income and home value during the upturn). Unfortunately, data limitations preclude a more detailed analysis. Nonetheless, there is support to an assertion that neighborhoods that are hard hit by the economic cycle in one area also suffer more in other areas.

Figure 4.2: Changes in Lunch Program Rates



The data on lunch-program participation offer an opportunity to examine whether there is symmetry between the two parts of the business cycle. Figure 4.2 summarizes the range in the fluctuation using the same format as in Figure 4.1 (median denoted by the solid bar, and the 75th and 25th percentiles denoted by the I-bar). The downturn segment is defined by the change in the participation rate from 1988 to 1995, and that range across neighborhoods is represented in the first column. The upturn segment is defined by the change from 1995 to 2001, and that range is represented by the second column in the graph. Comparing the two sets of statistics clearly show a strong asymmetry, with a larger absolute change during the recession than during the recovery. The two sets of changes are positively correlated ($r = 0.408$, p-value = 0.002), indicating neighborhoods that experienced a larger than average

increase during the downturn tended to experience a larger than average decrease during the upturn. This is likely due to the strong secular upward trend in lunch-program participation. The final two columns summarize measures of the magnitude of the fluctuation for the whole business cycle. The first is based on averaging the absolute values of the changes for the two parts of the cycle, and the second is based on adjusting out the secular trend. The two measures are highly correlated ($r = 0.884$, p-value = 0.0001). Both show a wide range in the impact of the business cycle across neighborhoods, which implies that taking out secular trends does not eliminate the inter-neighborhood variations.

Mapping Cyclical Fluctuation:

Figures 4.3 through 4.6 map the relative volatility of the business cycle for the four economic indictors across the 53 neighborhoods. Neighborhoods shaded red experienced worse outcomes (the bottom quartile in terms of increase in income and home values, and greater job losses in retailing), and neighborhoods in dark blue experienced relatively better outcomes (the top quartile in terms of increase in income and home values, and fewer job losses in retailing).

Figure 4.3 shows distinctive clustering in income growth from 1991 to 1998. The greatest increase occurred along the western edge of the study area, which includes most of the coastal neighborhoods (Beach Cities and Santa Monica), greater West Los Angeles (which includes areas such as Westwood, Brentwood, Bel Air, Beverly Hills, and Hancock Park), and the southwestern part of the San Fernando Valley (Encino, Woodlands, and Sherman Oaks). Downtown and Pasadena also experienced large increases. On the other hand, much of South Los Angeles, parts of the southeastern parts of the County, and the eastern portions of the San Fernando Valley experienced below-average changes in income.

Figure 4.3: Income growth between 1991 and 1998.

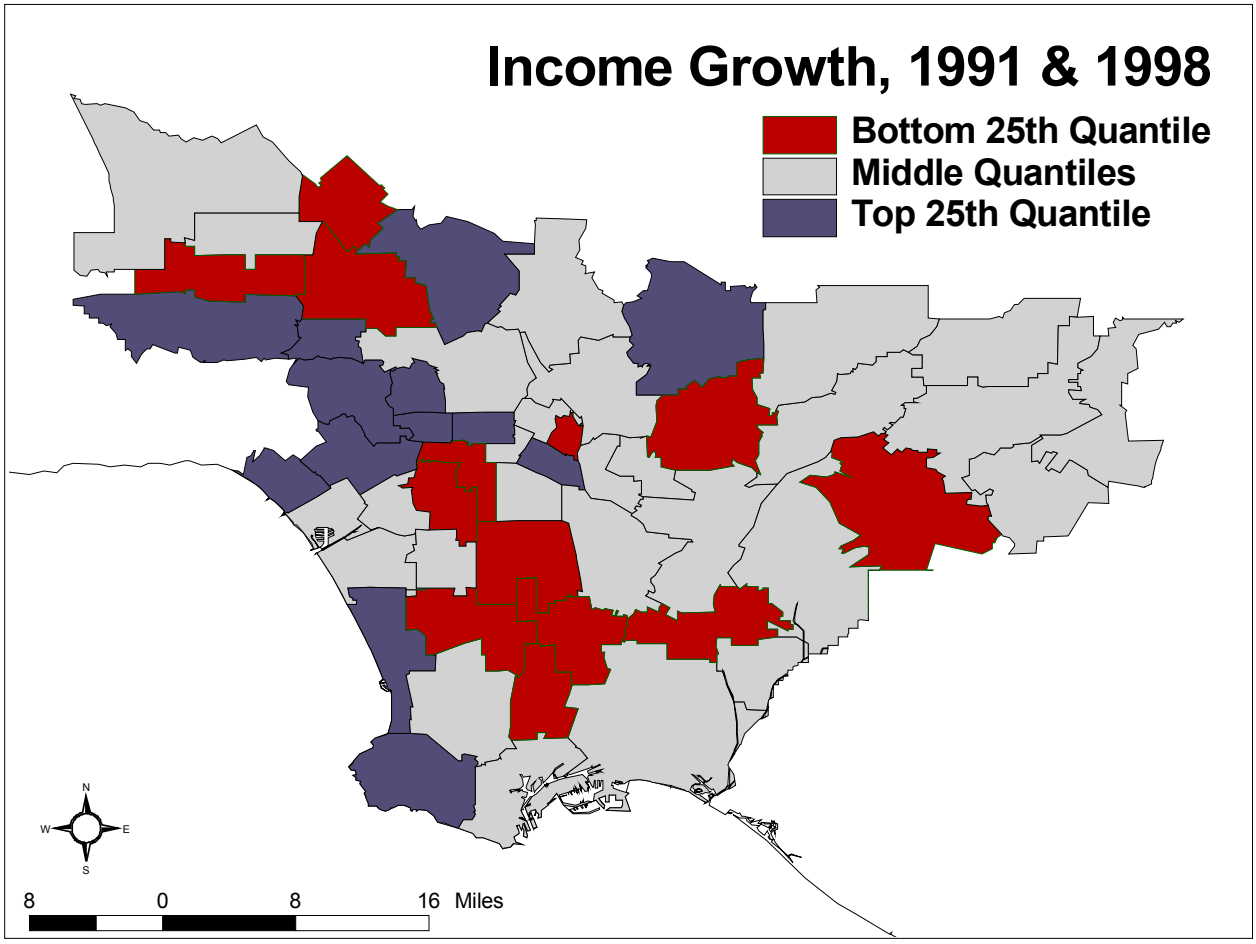


Figure 4.4 shows the decline in retailing jobs from 1987 to 1992. The patterns show a moderate degree of clustering. Above average decline occurred in a southward line from the Pico Union and Downtown areas through Compton. Other pockets that experienced significant losses were the areas of Palos Verdes, the Mid-San Fernando Valley, and the eastern part of the county, including Arcadia and Pomona. Areas with below average losses were scattered throughout the county. In the northern half, Burbank, Sherman Oaks, and Pasadena showed a downturn. On the western side, West Los Angeles and the Beach Cities

experienced a moderate decline. Parts of the industrial belt (Pico Rivera and El Monte) and the eastern areas of Hacienda and Walnut also fell into this category.

Figure 4.4: Losses of retail jobs between 1987 and 1992.

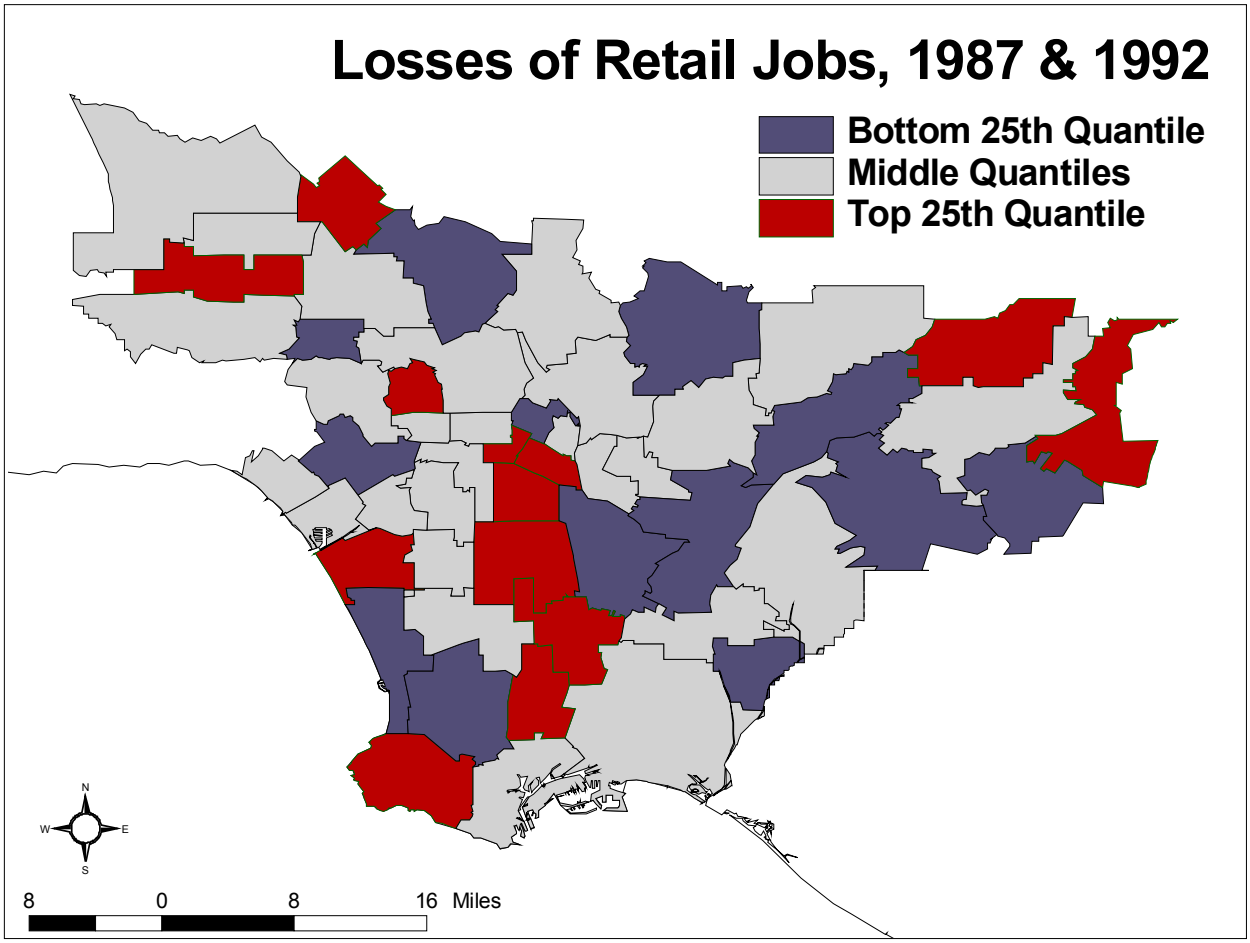


Figure 4.5 shows the percentage increase in home values from 1995/96 to 2002. The neighborhoods with the lowest home price increases are concentrated in an arc starting in the central portion of Los Angeles with Compton and South Central Los Angeles, including Pico Rivera and El Monte, and ending in the Covina / Walnut area. The Beverly Hills area also had a lower than average increase, perhaps because the base value was so high. The areas that saw housing prices rise the most are the western coastal cities starting in Santa Monica and

extending down through the Beach Cities. Additionally, a cluster starting in Northridge extending eastward to Pico Union and Chinatown also experienced above average increases.

Figure 4.5: Home value increases between 1995/96 and 2001.

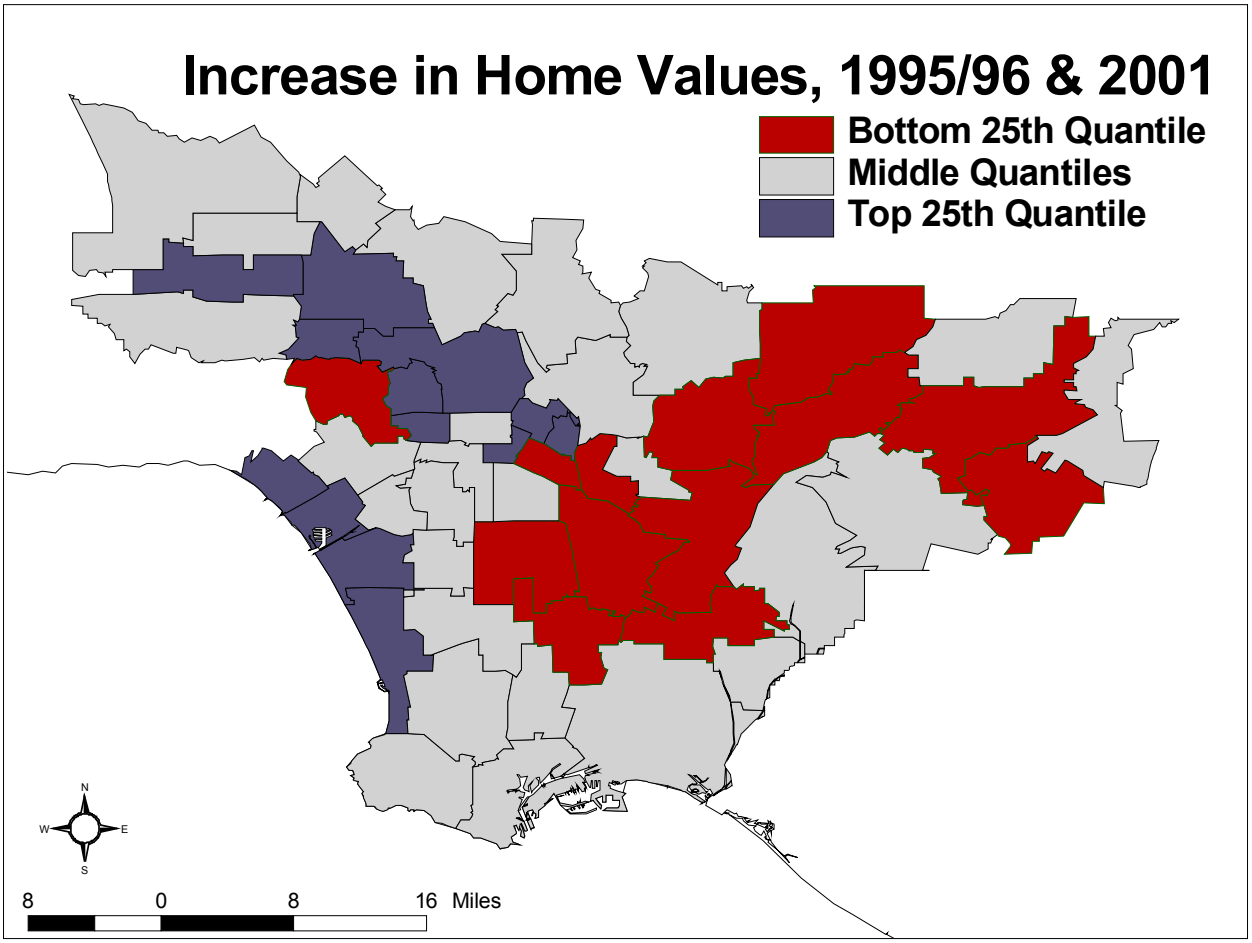
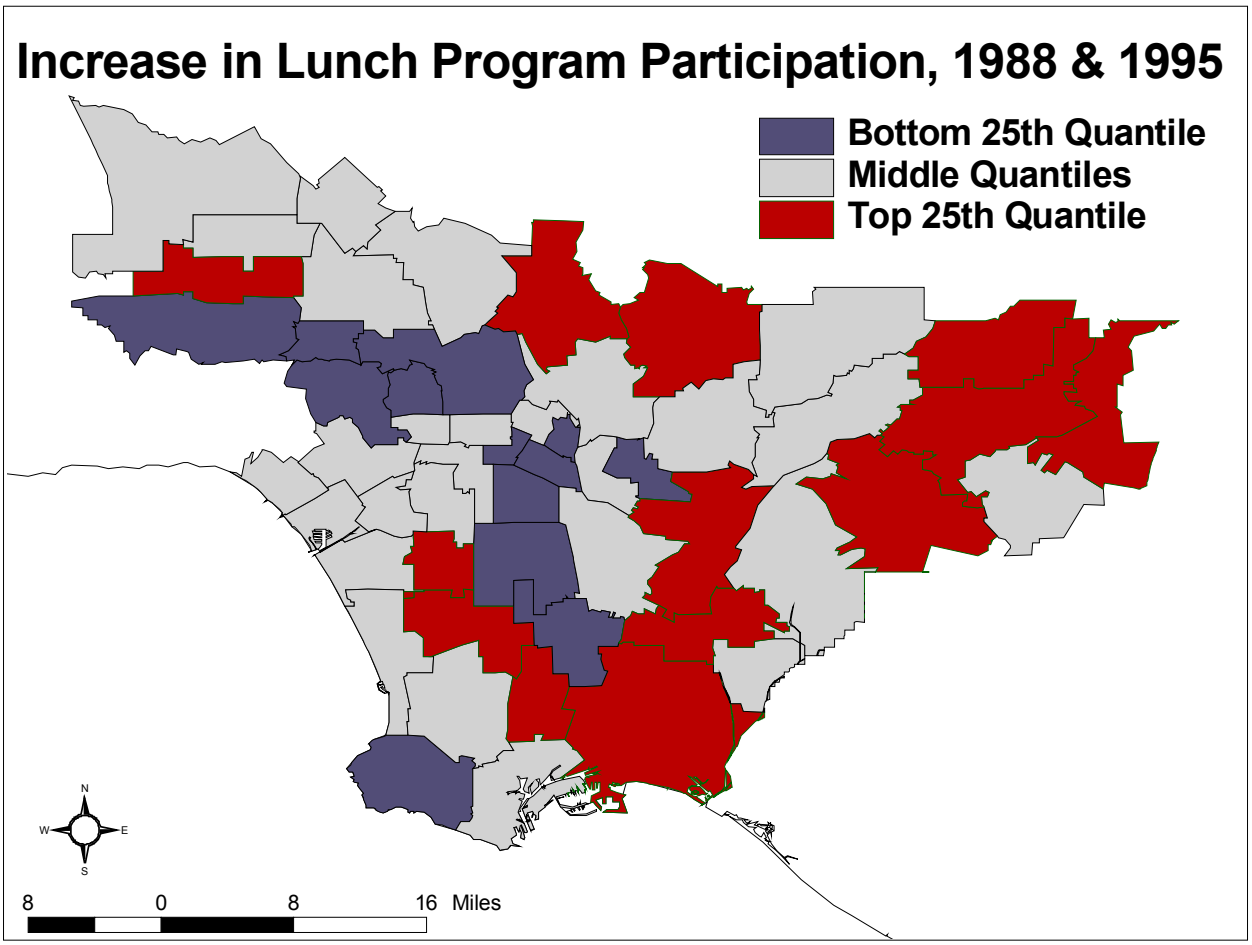


Figure 4.6 shows the percentage increase in the participation rate in free and reduced lunch programs from 1988 and 1995. The neighborhoods with the lowest increase were along the southern portion of the San Fernando Valley, in a north-south corridor including South Central Los Angeles and Compton, and one neighborhood on the Palos Verdes peninsula. The neighborhoods with higher than average increases include a number of low- to middle-income areas surrounding central Los Angeles, including Downey, Long Beach, and Inglewood. Also,

several neighborhoods in eastern Los Angeles County (Pomona and Covina), in the central county area (Glendale and Pasadena), and in the San Fernando Valley (Van Nuys) were among the neighborhoods with substantial increases.

Figure 4.6: Increases in lunch program participation between 1988 and 1995.



The geographic patterns in the severity of cyclical change appear to overlap with the distribution of the poor (those living below the poverty level) and minorities (African Americans and Hispanics). These two socioeconomic characteristics are mapped in figures 4.7 and 4.8. These two maps use the same data presented in Chapter 2, but the data are retabulated to the neighborhoods. Poor neighborhoods are concentrated in the urban core, while the

neighborhoods with the lowest poverty levels are on the edges of the study area. The distribution of minorities follows a similar, but not identical, geographic pattern. Predominantly minority neighborhoods are in the urban core, and most of the neighborhoods with relatively few minorities are located at the edges of the study area.

Figure 4.7: Poverty Rates, 1999

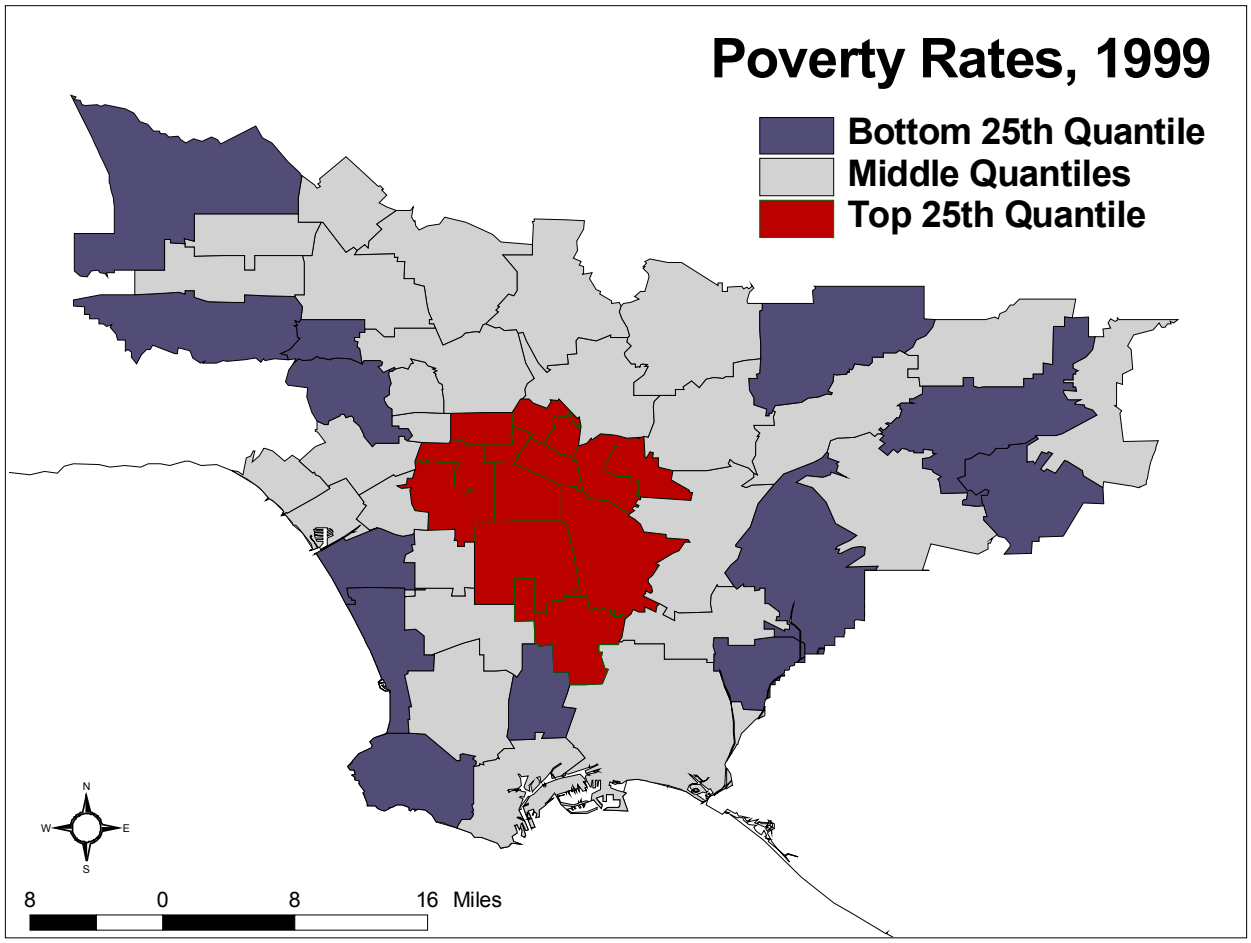
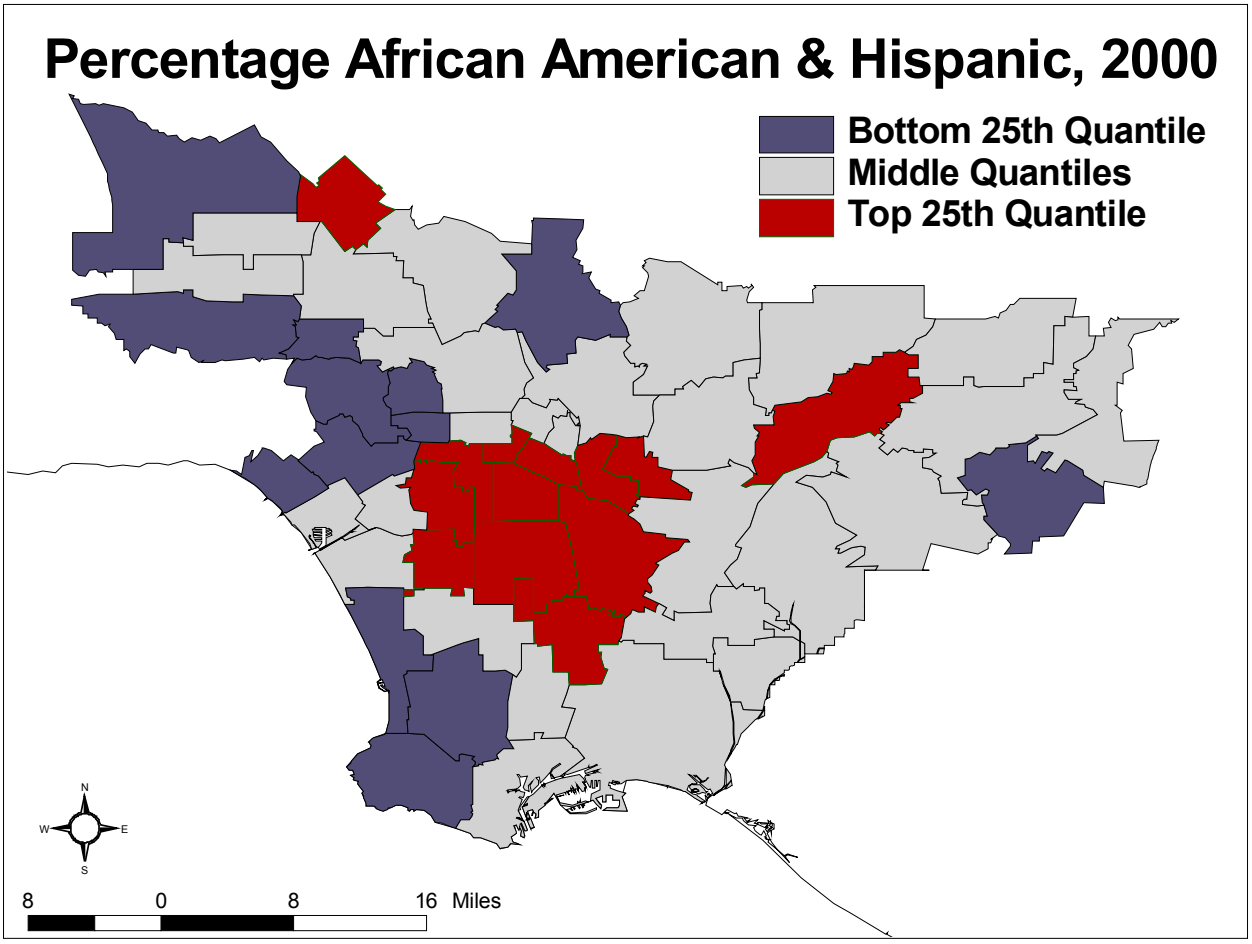


Figure 4.8: Percentage African American and Hispanic, 2000



A comparison of the socioeconomic maps with the maps for the four economic indicators suggests that cyclical volatility is correlated with poverty and race/ethnicity. Many of the poor and predominantly minority areas are also ones with above average changes. The overlap, however, is not perfect, and more careful statistical analysis is needed to test these possible relationships.

Correlates of Cyclical Volatility

As mentioned earlier, the analysis in Chapter 3 of a small number of neighborhoods suggests that variations in the magnitude of the business cycle vary systematically with

socioeconomic characteristics. Data for the 53 Los Angeles neighborhoods provide a sufficiently large sample to examine the relationship of the size of the fluctuation with two key socioeconomic factors: the poverty level (the percent of the population living below the federal poverty line) and the percent minority population (defined by the combined numbers of African Americans and Hispanics divided by the total population).[1] Because these two factors tend to be collinear, regression models are used to determine the independent contributions of each factor. Additional variables were examined when appropriate. The estimated models are reported in Appendix C.

Table 4.1 summarizes the direction of the relationship between the severity of the business cycle and these two socioeconomic factors. Most of the relationships are statistically significant. Some relationships may be significant but difficult to determine because of the small sample size and the collinearity of the independent variables ($r = .745$, p-value$<.0001$). Moreover, three of the indicators (income, retailing jobs, and home values) cover only one part of the business cycle (the downturn for retailing jobs, and the expansion for income and home values). If the up and down halves of the business cycle are symmetrical, then the partial patterns would capture the overall fluctuation for the entire cycle. That assumption, however, is problematic. Given this limitation, it is important to look for consistency in two or more of the indicators.

With the exception of participation in lunch programs, cyclical fluctuations are greater in poor neighborhoods. The differences are particularly pronounced in income, with a one-point increase in the poverty rate increasing the change in income by one percentage point. The impact on home values is more moderate, with less than a one-half point increase in home values associated with a one-point increase in the poverty rate. The smallest impact is on

[1] The socioeconomic data used are from the 2000 Census.

retailing jobs, with only a third of a point increase in job loss tied to a one-point increase in the poverty rate. The one indicator that deviates from this pattern is the participation rate in the free/reduced lunch program. Because of eligibility rules, participation rates are counter-cyclical. As the economy slows, an increasing number of students become eligible for this program. The regression results show that this rate increased less quickly in poor neighborhoods during a downturn. This may be due to the fact that poor neighborhoods already had a high participation rate even during peak years; consequently, there was less room for increases. Taken together, the results for the three of the four indicators reveal that the business cycle causes greater hardships on poor neighborhoods in terms of lost income, employment and asset values.

Table 4.1: Business Cycle Volatility and Socioeconomic Characteristics

	Higher Poverty	**Higher % Minority**
Retail Decline	More volatile**	Not Significant
Lunch Program, 1988-95	Less volatile***	More volatile**
Income Growth	More volatile*	Less volatile***
Home Value Growth	More volatile^	Less volatile***

^ p=0.11; * p<.10; ** p<.05; *** p<.01

The severity of cyclical fluctuations has been correlated with the ethnic/racial composition of the neighborhoods, but the relationships are difficult to interpret. Minority neighborhoods experienced less severe changes, after accounting for the poverty rate in the neighborhoods. For example, a one-point increase in the percent minority population reduces income change by a half percentage point, and the impact on home values is even smaller. Of course, these estimated impacts are for the recovery period of the business cycle, which would indicate lower increases in income and home values. However, if the cyclical affects are symmetrical,

then the predominantly minority neighborhoods would experience more moderate declines during a downturn. Lunch program participation rates have a different pattern, with predominantly minority neighborhoods experiencing a greater increase during the downturn. Overall, the results indicate that predominantly minority neighborhoods experienced more moderate effects of the business cycle. This is difficult to explain. One possible reason is tied to the role of the decline of the aerospace industry in generating the deep and protracted recession of the mid-1990s. Because minorities were disproportionately underrepresented in that sector, perhaps they were less affected by the large cuts in defense spending.

Because the data on lunch program participation cover the entire business cycle, it is possible to examine and compare the role of socioeconomic factors for the two parts of the business cycle. Table 4.2 summarizes the regression results, and most of the relationships are statistically significant despite small sample sizes and the collinearity of the independent variables. The findings in the first row for the increase over the downturn segment (between 1988 and 1995) are consistent with the findings in the second row for the upturn segment (between 1995 and 2001). The regression results show that changes in the participation rate in the free/reduced lunch program are more muted for poor neighborhoods, but more pronounced for predominantly minority neighborhoods. The last two rows of the table report the regression results using the two summary measures of the magnitude of the fluctuation for the whole business cycle (the average of the absolute values of the changes for the two parts of the cycle, and deviation from the secular trend). These regressions produce results similar to the previous analysis – smaller changes in participation rates for poor neighborhood and larger changes for minority neighborhoods.

Table 4.2: Business Cycle Volatility and Lunch Program Rates		
	Higher Poverty	**Higher % Minority**
Lunch Program, 1988-95	Less volatile***	More volatile**
Lunch Program, 1995-01	Less volatile***	More volatile**
Average of Up and Down	Less volatile***	More volatile**
Secularly Adjusted	Less volatile **	More volatile ^
^ p=0.11; * p<.10; ** p<.05; *** p<.01		

Effects of Changing Ranks

The differences in the magnitude of the business cycle across neighborhoods may have an impact on the relative ranking of the neighborhoods in terms of their economic status. For example, the i^{th} neighborhood may rank higher than the j^{th} neighborhood in terms of per capita income during the peak, but the ordering can be reversed during the trough if the business cycle is more pronounced for the i^{th} neighborhood than the j^{th} neighborhood. The changes in ranking could have policy implications for programs that target assistance or services to a limited number of geographic areas. In this example, inclusion in the program would depend on when eligibility is determined relative to the business cycle.

Changes in the relative ranking of neighborhoods are not easy to predict because they are influenced both by variation in the magnitude of the business cycle and the size of the gap among neighborhoods. Table 4.3 reports the results of a comparison of rankings for two periods of time. A change is defined as the absolute difference in the ranking number for a neighborhood (1 to 53). For example, a neighborhood that went from being number 5 to number 7 experienced a change of 2 positions. The first row of statistics contains the results for changes in rank based on IRS reported income in 1991 and in 1998. A large majority of the neighborhoods (72%) remained relatively stable in terms of ranking, which is defined as

changing zero to two positions. The positions of a small minority of neighborhoods (8%) changed significantly, defined as changing by six or more positions. The distribution in changes in rank for retailing follows a similar pattern, as most were stable and a handful underwent dramatic changes. Changes in the ranking of home values showed the least variation. This may be because home values are influenced by the relative long-run economic position of neighborhoods, which change more slowly than short-run fluctuations in income and expenditure.

Table 4.3: Changes in Neighborhood Ranking

	Changes in Relative Rank		
	0-2	**3-5**	**6 or more**
Economic Indicator			
Income 1991 v. 1998	72%	21%	8%
Retailing 1987 v. 1992	75%	23%	2%
Home Values 1995/96 v. 2001	87%	9%	4%
Free/Reduced Lunch, 1988 v. 1995	47%	30%	23%
Free/Reduced Lunch, 1995 v. 2001	60%	30%	9%
Free/Reduced Lunch, 1988 v. 2001	26%	36%	38%
Free/Reduced Lunch, Secularly Adjusted	72%	23%	6%

The analysis for participation in free/reduced lunch programs indicates that these changes in relative ranking are much more dramatic than for the other indicators. During the recession, less than half of the neighborhoods remained stable in ranking (changed 0-2 positions). Nearly a third experienced moderate changes in position (3-5 positions), and about a tenth experienced significant changes (6 or more positions). The recovery period was only slightly

better in terms of stability of ranking, but two-fifths of the neighborhoods changed by three or more positions. These large changes are driven by the strong secular change upwards in the overall participation in the lunch program, which dramatically reordered the relative ranking of neighborhoods between the two peak years of 1988 and 2001. Removing the secular influence alters the results. The last row of table 4.3 is based on comparing the observed ranking in 1995 with the predicted ranking for that year by interpolating between the rates in 1988 and 2001. In other words, the predicted ranking is an estimate of what the ranking would have been without the effects of the business cycle. The difference in observed and predicted ranking represents the influence of the business cycle after accounting for secular change. The resulting distribution in the change in ranking for the lunch program is in line with the distributions for the other indicators, with most neighborhood rankings remaining stable and a handful undergoing dramatic changes.

In most cases, the changes in relative ranking are not overly concentrated among poor or predominantly minority neighborhoods. Parsimonious regressions were estimated using the change-in-position value as the dependent variable, and the poverty level and the percent minority (African American and Hispanic) as the independent variables. Neither the changes in retailing jobs ranking during the downturn nor the changes in income ranking during the upturn were correlated with the two socioeconomic characteristics. The same is true for the ranking based on the 1988 and 1995 participation rates in free/reduced lunch programs.

On the other hand, two other changes in ranking appear to be related to socioeconomic characteristics. The poverty level was positively correlated with differences in ranking in home values between 1995/96 and 2001 ($p = 0.06$). The ranking was stable for all but one of the more affluent neighborhoods (defined as the third of the neighborhoods with the lowest poverty levels). The two neighborhoods that experienced the most instability (a change of 6 or

more positions) were among the poorest neighborhoods (defined as the third of the neighborhoods with the highest poverty levels). These two areas (Pico Union and Downtown) increased their ranking, suggesting that there was some gentrification taking place. Racial/ ethnic composition was positively correlated with differences in ranking in participation in free/reduced lunch programs between 1995 and 2001 (p-value < 0.002). The pattern is similar to that for poverty and home values. Ranking of the lunch program participation rate was stable for all but three of the predominantly non-minority neighborhoods (defined as the third of the neighborhoods with the lowest percent African American and Hispanic populations). Moreover, the five neighborhoods that experienced the most instability (a change of 6 or more positions) were among the predominantly minority neighborhoods (defined as the third of the neighborhoods with the highest percent African American and Hispanic populations). Three of these five neighborhoods went up in ranking, while two neighborhoods went down.

Concluding Remarks

Despite data limitations, the analysis of inter-neighborhood variation in the magnitude of the business cycle reveals that the sizeable differences in volatility are correlated with socioeconomic factors. From this analysis, we conclude that poor neighborhoods are subjected to more severe fluctuations in income, jobs, and home values. An analysis of permit values for neighborhoods in Los Angeles City (not included) also shows greater volatility in poor neighborhoods, indicating that investments are unstable over the business cycle.[2] The one exception is the change in the free/reduced lunch program, with fluctuations smaller in poor neighborhoods. Unfortunately, this also constitutes bad news for these communities because it implies that relatively few resources flowed into the neighborhoods during the downturn.

[2] James Spencer and Paul Ong, "Place-based Investment Strategies: An Analysis of the Los Angeles Revitalization Zone," Report to the Dora and Randolph Haynes Foundation, LA: Ralph and Goldy Lewis Center for Regional Policy Studies, 2003.

CONCLUSION: IMPLICATIONS AND RECOMMENDATIONS

The research in this report produces two important findings that can be generalized about the impacts of the business cycle on neighborhoods. One, the analysis finds substantial variation in the severity of these impacts across neighborhoods. The swings experienced by those with the greatest volatility are two to three times greater than the swings experienced at the other end of the range. The difference is significantly large enough that it is reasonable to argue that the cyclical impacts are disastrous for some neighborhoods. Two, the results reveal that the magnitude of these impacts varies systematically with socioeconomic characteristics. Fluctuations are more pronounced for poor neighborhoods than non-poor neighborhoods, while the relationship with race/ethnicity is more complex and nuanced. This supports the hypothesis that economically marginal neighborhoods bear a greater burden from the business cycle. The exact mechanism is not known, but it is likely that residents in these communities are more subjected to layoffs and reductions in earnings because they are concentrated in precarious jobs.

A third finding is statistically solid but difficult to extrapolate. The research indicates that the safety net for the poor does not provide a greater cushion to ameliorate the additional hardships on disadvantaged communities. During a recession, poor neighborhoods receive less than a proportionate share of the marginal increase in

resources flowing into the neighborhoods. Of course, residents of poor neighborhoods start from a high utilization level; consequently, relatively few people become qualified because of a downturn. The safety net appears to be more effective in serving the neighborhoods with fewer people in poverty, where a downturn pushes a relatively large number of residents into becoming eligible for participation. While the statistical results are highly significant, the free/reduced lunch program is only a minor component of the safety net for the poor. It is not known whether the inter-neighborhood fluctuation for the lunch program is indicative of the cyclical movements for food stamps, public assistance and governmentally subsidized health insurance. The assumption is plausible, but not yet studied.

What is also unknown is whether counter-cyclical, worker-based programs successfully counter the high burden of a recession on poor neighborhoods. Unemployment insurance, which provides some replacement income, is this nation's single most important program for laid-off workers, and the benefit period is frequently extended during times of high unemployment. There is no evidence that neighborhoods with a large share of the unemployed receive an equivalent share of unemployment benefits. Eligibility is not universal, and during the depth of the recession in the early 1990s, only about a third of the unemployed received unemployment benefits at any given week. Some had exhausted their benefits, but many simply did not qualify. Given the relative prevalence of low-wage and unstable employment, poor neighborhoods are likely to benefit far less from this key counter-cyclical program.

Understanding how the safety net and counter-cyclical programs operate is fundamental to redressing the inter-neighborhood inequality associated with business

cycles. With higher than average needs and lower than average external resources, the social support system of poor neighborhoods can become overtaxed during an economic contraction. Moreover, the geographic concentration of cyclically driven joblessness and poverty heightens the social alienation and despair in these communities. Because the problem occurs at both the individual and collective levels, the solution should encompass an expansion of worker-based programs to reach those not adequately covered by unemployment programs, as well as the creation of place-based programs targeting hard-hit neighborhoods.

The findings in this report are sufficiently robust to make the issue of business cycles and their effects on neighborhoods a legitimate social and political concern, but more research and analysis is required before developing sound and concrete policies and plans that are responsive to cyclical effects. There are two major tasks, both requiring better data. The first task is to expand and refine the research on economic cycles and neighborhoods, both in terms of methods and coverage. The multivariate analysis should employ a more comprehensive set of independent factors, but this will require more data. Future studies need to examine two key economic indicators – the unemployment rate and consumption levels. There is a need for better income and investment information that covers an entire business cycle and all relevant neighborhoods. Property values of homes, which represent the most important asset held by individuals, need to be tracked. The analysis of how the safety net operates should include a wider range of programs for the poor, as well as unemployment insurance. Finally, the analysis needs to be replicated in other regions. Some of the findings in this report may be unique to Los Angeles. It is the "Ellis Island" of the 20th Century, and its large immigrant population has shaped both

the region's economy and its neighborhoods. Nonetheless, the current findings should be taken as the prevailing state of knowledge unless there is contrary evidence.

The second task is to monitor the state of neighborhood economies in as close to "real time" as feasible. Applied social science research is important for good policy analysis and urban planning, but responding to current problems requires having relevant information that informs decision-making and guides resource allocation. Policy analysts and planners face a serious challenge of securing data in a timely fashion.

Research and monitoring can be enhanced by tapping a larger array of administrative records. In many cases, the problem is not the absence of useful data. For example, unemployment-insurance data contain information on the location of claimants, which can be tabulated to the neighborhood level. The unemployment-insurance system also contains information on firms and their labor force, which can be used to track neighborhood employment levels. The same is true for income tax and sales tax records, which would provide annual data on income and expenditure. The latter is not a substitute for measuring consumption, but the information would nonetheless be useful in understanding the status of neighborhood economies. County Assessors' records provide data on property value that can be used to track assets. The safety net can be analyzed and monitored using enrollment data for welfare, food stamps, and Medicaid. Policy analysts and planners can play a critical role in transforming the data information, and the results should be used by decision makers responsible for formulating policies and allocating public resources to respond to neighborhood needs.

Several steps must be taken before the data can be collected and used. Constructing what is essentially a neighborhood data and monitoring system will require the full

cooperation of public agencies. These organizations have been reluctant to use their data for purposes beyond their immediate operational needs. The solution is to expand their mandate through legislation. Clearly, one of the major concerns of agencies is protecting the rights of individuals and firms. Protocols and procedures have to be developed to ensure that confidentiality is protected. Even with cooperation from agencies, it will be difficult to reconstruct data for earlier years because many agencies do not maintain good archival collections. Fortunately, there are usually backup data files kept by the units responsible for producing reports. Because administrative data have limitations in coverage and consistency, it is important to determine their biases and inconsistencies. This will require a careful understanding the data implications of changes in regulations over time. Moreover, it is crucial to determine the relationship between administrative statistics and the corresponding economic phenomenon. For example, unemployment-insurance usage can be a proxy for the unemployment rate if there are reasonable estimates of the eligibility ratio neighborhood-by-neighborhood. Understanding these relationships requires comparing administrative statistics with population-based statistics, primarily from the census. The result will facilitate the development of adjustment or weighting factors so broader inferences can be drawn from administrative data.

One of the most promising developments is the American Community Survey (ACS) conducted by the U.S. Bureau of the Census. The ACS is designed to replace the long form of the decennial census, which has been used to collect socioeconomic information from approximately one-in-six households. Unlike the decennial census, which is conducted only in years ending in zero, the ACS is an ongoing survey that produces timely socioeconomic information for small geographic areas. The goal is to provide

community profiles that can be used for planning and program evaluation. The objective is to have a sample size large enough to enable the Bureau of the Census to estimate demographic, housing, social, and economic characteristics every year for states and geographic areas (cities, counties, etc.) with at least 65,000 people. By pooling data from three to five years of interviews, the Bureau would be able to produce profiles at the neighborhood level. The ACS is still in a demonstration stage, and it is uncertain if Congress is willing to fully fund the survey in the near future. However, if and when the ACS is fully implemented, the results will complement administratively-based data to improve the research on and monitoring of the business cycle effects on neighborhoods.

APPENDIX A: METHODOLOGY FOR ISOLATING CYCLICAL EFFECTS

This appendix describes the methods that can be used to isolate cyclical economic change. In general, business cycles are deviations from an underlying secular trend that is, in most cases, difficult to observe due to its long time frame. These long-term trends can obscure the short-term fluctuations of the economy without an appropriate method for isolating cycles from trends. Schenk-Hoppe (2001) defines two fundamentally different ways to isolate cycles by "detrending" time series. Most conventional methods for detrending cyclical change, he argues, follow the Hodrick-Prescott filter or the band-pass filter of Baxter and King. These approaches assume that trends are generally smooth because of long-term stochastic, or random processes of change. They assume that change is driven by incremental changes in productivity. Schenk-Hoppe criticizes this approach because it does not explicitly incorporates the investment in labor and capital that result in long-term and potentially non-linear technical progress. The argument is theoretically sound, but it is very difficulty or impossible to assemble the required data for sub-national economies. For practical reasons, it is necessary to assume that secular change is incremental and steady, at least over a single business cycle.

Assuming a linear trend, there are at least two alternative ways to isolate secular and cyclical economic change. The first employs a linear ordinary least squares (OLS) regression model and the second uses a "difference-in-differences" model to estimate cyclical deviance from the growth trend. Both fit a linear equation to the observed data to estimate predicted annual change but differ in the methods used to calculate it. The following discussion clarifies the conceptual basis for each of these methods.

The OLS regression method assumes generally regular secular trends and fits a regression line to the observed rates of change that minimizes the total deviation from the observed data points to the linear regression equation. Fitting the regression line creates a standard measure of overall change over the period observed. With our assumption that the overall rate of secular change is regular, this regression line is a theoretically accurate estimate of the rate of secular change during the period analyzed for cyclical changes. Using an OLS method to estimate cycles adjusts the observed economic indicators to account for this underlying linear growth trend. According to our distinction of secular and cyclical change, any observed data point y represents the sum of both kinds of change, or

$$y_t = c_t + s_t \qquad (1)$$

where y_t is the observed data at any time t, c_t is the component of the observed data attributable to cyclical change, and s_t is the component of the observed data attributable to secular change. Thus,

$$c_t = y_t - s_t \qquad (2)$$

or cyclical change is equal to the observed data minus any secular changes at any given time t. Our above discussion of a relatively regular trend of secular change over the 1990s indicates that a linear estimate of secular change is likely to reliably describe long-term variation, and we are able to fit the OLS equation to the curve of y for any time t.

$$s_t = a + b*y_t \qquad (3)$$

is an approximation of secular change. In this model, s_t is the adjusted variable, a is a constant, b represents the coefficient for the unadjusted independent variable, and y_t is the unadjusted independent variable, or observed data itself. In other words, s_t represents the

component of observed data that is attributable to secular change at any time *t*. Thus, substituting for s_t in equation (2),

$c_t = y_t - (a + b*y_t)$ *or* $c_t = y_t (1 + b) - a$ *(4)*

which provides an estimate of the cyclical change adjusted for secular trends at any time *t*. Plotting c_t for every value of t, then, would produce a graphical representation of cyclical change.

The OLS method is the ideal linear fit to the secular trend since it minimizes the overall variation of the observed data to the overall linear trend. This approach can be extended to include non-linear time trends that can be captured by second- and higher-order functions, or by logarithmic or exponential functions.

Unlike the OLS method, the difference-in-differences approach to estimating the cyclical variation of data focuses on a single moment in time, rather than on the overall line of best fit to the curve of a data set. Rather than compare each individual data point with the overall best-fit trend line, the difference-in-differences method compares them with the expected level of variation from an arbitrarily selected point on the distribution. In order to estimate this difference between the expected variation and observed variation from an indexed point in time, the difference-in-differences method projects what the aggregated average change should be from any given point backwards or forwards along the distribution and subtracts it from each point's observed change – aggregated from an indexed point – to obtain the cyclical component of change.

Suppose that we know the rate of change for a variable over a given period, called r_t. Then

$(r_{t1} + r_{t1t2} + r_{t1t3} + r_{t1t4} + \ldots + r_{t1tn})/ n$

is equal to one reasonable definition of the average periodical rate of change from t_1 to t_n, and can be denoted by r_t'. With a linear assumption, this value can be either the predicted rate of change or the average absolute change and remain constant for any value of t. Now suppose that at each point in time the rate of change – as with the OLS assumptions – represents the sum of both secular and cyclical change. As with the OLS method, then, the equation

$c_t = y_t - s_t$ *(2)*

also represents the relationship between the unadjusted observed values of y_t, secular change component s_t and cyclical change component c_t for any given moment in time.

One linear definition of secular change is the average rate of change, or r_t'. Thus,

$c_t = y_t - r_t'$ *(5)*

Plotting this equation for each t would provide one measure of cyclical variation by showing how much each year's change differed from the average. On subsequent t's it would simply provide rates of change for each observation y_t independent of accumulating effects. Therefore, it would show disproportionately low cyclical variation. However, our interest is in the aggregate total of these changes over time, rather than at any given point along the distribution. Thus, we need to account for the aggregated and accumulated total of these differences over the period covered by the data by inserting a coefficient that accounts for the accumulated total of all years preceding the index year. This coefficient can be represented as $(t_i - t_d)$, where t_i represents any given point along the x-axis and t_d represents the point along the x-axis upon which any changes are benchmarked, or indexed. Thus, including the coefficient for accumulation of change over time would yield the following equation

$c_{ti} = y_t - (t_i - t_d) * r_t'$ (6)

where the predicted accumulated average change is subtracted from the observed value for each point *t*. This equation, however, does not aggregate the sum of the observed values and would compare only the value of one observed point to aggregate predicted change rather than aggregate actual change to aggregate predicted change. Adjusting for this aggregate observed change yields

$c_{ti} = (y_{ti} - y_{td}) - (t_i - t_d) * r_t'$ (7)

In short, this equation can be described in the following way: The cyclical component of change at any given point t_i is equal to the product of the average periodic change for the distribution from indexed point t_d and the number of time intervals between the indexed time point t_d and point t_i subtracted from the observed change between the indexed point t_d of the distribution and point t_i.

The selection of the year on which to index change is important in its effect on the starting scale of the resulting distribution and does have some minimal effect on the slope of the fit line. Thus, if $t_1 = t_d$, then t_1 would equal zero when secular change was accounted for, and any other years would be measured compared to $t_1 = 0$. If $t_7 = t_d$, then t_7 would equal zero, and any other years would be measured compared to $t_7 = 0$. Moreover, the slope of the fitted line would be slightly higher if t_d is selected during a year of higher-than-average growth and slightly lower if it was selected during a year of lower-than-average growth. Since our interest is in cyclical change, it makes sense to index the distribution on the year in which the data were at either a peak or a trough across the available time series, even though this inevitably biases the slope of the line.

Implementing either the OLS or difference-in-differences approach require sufficient longitudinal data for an economy. In general, there is an inverse relationship between the ability to assemble the data and the geographic size of the economy. Appendix B discusses the data available for the analysis in this report.

APPENDIX B: DATA SOURCES

Ideally, this study would use direct measures of the state of the economy along a number of key dimensions over a business cycle. Unfortunately, the choice is constrained by availability of data; nonetheless, the data assembled do cover key cyclical phenomena. The data sets are very uneven in temporal and geographic coverage. Table B.1 lists data sources consulted for possible use for this report. Not all data sources are utilized in the analysis contained in the body of the report.

Table B.1: Variables Matrix.

Economic Indicators	Variables	Data Provider		Data Matching Issues
		Regional Cycle (annual data)	Neighborhood Cycle (annual or periodic data)	
Employment	Labor Force, unemployment rates	Unemployment Insurance Claims, CPS		No data available at neighborhood level
Income	Household income, per capita income, earnings	CPS, BEA, IRS	IRS Zip code data (1991, 1997, 1998)	
Consumption	Expenditures	Retail Sales Tax Amounts from the BOE		No data available for the neighborhood level
Assets	Home sales and median selling price	BOC	California Association of Realtors zip code data (1992-2001)	Data cover only part of the business cycle
Investment	Number of building permits issued; aggregate value of approved permits	City of L.A. Dept. of Building and Construction	City of L.A. Dept. of Building and Safety (1990-2001)	Includes both commercial and residential combined
Jobs	Private sector retail jobs	EDD, U.S. Census	BOC Zip code Economic Census (1987, 1992), ABI Zip code tabulations (1998)	Only measures retail sector; data sources are not comparable
Safety Net	Percent of students in reduced/Free lunches	CA Department of Education	Elementary schools	Minor safety-net program

BEA = Bureau of Economic Analysis ; BOC = Bureau of the Census ; BOE =California Board of Equalization; CPS = Current Population Survey; EDD = California Employment Development Department ABI = American Business Information

Description of Data and Sources

Employment and Jobs:

- Current Population Survey (CPS), sponsored jointly by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics (BLS), is the nation's primary source of labor force statistics for the entire population. It collects information on a monthly basis about the nation's unemployment rate and provides data on a wide range of issues relating to employment and earnings. The CPS sample is a multistage stratified sample of approximately 56,000 housing units from 792 sample areas designed to measure demographic and labor force characteristics of the civilian noninstitutional population 16 years of age and older. http://www.bls.census.gov/cps/cpsmain.htm

- Unemployment insurance claims data are collected weekly from all states. The unemployment compensation program for Federal employees (UCFE) and the unemployment for ex-service members (UCX) exclude claims filed jointly under other programs to avoid duplication.
  http://workforcesecurity.doleta.gov/unemploy/uiclaims.asp

- ABI (American Business Information) otherwise known as Info USA, gathers data from multiple sources and verifies the information via telephone. The sources include 5,200 Yellow pages and business white pages, County Courthouses and Secretary of State data, leading business magazines and newspapers, annual reports, 10Ks and other SEC filings, new business registration and incorporations and postal service information. The data are updated on a monthly basis. Information is sorted by location, type of business, size of business, credit rating, location type, phone & fax and executive names. http://www.infoUSA.com

- Bureau of the Census, Zip Code Economic Census is required every 5 years, for years ending in ''2'' and ''7.'' It constitutes the chief source of data about the structure and functioning of the Nation's economy, and provides the foundation and framework for a host of other statistical endeavors by public and private sector. This census surveys companies in 20 sectors according to the North American Industrial Classification System (NAICS). http://www.census.gov/prod/ec97/pol00-hec.pdf

- The California Employment Development Department (EDD) produces monthly estimates of the civilian labor force aged 16 and older as well as the civilian employment and unemployment rates. Data are available for the whole state and for individual counties. The Los Angeles County estimate relies on the Current Employment Survey (CES). http://www.calmis.ca.gov/file/resource/lfmeth.htm

Income:

- The Current Population Survey (CPS) includes information about personal income in addition to demographic and employment rates.
  http://www.bls.census.gov/cps/cpsmain.htm

- The Bureau of Economic Analysis (BEA) at the U.S. Department of Commerce produces regular estimates of personal income. Personal income is calculated as the sum of wage and salary disbursements, other labor income, proprietors' income with inventory valuation and capital consumption adjustments, rental income of persons with capital consumption adjustment, personal dividend income, personal interest income, and transfer payments to persons, less personal contributions for social insurance. These data rely on estimates by the BLS, but also adjusts for income sources not included in BLS statistics.
  http://www.fedstats.gov/qf/meta/long_58607.htm

- Internal Revenue Service (IRS) Zip Code Data contains aggregated information based on individual tax returns. Data are classified by size of adjusted gross income.
  http://www.irs.gov/taxstats/article/0,,id=96947,00.html

Consumption:

- California Board of Equalization (BOE) publishes a quarterly review of Taxable Sales in California based on retail sales activity in California, measured by transactions subject to sales and use tax. The report includes data about statewide taxable sales by business types and about taxable sales in all California cities and counties. Businesses are classified according to their principal line of merchandise or service. Only sales subject to sales or use tax are tabulated; excluded are sales for resale, sale of nontaxable items such as food for home consumption and prescription medications, and taxable sales disclosed by Board audits.
  http://www.boe.ca.gov

Housing:

- Price Index for Sales Price of New One-Family Houses Sold – these data are obtained from the U.S. Census Bureau's Survey of Construction. Information is collected on the physical characteristics and sales prices of new one-family houses sold. This is collected through monthly interviews with builders and owners of a national sample. The sample size is approximately 13,000 per year.
  http://www.census.gov/constr/C25/newresidextext.html

- California Association of Realtors Zip Code Data are compiled in conjunction with Real Estate Solutions, a real estate information service. It measures the median price of single-family homes in California, and reports on a quarterly basis. The C.A.R. report compiles data on the state for single family detached homes and condominiums, for the state and by regions that are organized by zip code.
  http://www.car.org

Investment:

- City of L.A. Dept of Building and Safety – Individuals and firms are required to apply for a permit to build, construct, remodel, repair, demolish, remove, or move any building or structure when the value of the work is over $300.
  http://www.ladbs.org/Permits/permits.htm

Poverty:

- The Current Population Survey (CPS) includes estimates of persons earning less than the federal poverty line (FPL).
  http://www.bls.census.gov/cps/cpsmain.htm

Safety Net Programs:

- The California Department of Social Services (CDSS) tracks enrollment in welfare programs (primarily CalWORKS, the state's version of TANF), food stamps and subsidized health insurance.
  http://www.dss.cahwnet.gov/research/default.htm

- The Los Angeles County Department of Public Social Services (DPSS) tracks enrollment in welfare funded by the state and federal government, and local public assistance programs.
  http://www.ladpss.org/dpss/dss/default.cfm

- California Department of Education data includes public enrollment, number and percent of Free & Reduced meals, and the number of Free & Reduced Eligible by school districts and school. These data are collected and published annually.
  http://www.cde.ca.gov

APPENDIX C: REGRESSION RESULTS

This appendix contains the computer output of the regression runs estimating the influence of socioeconomic characteristics on cyclical outcomes, along with the associated summary statistics. The software package used is SAS, one of the most widely used statistical packages in the social sciences. The unit of analysis is the neighborhood, and most models contain 53 observations. Ordinary least squares regressions are used. The dependent variables are the measures of the magnitude of cyclical change:

- Percent growth in IRS reported income from 1991 to 1998;
- Percent decline in retailing jobs from 1987 to 1992 from the Economic Census;
- Change in the Free/Reduced Lunch Program participation rate from 1988 to 1995; and
- Percent increase in home values from 1995/96 to 2001.

Additional regression models are estimated for the lunch program:

- Decrease from 1995 to 2001;
- Average change for the recession and expansion; and
- Deviation from the estimated rate based on secular trends.

The latter indicator for the lunch program removes secular influences leaving only the cyclical component in the change in the participation rate. Regression models are estimated for the fluctuation in the value of construction permits only for neighborhoods with data, which are those within the City of Los Angeles. This includes some areas that are only partly in the City. The two major dependent variables are the poverty rate (percent of the population living below the federal poverty line in 1999) and the percent minority (defined as the combination of African Americans and Hispanics). Some regressions contain other control variables (e.g., a dummy variable denoting Downtown in the income regression).

Means and Correlations for Key Economic Indicators and Socioeconomic Variables

Variable	Label
IRS_chg	Increase in Income, 1992-2001
lunch_down	Increase in Lunch Program, 1988-95
home_chg	Increase in Home Values, 1995/96-2001
ret_chg	Decline in Retail Jobs, 1985-92
pov	Poverty Rate, 1999
pct_blk_lat	Percent Minority, 2000

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
IRS_chg	53	13.46066	15.12335	713.41482	-5.33683	80.84621
lunch_down	53	11.54953	9.66040	612.12520	-2.53460	34.99539
home_chg	53	26.55177	12.45159	1407	3.78706	57.96103
ret_chg	53	-8.25167	9.08603	-437.33855	-28.89759	9.74182
pov	53	15.93136	9.18005	844.36187	2.51378	43.14296
pct_blk_lat	53	51.12373	27.79525	2710	5.68800	97.21181

Pearson Correlation Coefficients, N = 53
Prob > |r| under H0: Rho=0

	IRS_chg	lunch_down	home_chg
IRS_chg Increase in Income, 1992-2001	1.00000	-0.39119 0.0038	0.03155 0.8226
lunch_down Increase in Lunch Program, 1988-95	-0.39119 0.0038	1.00000	-0.19397 0.1640
home_chg Increase in Home Values, 1995/96-2001	0.03155 0.8226	-0.19397 0.1640	1.00000
ret_chg Decline in Retail Jobs, 1985-92	-0.09708 0.4892	0.18484 0.1852	-0.01923 0.8913
pov Poverty Rate, 1999	0.02780 0.8434	-0.33436 0.0144	-0.15350 0.2725
pct_blk_lat Percent Minority, 2000	-0.38603 0.0043	0.03119 0.8246	-0.39127 0.0038

	ret_chg	pov	pct_blk_lat
IRS_chg Increase in Income, 1992-2001	-0.09708 0.4892	0.02780 0.8434	-0.38603 0.0043
lunch_down Increase in Lunch Program, 1988-95	0.18484 0.1852	-0.33436 0.0144	0.03119 0.8246
home_chg Increase in Home Values, 1995/96-2001	-0.01923 0.8913	-0.15350 0.2725	-0.39127 0.0038
ret_chg Decline in Retail Jobs, 1985-92	1.00000	-0.33513 0.0142	-0.21557 0.1211
pov Poverty Rate, 1999	-0.33513 0.0142	1.00000	0.74470 <.0001
pct_blk_lat Percent Minority, 2000	-0.21557 0.1211	0.74470 <.0001	1.00000

Means and Correlations for Lunch-Program Indicators and Socioeconomic Variables

Variable	Label
lunch_up	Decrease in Lunch Program, 1995-2001
lunch_down	Increase in Lunch Program, 1988-95
lunch_chg	Average fluctuation in Lunch Program
lunch_chg_adj	Secularly adjusted change in Lunch Program
pov	Poverty Rate, 1999
pct_blk_lat	Percent Minority, 2000

Simple Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
lunch_up	53	-1.35827	4.38145	-71.98829	-11.63398	9.63412
lunch_down	53	11.54953	9.66040	612.12520	-2.53460	34.99539
lunch_chg	53	7.71302	4.70791	408.79013	0.81511	18.77364
lunch_chg_adj	53	6.06193	4.10622	321.28225	-2.90250	17.11464
pov	53	15.93136	9.18005	844.36187	2.51378	43.14296
pct_blk_lat	53	51.12373	27.79525	2710	5.68800	97.21181

Pearson Correlation Coefficients, N = 53
Prob > |r| under H0: Rho=0

	lunch_up	lunch_down	lunch_chg
lunch_up Decrease in Lunch Program, 1995-2001	1.00000	0.40805 0.0024	0.34036 0.0126
lunch_down Increase in Lunch Program, 1988-95	0.40805 0.0024	1.00000	0.95734 <.0001
lunch_chg Average fluctuation in Lunch Program	0.34036 0.0126	0.95734 <.0001	1.00000
lunch_chg_adj Secularly adjusted change in Lunch Program	-0.13148 0.3480	0.85138 <.0001	0.84395 <.0001
pov Poverty Rate, 1999	-0.26926 0.0512	-0.33436 0.0144	-0.28842 0.0362
pct_blk_lat Percent Minority, 2000	0.07083 0.6143	0.03119 0.8246	0.06896 0.6237

	lunch_chg_adj	pov	pct_blk_lat
lunch_up Decrease in Lunch Program, 1995-2001	-0.13148 0.3480	-0.26926 0.0512	0.07083 0.6143
lunch_down Increase in Lunch Program, 1988-95	0.85138 <.0001	-0.33436 0.0144	0.03119 0.8246
lunch_chg Average fluctuation in Lunch Program	0.84395 <.0001	-0.28842 0.0362	0.06896 0.6237
lunch_chg_adj Secularly adjusted change in Lunch Program	1.00000	-0.20836 0.1343	-0.00683 0.9613
pov Poverty Rate, 1999	-0.20836 0.1343	1.00000	0.74470 <.0001
pct_blk_lat Percent Minority, 2000	-0.00683 0.9613	0.74470 <.0001	1.00000

Regression Results for Increase in Income, 1992-2001

Model: MODEL1
Dependent Variable: IRS_chg Increase in Income

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	4497.05068	1499.01689	9.93	<.0001
Error	49	7396.17432	150.94233		
Corrected Total	52	11893			

Root MSE	12.28586	R-Square	0.3781
Dependent Mean	13.46066	Adj R-Sq	0.3400
Coeff Var	91.27236		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	20.13955	3.68565	5.46	<.0001
pov	Poverty Rate	1	1.16278	0.27812	4.18	0.0001
pct_lat	Pcercent Latino	1	-0.47345	0.09801	-4.83	<.0001
pct_blk	Percent Black	1	-0.57425	0.14574	-3.94	0.0003

Model: MODEL2
Dependent Variable: IRS_chg Increase in Income

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	4426.41599	2213.20800	14.82	<.0001
Error	50	7466.80900	149.33618		
Corrected Total	52	11893			

Root MSE	12.22032	R-Square	0.3722
Dependent Mean	13.46066	Adj R-Sq	0.3471
Coeff Var	90.78545		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	20.28385	3.65998	5.54	<.0001
pov	Poverty Rate	1	1.16608	0.27660	4.22	0.0001
pct_blk_lat	Percent Minority	1	-0.49684	0.09135	-5.44	<.0001

Model: MODEL3
Dependent Variable: IRS_chg Increase in Income

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	7655.06827	2551.68942	29.50	<.0001
Error	49	4238.15672	86.49299		
Corrected Total	52	11893			

Root MSE	9.30016	R-Square	0.6436
Dependent Mean	13.46066	Adj R-Sq	0.6218
Coeff Var	69.09143		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	23.63194	2.83879	8.32	<.0001
pov	Poverty Rate	1	0.47324	0.23911	1.98	0.0534
pct_blk_lat	Percent Minority	1	-0.37070	0.07252	-5.11	<.0001
downtown	Dummy for Downtown	1	65.77207	10.76518	6.11	<.0001

Regression Results for Decline in Retailing Jobs, 1985-92

Model: MODEL1
Dependent Variable: ret_chg Decline in Retail Jobs

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	616.96076	205.65359	2.74	0.0531
Error	49	3675.94961	75.01938		
Corrected Total	52	4292.91037			

Root MSE	8.66137	R-Square	0.1437
Dependent Mean	-8.25167	Adj R-Sq	0.0913
Coeff Var	-104.96508		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-3.53756	2.59834	-1.36	0.1796
pov	Poverty Rate	1	-0.39233	0.19607	-2.00	0.0510
pct_lat	Pcercent Latino	1	0.05591	0.06909	0.81	0.4223
pct_blk	Percent Black	1	-0.07747	0.10275	-0.75	0.4545

Model: MODEL2
Dependent Variable: ret_chg Decline in Retail Jobs

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	493.29671	246.64835	3.25	0.0473
Error	50	3799.61366	75.99227		
Corrected Total	52	4292.91037			

Root MSE	8.71735	R-Square	0.1149
Dependent Mean	-8.25167	Adj R-Sq	0.0795
Coeff Var	-105.64351		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-3.34662	2.61084	-1.28	0.2058
pov	Poverty Rate	1	-0.38797	0.19731	-1.97	0.0548
pct_blk_lat	Percent Minority	1	0.02496	0.06517	0.38	0.7034

Model: MODEL3
Dependent Variable: ret_chg Decline in Retail Jobs

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	482.15167	482.15167	6.45	0.0142
Error	51	3810.75870	74.72076		
Corrected Total	52	4292.91037			

Root MSE	8.64412	R-Square	0.1123
Dependent Mean	-8.25167	Adj R-Sq	0.0949
Coeff Var	-104.75596		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-2.96724	2.39531	-1.24	0.2211
pov	Poverty Rate	1	-0.33170	0.13058	-2.54	0.0142

Regression Results for Increase in Home Values, 1992-2001

Model: MODEL1

Dependent Variable: home_chg Increase in Home Values

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	1604.76071	534.92024	4.06	0.0118
Error	49	6457.43013	131.78429		
Corrected Total	52	8062.19084			

Root MSE	11.47973	R-Square	0.1990
Dependent Mean	26.55177	Adj R-Sq	0.1500
Coeff Var	43.23529		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	34.19135	3.44382	9.93	<.0001
pov	Poverty Rate	1	0.42188	0.25988	1.62	0.1109
pct_lat	Pcercent Latino	1	-0.29286	0.09157	-3.20	0.0024
pct_blk	Percent Black	1	-0.23119	0.13618	-1.70	0.0959

Model: MODEL2

Dependent Variable: home_chg Increase in Home Values

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1578.33204	789.16602	6.09	0.0043
Error	50	6483.85881	129.67718		
Corrected Total	52	8062.19084			

Root MSE	11.38759	R-Square	0.1958
Dependent Mean	26.55177	Adj R-Sq	0.1636
Coeff Var	42.88825		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	34.10309	3.41058	10.00	<.0001
pov	Poverty Rate	1	0.41986	0.25775	1.63	0.1096
pct_blk_lat	Percent Minority	1	-0.27855	0.08513	-3.27	0.0019

Regression Results for Increase in Lunch Program Participation, 1988-1995

Model: MODEL1

Dependent Variable: lunch_down Increase in Lunch Program, 1995-2001

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	1433.28173	477.76058	6.85	0.0006
Error	49	3419.53485	69.78643		
Corrected Total	52	4852.81658			

Root MSE	8.35383	R-Square	0.2954
Dependent Mean	11.54953	Adj R-Sq	0.2522
Coeff Var	72.33044		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	13.72937	2.50608	5.48	<.0001
pov	Poverty Rate	1	-0.84715	0.18911	-4.48	<.0001
pct_lat	Pcercent Latino	1	0.23520	0.06664	3.53	0.0009
pct_blk	Percent Black	1	0.16378	0.09910	1.65	0.1048

Model: MODEL2

Dependent Variable: lunch_down Increase in Lunch Program, 1995-2001

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	1397.83082	698.91541	10.11	0.0002
Error	50	3454.98576	69.09972		
Corrected Total	52	4852.81658			

Root MSE	8.31262	R-Square	0.2880
Dependent Mean	11.54953	Adj R-Sq	0.2596
Coeff Var	71.97368		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	13.83160	2.48963	5.56	<.0001
pov	Poverty Rate	1	-0.84482	0.18815	-4.49	<.0001
pct_blk_lat	Percent Minority	1	0.21863	0.06214	3.52	0.0009

Regression Results for Decrease in Lunch Program Participation, 1995-2001

Model: MODEL1

Dependent Variable: lunch_up Decrease in Lunch Program, 1995-2001

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	297.84905	99.28302	6.95	0.0005
Error	49	700.40248	14.29393		
Corrected Total	52	998.25153			

Root MSE	3.78073	R-Square	0.2984
Dependent Mean	-1.35827	Adj R-Sq	0.2554
Coeff Var	-278.34908		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-0.90421	1.13419	-0.80	0.4292
pov	Poverty Rate	1	-0.34808	0.08559	-4.07	0.0002
pct_lat	Pcercent Latino	1	0.11768	0.03016	3.90	0.0003
pct_blk	Percent Black	1	0.02440	0.04485	0.54	0.5888

Model: MODEL2

Dependent Variable: lunch_up Decrease in Lunch Program, 1995-2001

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	237.38227	118.69114	7.80	0.0011
Error	50	760.86926	15.21739		
Corrected Total	52	998.25153			

Root MSE	3.90095	R-Square	0.2378
Dependent Mean	-1.35827	Adj R-Sq	0.2073
Coeff Var	-287.19971		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	-0.77070	1.16833	-0.66	0.5125
pov	Poverty Rate	1	-0.34504	0.08830	-3.91	0.0003
pct_blk_lat	Percent Minority	1	0.09603	0.02916	3.29	0.0018

Regression Results for Average change in Lunch Program Participation, 1988/95 and 1995/01

Model: MODEL1

Dependent Variable: lunch_chg Average fluctuation in Lunch Program

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	305.82767	101.94256	5.90	0.0016
Error	49	846.72149	17.28003		
Corrected Total	52	1152.54916			

Root MSE	4.15693	R-Square	0.2653
Dependent Mean	7.71302	Adj R-Sq	0.2204
Coeff Var	53.89491		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	8.40729	1.24704	6.74	<.0001
pov	Poverty Rate	1	-0.39170	0.09410	-4.16	0.0001
pct_lat	Pcercent Latino	1	0.11145	0.03316	3.36	0.0015
pct_blk	Percent Black	1	0.09613	0.04931	1.95	0.0570

Model: MODEL2

Dependent Variable: lunch_chg Average fluctuation in Lunch Program

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	304.19596	152.09798	8.96	0.0005
Error	50	848.35319	16.96706		
Corrected Total	52	1152.54916			

Root MSE	4.11911	R-Square	0.2639
Dependent Mean	7.71302	Adj R-Sq	0.2345
Coeff Var	53.40462		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	8.42922	1.23367	6.83	<.0001
pov	Poverty Rate	1	-0.39120	0.09323	-4.20	0.0001
pct_blk_lat	Percent Minority	1	0.10790	0.03079	3.50	0.0010

Regression Results for Secularly Adjusted Fluctuation in Lunch Program Participation Rate

Model: MODEL1

Dependent Variable: lunch_chg_adj Secularly adjusted change in Lunch Program

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	83.44383	27.81461	1.72	0.1755
Error	49	793.32852	16.19038		
Corrected Total	52	876.77235			

Root MSE	4.02373	R-Square	0.0952
Dependent Mean	6.06193	Adj R-Sq	0.0398
Coeff Var	66.37700		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	6.82352	1.20708	5.65	<.0001
pov	Poverty Rate	1	-0.20356	0.09109	-2.23	0.0300
pct_lat	Pcercent Latino	1	0.04519	0.03210	1.41	0.1655
pct_blk	Percent Black	1	0.06245	0.04773	1.31	0.1968

Model: MODEL2

Dependent Variable: lunch_chg_adj Secularly adjusted change in Lunch Program

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	81.37292	40.68646	2.56	0.0876
Error	50	795.39943	15.90799		
Corrected Total	52	876.77235			

Root MSE	3.98848	R-Square	0.0928
Dependent Mean	6.06193	Adj R-Sq	0.0565
Coeff Var	65.79559		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	6.79881	1.19455	5.69	<.0001
pov	Poverty Rate	1	-0.20413	0.09028	-2.26	0.0281
pct_blk_lat	Percent Minority	1	0.04920	0.02982	1.65	0.1052

Regression Results for Fluctuation in Permit Value, LA City Neighborhoods

Model: MODEL1
Dependent Variable: PERMVAL Fluctuation in Permit Value

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	4	28.07497	7.01874	2.99	0.0355
Error	28	65.62182	2.34364		
Corrected Total	32	93.69679			

Root MSE	1.53089	R-Square	0.2996
Dependent Mean	-1.53606	Adj R-Sq	0.1996
Coeff Var	-99.66365		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	0.04896	0.61195	0.08	0.9368
pov	Poverty Rate	1	-0.05098	0.04406	-1.16	0.2571
pct_lat	Pcercent Latino	1	-0.00776	0.01547	-0.50	0.6198
pct_blk	Percent Black	1	0.00936	0.02125	0.44	0.6630
edge	On the Edge of LA City	1	-1.65913	0.62445	-2.66	0.0129

Model: MODEL2
Dependent Variable: PERMVAL Fluctuation in Permit Value

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	26.50078	8.83359	3.81	0.0203
Error	29	67.19601	2.31710		
Corrected Total	32	93.69679			

Root MSE	1.52220	R-Square	0.2828
Dependent Mean	-1.53606	Adj R-Sq	0.2086
Coeff Var	-99.09789		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	0.04132	0.60840	0.07	0.9463
pov	Poverty Rate	1	-0.05346	0.04371	-1.22	0.2312
pct_blk_lat	Percent Minority	1	-0.00336	0.01443	-0.23	0.8175
edge	On the Edge of LA City	1	-1.64122	0.62052	-2.64	0.0131

Model: MODEL3
Dependent Variable: PERMVAL Fluctuation in Permit Value

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	26.37508	13.18754	5.88	0.0070
Error	30	67.32170	2.24406		
Corrected Total	32	93.69679			

Root MSE	1.49802	R-Square	0.2815
Dependent Mean	-1.53606	Adj R-Sq	0.2336
Coeff Var	-97.52334		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|
Intercept	Intercept	1	0.01331	0.58692	0.02	0.9821
pov	Poverty Rate	1	-0.06151	0.02632	-2.34	0.0263
edge	On the Edge of LA City	1	-1.64382	0.61057	-2.69	0.0115

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