IMMIGRANTS, MINORITY WORKERS, AND JOB COMPETITION: A COMPARATIVE ANALYSIS OF NEW YORK AND LOS ANGELES, 1970 to 1980

by

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ABSTRACT

The current debate concerning job competition between immigrant and non-immigrant groups has proliferated because of the large influx of immigration and the simultaneous increase of urban poverty rates for African Americans and other ethnic minority groups during the 1970s. The debate focuses on the possible wage and displacement effects that an increase in immigration would cause on the U.S.-born population. Research on the displacement effects of increased immigration focus on aggregate (national) and cross elasticity analyses. Furthermore, empirical research rarely considers regional differences and never considers industrial change (i.e., growth or decline) and institutional barriers such as high skilled and low skilled labor markets in their analysis.

Using 1970 and 1980 census data (PUMS files) that is disaggregated by two regions (New York and Los Angeles), by specific types of labor markets (industries and occupations), and according to race (white, black, Latino, and Asian), and nativity (foreign-born and U.S.-born), I argue that immigrants do not simply function as either competitive or complementary sources of labor. Instead, I hypothesize that job competition between groups of workers depend in part on whether U.S.-born workers belong to protected or unprotected labor markets and whether they are employed in growing or declining industries.

Employing shift-share analysis, I assess the labor market incorporation and subsequent job competition (displacement or complement) effects of increased immigrant labor. I construct three shift-share models that are tested on three industrial and occupational typologies. I first test forty-six industrial categories divided first between core and peripheral sectors and then by growing and declining industries. The second test is on occupations aggregated into fifteen broad categories and by growth and decline. The third and last test are on occupations aggregated according to four segments: 1) independent primary, 2)craft, 3) subordinate primary, and 4) secondary. This study shows that:

U.S.-born workers are, in general, insulated from job competition with immigrants due to their concentration in labor markets where immigrants are employed in fewer numbers. In fact, overall, immigrant location in either the core or periphery made little difference in the number of industries that experienced patterns of displacement or complement. Likewise, immigrant concentration in primary or secondary occupations overall, made little difference in displacement or complementary patterns. Last, occupations categorized according to fifteen broad groups and analyzed by growth and decline experienced mixed patterns of job competition (displacement or complementarity).

Based on the results of this study, I have come to the conclusion that the segmentation/queuing theory best describes the labor market processes between immigrant and native-born labor in Los Angeles and New York between 1970 and 1980. Overall, the data in this study show that immigrants are not displacing native born labor in disproportionate numbers especially in industries. We do, however, find instances of isolated job displacement between immigrants and native born whites and/or Mexicans and Puerto Ricans in occupations. The data show that complementarity is more frequent than displacement and that decreases in white labor are not the result of immigrant employment growth. These two findings taken together suggest a process of queuing whereby whites vacate jobs that are then replaced by immigrant and/or minority labor. For these reasons, I assert that immigration is not a major contributor of a black and Latino underclass.

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worth more than others and I imagine we will have to do so in the future. As a result of our shared experience, a bond that is difficult to describe has grown among us and knowing that we will continue to share in each others' success, disappointments, and struggles will make my journey in academe smoother. I thank them for their special companionship. Other good friends at MIT who made my stay unforgettable include Julie Fuller, Big Daddy O, Eric Alderete, and Gregorio Munoz. Dr. Baldwin, my cohort throughout the Ph.D. program was more than just a counterpart, he was and continues to be a good friend and a great fan. His support of my work and his friendship is special. While my biological family remains in Los Angeles, I can honestly and sincerely claim another in Cambridge. Lawrence Rosenstock, Jean Kluver, Olmy and Dario are my family and I love and thank them for all their unconditional kindness, giving, support, and friendship. During the past several years they have provided me a safe and comfortable haven in a city that at times can be cold and unfriendly. Jack Costello would kill me if I didn't mention him in my MIT Ph.D. dissertation. I love you Jack.

My dissertation experience was unique in that it was truly bi-coastal, both in research matter and in support. Shortly after my general examinations, I headed back West to my coveted California to teach and write at my Alma Mater, Berkeley. As in the East coast, I was very fortunate to have the support of many individuals, friends and institutions.

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INTRODUCTION

"Man, I can't find no work," complains 20-year old Mark Lane, a black American who once packed lettuce for $250 a week. "Now the Haitians have got all the jobs. They're willing to do anything for $20 a day. Now all I do is stand on the corner."(A worker from Belle Glade, Florida. Cited in the *Champaign-Urbana News Gazzett*, 29 November 1989)

Currently, job displacement of U.S.-born workers by foreigners is one of the most emotional and polarized debates surrounding immigration to the United States. This fear fluctuates with national and regional economic cycles, particularly those of large immigrant receiving states such as California and New York. The large wave of immigration since 1965 has been blamed for increases in urban poverty, particularly the growth in the urban underclass and the high jobless rate of African Americans.[1] Indeed, the renewed interest in immigration stems from its perceived contribution to increasing rates of poverty[2] and the poor[3] during the past two decades and effect on the composition

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[1]Job competition is one of several "costs" currently being debated in the immigration debate in California. While an old immigration question, it has somewhat taken a back seat to the other equally volatile immigration "cost" issues such as border patrol enforcement and undocumented immigration, federal reimbursement to State coffers for federal policy costs, and medical and health benefits to legal and illegal immigrants.

[2]During the late 1980s, poverty rates have become much higher when compared to the 1970s. This is especially significant for African Americans and Hispanics as compared to the population as a whole or for whites. For Hispanics the poverty rate increased from 28 to 39 percent between 1972 and 1987. For whites it was 9.9 percent in 1970, 10.2 percent in 1980, and 10.5 percent in 1987. For African Americans the percentages were 33.5, 32.5, and 33.1, respectively. The poverty rate for the population as a whole has been stable around 13 percent since the early 1980s. Young families have also experienced a steadily increasing chance of being poor. Whereas one-quarter of those aged sixty-five or older had an income below the poverty line in 1970, only one-eighth did in 1987.

[3]In 1983, those counted as poor numbered 35.3 million or 15.2 percent of the population. By 1987, the number had decreased slightly to 32.5 million or 13.5 percent of the population. Both of these figures are an increase from the historic low reached in 1979,

and location of the poor[4].

Despite its newness, the term "underclass,[5] " is increasingly used interchangeably and incorrectly with the term "poverty" to describe the general malaise currently facing inner-city poor residents. As a result, inter-disciplinary, empirical research on urban poverty generally and the underclass in particular, have become plentiful.

Because research on poverty and the underclass has expanded, studies and especially policies on immigration also have multiplied in the past decade -- due, for the most part, to the large influx of both legal and illegal immigration during the past two decades.[6] Students of immigration are interested in understanding the causes and consequences of immigration, the assimilation and integration of immigrants into society generally and labor markets in particular, and the economic impact that immigrants have on earnings, employment, and welfare expenditures. These issues are at the forefront of

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when 9 percent of the population was poor. See U.S. Department of Commerce, Bureau of the Census, "Money, Income and Poverty Status of Families and Persons in the United States: 1986," Current Population Reports, Consumer Income (Washington D.C.: GPO, July 1987), Series P-60, No. 157.

[4]According to the United States Bureau of the Census (1972, 1989), poverty has shifted from people in rural areas to those living in inner-cities, particularly those located in New York, Chicago, Boston, Detroit, and Los Angeles. In 1960, 28 percent of the rural households were poor as were 13.7 percent in the central cities and 10 percent in the suburbs. By 1987 the rate had decreased to 14 percent in rural areas and 6.5 percent in the suburbs, while the rate had climbed to 15.4 percent in the central cities.

[5]The term underclass, with its assorted definitions, has been used sporadically during the last three decades. It was first introduced in this country by Gunnar Myrdal (1962, 1964), the Swedish scholar. For a thorough historical summary of the origins of the term and its varied definitions see Aponte (1990).

[6]Legal immigration to the United States in the 1980s is ranked among the highest in U.S. history, surpassed only by the flows of the first two decades of this century. Immigration during the first eight years of the 1980s averaged 575,000 admissions per year. The 1980 decennial census, in an estimate by Passel and Woodward (1982), enumerated nearly 2 million undocumented immigrants.

immigration research because of two other important factors, the composition[7] and geographic location[8] of the "new immigration."

Given the increase in urban poverty, the underclass, and immigration research during the 1970s and 1980s, two questions emerge from these literature: Are these phenomena related to each other? And if so, how are they related? More specifically does the increase of low-skilled immigrants worsen the labor market opportunities for native underclass residents? If opportunities are curtailed and native workers are being displaced by immigrants, is this displacement related to the formation of an urban underclass and if so, how?

This study analyzes the relationship between the labor market concentration of immigrants (Mexican, Puerto Rican, Latino, and Asian) on the employment opportunities of U.S.-born Mexicans, Puerto Ricans, Asians, and women in New York and Los Angeles

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[7]In the 1960s, nearly two-third of the annual legal immigrants to the U.S. entered from Europe and Canada (45 percent and 12 percent respectively). In the 1970s this rate was cut in half; fewer than one-third of the new arrivals came from European nations and Canada, 28 percent and 3 percent respectively (Maldonado and Moore, 1987). This shift in migrants from Europe to other countries, indeed continents, were labeled the "new immigration" because of the centuries-long monopoly that Europe had on immigration to the United States. Between 1961 and 1981 the number of legal immigrants from South America, Asia, and Africa numbered approximately 733,000 compared to 505,000 from Europe (Wong, 1985). Like country of origin characteristics, the composition of immigrant skills has also changed during the past two decades. Borjas (1990) using the Public Use Samples of the 1940, 1960, 1970, and 1980, shows that the gap between the skills and labor market (i.e., educational attainment, labor force participation rates, unemployment rates, hours worked per year, and hourly wage rates -- characteristics of immigrants and natives) is growing over time.

[8]Recent immigrants are mostly locating to only a few metropolitan cities. Most of these newcomers are concentrated in New York and Los Angeles. In 1980, 40 percent of the new immigrant population lived in either Los Angeles or New York. Likewise, 1980 census data for all Standard Metropolitan Statistical Areas (SMSA) and for the ten metropolitan areas with the largest new immigrant populations show New York City, Los Angeles, and Chicago as receiving the largest numbers of documented and undocumented arrivals from the Third World.

during 1970 and 1980. I address the question of whether native workers are affected adversely by the industrial and occupational concentration of immigrants and whether this contributes to the emergence of a Hispanic[9] and black underclass?

I argue that immigrants, because of their different races and ethnicities and because they immigrants employed in different labor markets may be affecting the employment opportunities of U.S.-born labor in disparate ways. Immigrants in and of themselves, do not simply function as either competitive (negative) or complementary (positive) sources of labor thus curtailing or improving the employment opportunities of U.S.-born labor. Instead, I hypothesize that the likelihood that competition between U.S.-born and immigrant workers depend in part on whether these two groups of workers have access to core or periphery industries, to primary or secondary occupations and whether both are concentrated in growing or declining industries.

II DISPLACEMENT, SEGMENTATION, OR MUSICAL CHAIRS?

The debate over the effects of immigration on the U.S. labor market is over 85 years old, beginning when the U.S. Immigration Commission concluded that "immigration was responsible for many of the poor working conditions then evident in the United States" (Greenwood and McDowell, 1988). There are two major theories and an emerging third theory that describes the participation and economic effects of immigrants on the U.S. labor market. The two major theories are commonly known as the "displacement" and "segmentation" hypotheses. Paradoxically, they make opposite

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[9]*Hispanic* is in reference to all people of Mexican, Caribbean, and Central and South American origin or ancestry. I use his term sparingly and only in reference to the above groups in the aggregate. The term *Latino* in the case of New York refers to all the above groups in the aggregate with the exception of Puerto Ricans who are analyzed separately and are referred to as such. For Los Angeles, the term *Latino* refers to all the above groups in the aggregate with the exception of Mexicans who are analyzed separately and are referred to as such.

assumptions about the labor market and hence reach disparate conclusions about the impact of immigrant labor.

In general, the displacement hypothesis argues that immigrants arrive to the U.S. in the face of declining wages. An increased supply of foreign-workers, in turn, further pushes domestic wages down by expanding the aggregate labor supply despite a stable demand for labor. Immigrants displace native-born workers because the former are assumed to be perfect substitutes for the latter and skill-differences are minimal (Briggs, 1975).

On the other hand, the segmentation theory argues that the U.S. labor market is sufficiently divided between immigrant and non-immigrant jobs so that domestic workers are insulated from direct displacement effects of employing migrants (Piore, 1979). According to this theory, immigrants are hired into a low-wage section of the labor market were few non-immigrants are employed in part due to differences in skill (Borjas, 1987; Stewart and Hyclak, 1984). Native workers, likewise, may be employed in unskilled jobs but are nevertheless protected from job competition because their jobs belong to a union contract -- an example of an institutional barrier that prevents immigrant workers' employment. Under this view, immigrant and domestic labor may complement one another in different sectors of the economy.

Somewhat related to the segmentation hypothesis is an emerging third theory that argues that immigrants take jobs that native workers no longer want; that is, a job ladder, or queue, for immigrant workers exists. Over time, U.S.-born labor moves onto better occupations, vacating "lower-rung" and less desirable jobs that various groups of newcomers then take. Once hired, immigrants employ social networks to recruit other immigrants and, in this way, certain industries become reserved exclusively for immigrants (Waldinger, 1987). Likewise, employers also have a queue in which certain groups are preferred over others. In this instance, immigrants are valued more than black or other U.S.-born labor, perhaps because the former are perceived as harder working, cheaper,

and more docile than the latter. If such a queue is developing in secondary occupations or peripheral industries where immigrants and other disadvantaged groups are concentrated, immigrant labor may work at the expense of black or U.S.-born labor.

At the conclusion of this study I will review these three theories and analyze their applicability to Los Angeles and New York during the 1970s. If "displacement" best describes the labor market incorporation of immigrants, then immigrants may very well be contributing to the emergence of an urban underclass. Alternatively, if "segmentation" is the better description, then native-born labor may be buffeted from direct displacement effects of immigrant labor and thus not contributing to an urban underclass. Last, if the queuing or "musical chair" hypothesis describes how immigrant and native workers relate to each other in labor markets, then displacement will be a minor factor that cannot provide conclusive evidence that immigration is assisting in the creation of the underclass.

III IMPORTANCE OF STUDY

This study's period of analysis (1970 and 1980) takes place during a time when both immigration and poverty increased substantially. This study is also timely for the 1990s given the current state of our economy, continued increases in immigration and poverty, and the status of race relations between African Americans, Latinos, and Asians, the latter two of the three having a large immigrant population.

This research departs from conventional analysis of immigrant and native-born labor market competition by analyzing shifts in industry concentration of immigrants after controlling for the size of competing labor pools and the growth in each industry and Standard Metropolitan Statistical Area (SMSA). Past studies that asses the economic well being of immigrants and their impact on U.S.-born labor are based on national samples that are inadequate for examining economic integration processes in regional or local areas. Because immigrants tend disproportionally to settle in certain parts of the country, regional and local impacts are significant in understanding labor market changes. This

study, by focusing on two regions (NY and LA), specific industries and occupations, and particular samples of racial and ethnic groups, will reveal several dimensions of job competition that offer new insights into the labor market impacts of immigration.

In addition, this study is important to the underclass literature for several reasons. Evidence that immigrants curtail the employment opportunities of U.S.-born workers, in particular, Puerto Ricans, Mexicans, and other minority groups such as African Americans, will address a major issue in the underclass literature: whether job opportunities for African Americans and other minorities have weakened over the course of the decade as a result of immigration and other economic factors. Indeed, if immigrant labor is substitutable with U.S.-born labor, immigrants may be reducing the wages of minority and other native labor, increasing their unemployment, and lowering their labor force participation.

If, however, evidence suggests that immigrants do not simply function as competitive substitute sources of labor, then other explanations for declining job opportunities for domestic labor will be necessary.

IV JOB COMPETITION: OLD QUESTION, NEW CONTEXT

Historically, there has always been a nativist fear over job competition between immigrants and U.S.-born labor. During the 1930s, 1950s, and 1970s immigrants were blamed for the worsened and depressed economies that afflicted the United States. Presently, the concern that immigrants displace American workers has become an extremely volatile topic in California and other immigrant receiving states and cities. As the economic fortunes of the country continue to deteriorate and jobs become scarce or shift into part-time or poorly paid service occupations, an easily targeted and non-voting population becomes the scapegoat. The overtones of today's debate are strikingly similar to those of the past; the rhetoric is fueled by nativist fear, xenophobia, and emotion. A plethora of actors from Governor Pete Wilson of California, to journalists, to advocacy

groups such as FAIR (Federation for American Immigration Reform), to state and city sponsored reports have all contributed to this fear.[10] However, the present debate on job competition takes on new overtones because it singles out African Americans and other native-born minority groups as the primary victims of immigration's "negative costs" in the form of fewer services, fewer jobs, and a lower quality of life.

V SUMMARY OF FINDINGS

Two major findings have emerged from this study. The first is that there are more instances of complementary than displacement for native-born groups in industries but not for occupations. These suggest a pattern of upward mobility for those groups that experienced more instances of displacement than complementary. Second, I have found strong evidence in favor of rejecting my main hypothesis that U.S.-born workers are, in general, insulated from job competition with immigrants due to their concentration in labor markets where immigrants are employed in fewer numbers. Overall, immigrant location in either the core or periphery made little difference in the number of industries that experienced patterns of displacement or complement. Occupations categorized according to fifteen broad groups and analyzed by growth and decline experienced somewhat mixed patterns of job competition (displacement or complementary) but more closely followed my predicted hypotheses for the second test than did industries in the first test. In fact, the data suggest that in those instances were "displacement" occurred, a more appropriate description of "replacement" was better suited. That is, in several occupations, the data indirectly suggest a process of upward mobility for whites, blacks, Puerto Ricans, and

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[10]See Jack Miles. 1992. "Blacks Vs. Browns: The Struggle for the Bottom Rung." In The Atlantic Monthly, Vol. 270, No.4 (October); LaVally. 1993. California Together: Defining the State's Role in Immigration. (Senate Office on Research, Sacramento, California) Report No. 717-2; and Moreno-Evans, Manuel. 1992. Impact of Undocumented Persons and Other Immigrants on Costs, Revenues and Services in Los Angeles County. A Report Prepared for the Los Angeles County Board of Supervisors.

Mexicans, thereby allowing for their "replacement" by immigrant labor. Unlike industries or occupations categorized according to 15 definitions, occupational growth and structure did make a significant difference in displacement or complementary patterns for native born labor. That is, in general, the results of this study show that in the primary occupations native born labor was protected from displacement as a result of increased immigrant workers while in the secondary they were not.

The findings for this study support earlier studies on the impacts of increased immigration on the U.S. labor market. Three categories of empirical evidence are currently used to test the validity of the impact hypotheses: 1) production function models that estimate across national samples of individuals; 2) industrial and occupational sectoral studies in fields that employ large numbers of immigrants; and 3) analysis of labor market outcomes across regions or SMSAs that contain a large number of immigrants. Despite popular perceptions to the contrary, a careful review (see chapter 1) of the empirical evidence on immigrants' impact on the U.S. labor market demonstrates:

> 1) Immigrants' displacement of native labor is negligible according to the findings of national and regional studies; however, the evidence is mixed at the local and industry-specific level;
>
> 2) Overall, immigrants complement native labor according to research on local labor markets;
>
> 3) Immigrants create jobs for native workers according to the majority of studies, yet, in a few isolated cases native workers are displaced; and
>
> 4) Immigrants do not have an adverse effect on the wages of native workers according to national and regional studies.

That industries experienced more instances of complementarity than displacement for both regions and that occupations had as many instances of complement than displacement for both regions as well corroborate the "segmentation" and the "musical chair" hypotheses because job losses are minimal at the regional level, and in most cases,

immigrants are complements to and job creators for native workers. Even though this study only applied shift share method, other statistical techniques and studies support the findings of this research. Borjas (1990) summarizes the litany of research on this topic by definitively stating,

> "The empirical evidence is likely to be controversial: the methodological arsenal of modern econometrics cannot detect a single shred of evidence that immigrants have a sizable adverse impact on the earnings and employment opportunities of natives in the United States."

However, as the above summary of past studies on this topic state, there is a fair amount of regional and local-level research supporting the notion that immigrants have a minimal, but nevertheless an impact on the U.S. labor market. And, as I show in this study, regional impacts of immigrants on native-born labor in industries and occupations do support some level of displacement, though complementarity is by far the more frequent scenario. This finding alone, allows me to 1) refute the findings of studies at the metropolitan and regional level that show no effect on natives' employment, and 2) to corroborate past research on industrial/sectoral settings that show mixed findings on the impact of immigration to native-born labor.

VI FORMAT OF STUDY

This study revolves around two regional case studies; New York and Los Angeles. For each of these two regions I have extracted data from the 1970 *Public Use Samples* (PUS) and the 1988 *Public Use Microdata Samples* (PUMS). After disaggregating the data according to industrial sectors, occupations, occupational segments, race, ethnicity, and nativity, I input the data into a shift share model. The results of this model constitute the empirical data from which I explain the industrial and occupational concentration effects of immigrants on U.S.-born Labor.

Chapter 1 contextualizes this study in the poverty and underclass literature and in theories of immigrant labor market participation and immigrant impacts. First, I sparse literature on how immigration can lead to increases in poverty and the underclass. I follow this section by a review of three theories of immigrant labor market participation in which I also discuss existing empirical work on these theories. I conclude this chapter by providing a brief discussion of the limitations of past research that analyze job competition between the foreign and U.S.-born, and by drawing the reader to the importance of this study and where it "belongs" in the literature.

The second chapter ("Research Methodology") presents a detailed and thorough explanation of my chosen method of analysis. In this section, I describe the shift share model and provide a discussion of how I will use it to test for competition in several industrial and occupational typologies. I also describe the data used in this study, the definitions of the SMSA metropolitan regions, and finally, a discussion of the selection of my chosen methodology.

The results of the shift share model and labor force data for New York and Los Angeles are presented in Chapters 3 and 4, respectively. These two chapters also include a brief summary of the industrial and demographic changes experienced by each region between 1970 and 1980.

The objectives of the fifth and final chapter are three-fold. First, I explain the industrial and occupational shift share findings for New York and Los Angeles and their implications to job competition. To do this, I review how the major findings for each of the three tests for New York and Los Angeles differ or are similar and whether the comparative analyses reject or support the hypotheses of this study. In addition, I discuss how the major findings for each test corroborate or refute existing theories and empirical evidence on this subject. In the second part of this chapter I revert to the initial concern that prompted this study -- that of the underclass and how job competition may or may not be contributing to its formation and/or permanence. I close by briefly discussing the

limitations of this study, suggesting areas for future research, and commenting on public policy.

CHAPTER 1
LITERATURE REVIEW ON IMMIGRATION AND LABOR MARKETS: THEORETICAL CONSIDERATIONS AND EMPIRICAL EVIDENCE

I INTRODUCTION

Broadly viewed, this dissertation is about how immigrant concentration affects the employment opportunities of the U.S.-born work force. I use empirical data for two metropolitan regions during the 1970s and assess how these effects may or may not contribute to the formation of an urban underclass. The goal of the present chapter is to contextualize my research topic within poverty and underclass literature and in theories of immigrant labor market participation and immigrant economic impacts. First, I discuss the poverty and underclass debate in relation to immigration. I follow this section by a review of three theories of immigrant labor market participation in which I also discuss existing empirical work on these theories. I conclude this chapter by providing a brief discussion of the limitations of past research and suggest an alternative method that I then undertake in this study.

II THE UNDERCLASS and IMMIGRATION

Research on immigration and the underclass as two separate topics is plentiful. However, studies that link both are scarce. In the following, I discuss the studies that directly or indirectly address immigration and the underclass as two related subjects. It is from these studies that several patterns emerge which I then use to categorize the bulk of the literature, mostly economic and sociological, reviewed in this chapter.

Two broad categories classify studies that attempt to link immigration and the underclass. The first focuses on the characteristics of immigrants and how they function in labor markets. These studies pay attention to immigrants' human capital characteristics and speculate on how immigrants are presently or could become part of the underclass. A second group of studies focuses on how immigrants may curtail the employment

opportunities and wages of U.S.-born workers--African American and Latinos in particular.

Most of the studies in these two classifications make no explicit or causal connection between the two topics. Instead, they focus on speculative inference, review of existing research on economic impacts of immigration, the role and functions of immigrants in labor markets, and how immigrants, given their present condition, could become a part of the underclass. What is important about reviewing these studies is that they provide us with a basic framework to understand the connection between immigration and the underclass and likewise how to categorize the bulk of this review.

A. Immigrants and Labor Markets

This first group of studies focuses on the characteristics of immigrants and how they function in labor markets. Human capital characteristics between immigrants and the U.S.-born are compared to determine socio-economic differentials between the two groups. These studies warn that certain immigrant groups are presently or will shortly become members of the underclass that will exacerbate already depleted public coffers.

When analyzing the increases in Latino poverty, Linda Chavez (1989) looks at the large inflows of immigrants from Latin America. She argues that native-born Latinos have significantly higher socioeconomic status than what is commonly believed and what the data shows. The same is true, she claims, for immigrants who have been in the U.S. for a long time and who speak English well. Chavez contends that earlier Latino immigrants are making precisely the type of economic progress that other, mostly European immigrants did before. And, that recent immigrants (post 1965), because of their selectivity and slow rates of assimilation are not becoming appropriately integrated into the labor markets. As a result, immigrants could become part of the underclass.

Her argument suggests policies that advocate more selective immigrants (i.e., higher skilled) to reverse the trend of slow assimilation. For Chavez (1989) the low

socioeconomic status of new immigrants significantly skews downward the socioeconomic statistical indicators of all Latinos. Eventually, as the immigrants assimilate and become incorporated in different sectors of society (i.e., economic and political), their poverty status will disappear. Thus, insofar as Latino poverty prevails, it is only temporary and it primarily affects recent immigrants. More recently, Chavez (1991) argues that Puerto Ricans may be the "exception" to the lack of a Latino underclass. She poorly supports her argument by not systematicly analyzing data such as degree of female headed households, number of children born out of wedlock, welfare dependence and other variable to the underclass model or other existing literature.

An extension of Chavez's view is that recent Latino immigrants, given their lower socioeconomic status, will become a future underclass unless they become incorporated into the U.S. labor market. Advocates of this theory (Chavez 1989, Borjas, 1990; 1991; Lamm and Imhoff 1985; Glazer 1985; Crewdson 1983) postulate that immigrants who are not well integrated in the American economy may exacerbate present urban problems and become a permanent underclass.

On the other hand Valenzuela (1991a) shows that immigrants skew upward and in some instances downward several socioeconomic statistical indicators of Latino well being. Using primarily 1970 and 1980 census data, I examined eight key indicators of poverty for both native-born and immigrant Latinos and found that the data do not support Chavez's contention that immigrants are adversely affecting the overall socioeconomic profile of native-born Latinos.

Other studies (Jensen 1991, 1988; Borjas, 1990; Bean and Tienda 1987; Simon 1989; Valenzuela 1991) assess the socioeconomic status and progress among immigrants and native-born people. These studies will often compare and contrast the differences between immigrant and native-born populations over time. For example, Jensen (1988) documents that immigrants' family poverty declined between 1959 (15.6%) and 1969 (12.9%), but rose during the 1970s, reaching 14% by 1979. Native-born families show a

consistent decline in all three years 1959 (18.2%), 1969 (10.4%), and 1979 (8.9%) -- a clear indication that indeed earlier immigrants and natives are doing better than later immigrants and the foreign-born. However, Bean and Tienda (1989) by analyzing decennial census data over time (1960, 1970, 1980) show differences within and between nativity groups during these three decades. For example, the authors show immigrants to be better off than their native-born cohorts only to have this situation reversed in the next decade and one more time in the following decade.

Borjas (1990) shows that recent immigrants (after 1980) are a less skilled cohort than earlier 1970 and 1960 immigrant groups. He claims that this deterioration in the skill composition of the immigrant flow over the past two or three decades is a very important factor in understanding the socioeconomic status of recent immigrants. In a subsequent chapter, Borjas then postulates that the "crowding" of unskilled immigrants into unemployment and poverty may have major social and economic costs. "After all, the creation and growth of an immigrant underclass can only compound many of the serious problems that afflict modern American society (Pg. 134)."

The above studies, while mostly focusing on the characteristics of both native and immigrant groups, have in common an underlying concern over the relationship between immigrants and labor markets. By analyzing the characteristics of recent immigrants, Chavez (1991) makes an argument that their lower status, and the availability of public services will hamper their assimilation process. Unassimilated immigrants are more likely to be poor, unemployed, and undereducated -- all characteristics of the poor and/or underclass. Borjas (1990), by showing the differences between immigrant and native assimilation and earnings' patterns, makes the argument that recent immigrants are less skilled and thus are prone to be more of an economic cost to society than earlier immigrants. These two frameworks are important in understanding the connection between immigration and the underclass because: 1) they speak explicitly to a Hispanic underclass and how immigrants may contribute; and 2) both analyses, by addressing such

economic issues as earnings, unemployment, assimilation, and selectivity, are in essence speaking to the immigrants' labor force attachment that is probably the main mechanism whereby immigrants may contribute to the underclass. In this instance, both Chavez (1989, 1991) and Borjas (1990) describe a picture of recent immigrants having lower skills, education, and lower probabilities of assimilation characteristics than earlier immigrants. This picture describes recent immigrants as having a weak labor force attachment -- if this is so, then indeed they may become a future underclass.

B. Economic Impacts of Immigration

The second way in which immigration may contribute to the underclass is through its negative economic impact on native-born workers, particularly minorities, women, and teenagers. An increased supply of foreign-workers may push domestic wages down given a stable quantity of jobs as the aggregate supply of all workers exceeds their demand. In this framework, I assume immigrants to be perfect substitutes for native workers. Generally, skill-differences are not considered; lower-wage immigrants, take jobs away from native workers (Briggs, 1975). If immigrants are displacing unskilled black and other minority workers, then they are indeed contributing to black and minority joblessness. Joblessness, in turn, is a key variable associated to the growth of the underclass.

Recent and past research on immigrant economic impacts on natives (which I review in detail in the next section) rarely if ever make an explicit connection to the underclass. Most of these studies are concerned with the impact that immigrants have on native's earnings and employment. Another possible economic impact that immigrants may have, while not directly focused on the labor market, is the cost to society for participation in government services. It is only recently and mostly amongst "underclass" researchers that the labor market and economic impacts of immigrants are used to make an explicit connection between the underclass and immigration vis-a-vis a weak labor

force attachment, job displacement, lower earnings, and the depletion of public resources.

The first category of studies that directly address the economic impact of immigration and the underclass, uses immigrants in a strictly classical economic sense -- as an increase in the supply of labor. Johnson and Oliver (1989), in a model that measures urban underclass behavior, view the immigrant as one of many groups contributing to a large surplus of unemployed workers including women, teenagers, and minorities who then competes for a limited number of jobs. Thus, immigrants are "directly responsible for the high rates of joblessness among black males in urban communities since the early 1970s." The authors allude to labor market "niches" and segmented labor markets where immigrants and black workers either compete with each other or where immigrants are the preferred group. The authors claim that immigrants, "particularly those of Latin origin, because of their illegal status, are preferred over blacks in rapidly growing competitive sector industries such as garment manufacturing, subcontracting, and hospital services." However, Reischauer (1989), in a review of the immigration literature, looks at the possibility that immigrants have diminished the labor market opportunities of low-skilled, native minority workers and, thereby, might have contributed to the emergence of the urban underclass. Central to his review is the assumption that if immigrants are direct substitute factors of production, they will lower the wage rates of native labor, increase their unemployment, and lower their labor force participation. Reischauer concludes from his review that, immigrants do not significantly lower the wage rates of native-born labor. Thus, they do not contribute to the underclass.

In the following section I provide a discussion of three theoretical frameworks or categories from which to view immigrant labor and its impacts. I then summarize the empirical evidence that supports these theories and conclude by arguing for an alternative study that is suggested by this review and incorporates segments of some of these studies.

III
PARTICIPATION and ECONOMIC EFFECTS OF IMMIGRATION

As reviewed above, two frameworks help explain the relationship between immigration and the underclass. The first framework focused on the characteristics of the immigrants themselves while the second addressed the economic impacts that immigrants may have on the U.S.-born population. If immigrants are having a negative economic effect (i.e. job displacement, decreasing wages) on U.S.-born labor, then they may very well be contributing to a black or Latino underclass.

In general, concern over the impact that immigrants have on natives' labor market opportunities focuses on the relative substitutability between them and U.S.-born labor. Insofar as this is occurring, immigrants may be reducing the wages of minority and other native labor, increasing their unemployment, and lowering their labor force participation.

Minority native labor, in particular African American laborers, has increasingly shown worsened labor market opportunities. Their unemployment rate has shown a steady increase from 9.8 percent in 1974 to 11.4 percent in 1979 to 16.4 percent in 1984. The rate of labor force participation for African Americans has also shown a steady decline between these years from 72.9 percent in 1974 to 71.3 percent in 1979 to 70.8 percent in 1984.[11] Some of the concerns regarding "underclass" research revolves around speculation that part of the worsened employment situation of African Americans is the result of increased low-skilled immigration.

If one can show that immigrants curtail the employment opportunities and/or job position of U.S.-born Latinos, African Americans or other minority groups, than one can assert that immigration may be one of several structural factors contributing to the joblessness and concentration of minority workers in poor paying labor markets.

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[11]The source of these figures is taken from the U.S. Department of Labor, Handbook of Labor Statistics, Employment and Earnings 1985. Bulletin 2217 (Washington, D.C.: Government Printing Office, (June 1985).

A. Theories on the Impacts of Immigration

The debate over the effects of immigration on the U.S. labor market is over 85 years old, beginning when the U.S. Immigration Commission concluded that "immigration was responsible for many of the poor working conditions then evident in the United States" (Greenwood and McDowell, 1988). There are two major theories and an emerging third theory that describes the participation and economic effects of immigrants on the U.S. labor market. The two major theories, commonly known as the "displacement" and "segmentation" hypotheses, paradoxically, they make opposite assumptions about the labor market and hence reach disparate conclusions about the impact of immigrant labor.

In general, the displacement hypothesis argues that immigrants arrive to the U.S. in the face of declining wages. An increased supply of foreign-workers, in turn, further pushes domestic wages down by expanding the aggregate labor supply despite a stable demand for labor. Immigrants displace native-born workers because the former are assumed to be perfect substitutes for the latter and skill-differences are ignored (Briggs, 1975).

On the other hand, the segmentation theory argues that the U.S. labor market is sufficiently divided between immigrant and non-immigrant jobs so that domestic workers are insulated from direct displacement effects of employing migrants (Piore, 1979). Proponents of this theory argue that immigrants are hired into a low-wage section of the labor market were few non-immigrants are employed in part due to differences in skill (Borjas, 1987; Stewart and Hyclak, 1984). Native workers, likewise, may be employed in unskilled jobs but are nevertheless protected from job competition because their jobs may be covered by union contracts -- an example of an institutional barrier that prevents immigrant workers' employment. Under this view, immigrant and domestic labor complement one another in different sectors of the economy.

Somewhat related to the segmentation hypothesis is an emerging third theory that

argues that immigrants take jobs that native workers no longer want; that is, a job ladder, or queue, for immigrant workers exists. Over time, U.S.-born labor moves onto better occupations, vacating "lower-rung" and less desirable jobs that various groups of newcomers then take. Once hired, immigrants employ social networks to recruit other immigrants and, in this way, certain industries become reserved exclusively for immigrants (Waldinger, 1987). Likewise, employers also have a queue in which certain groups are preferred over others. In this instance, immigrants are valued more than black or other U.S.-born labor, perhaps because the former are perceived as harder working, cheaper, and more docile than the latter. If such a queue is developing in secondary occupations or peripheral industries where immigrants and other disadvantaged groups are concentrated, immigrant labor may work at the expense of black or U.S.-born labor.

At the conclusion of this study I will revert to these three theories and analyze their applicability to Los Angeles and New York during the 1970s. If "displacement" best describes the labor market incorporation of immigrants, then immigrants may very well be contributing to the emergence of an urban underclass. Alternatively, if "segmentation" is the better description, then native-born labor may be buffeted from direct displacement effects of immigrant labor and thus not contributing to an urban underclass. Last, if the queuing hypothesis describes how immigrant and native workers relate to each other in labor markets, then displacement will be a minor factor that cannot provide conclusive evidence that immigration is assisting in the creation of the underclass.

B. Empirical Evidence

The empirical evidence on the labor market impact of increased immigration on native labor can be divided into three categories: 1) production function models that estimate across *national* samples of individuals; 2) *industrial* and *occupational* sectoral studies that employ large numbers of immigrants; and 3) analyses of labor market outcomes across *regions* or SMSAs that contain a large number of immigrants. Here, I

will describe each type of study and the findings it has yielded on the labor market impact of immigration.

i. Production Function Models on National Samples

Production function models determine the relationship between the output of a good (increased or decreased wages or unemployment) and the inputs (factors of production such as increases in immigration) required to make a commodity or good. Econometric research based on production function models has attempted to estimate the aggregate effect of immigration on natives' wages. On the basis of several researcher's conclusions (Borjas, 1990; Papademetriou, 1989; Greenwood and McDowell, 1988), the aggregate negative effect of increases in the supply of immigrants on the earnings and employment of natives is small and mostly relegated to other immigrants and in many other instances is non-existent.

Borjas (1983, 1984, 1986, 1987) in a series of studies concludes that immigrants have a minimal, if any, adverse impact on the wage rates, earnings, and participation rates of different groups of native workers. For example, in one study Borjas (1984) estimates, by way of multivariate analysis, that male migration increased the earnings of both young and older black males in 1970. A similar estimate for 1980 also provided no statistically significant evidence that black male earnings were reduced either by recent or past immigration. In this instance, immigrants appear to be complementing the black labor force.

Rivera-Batiz et. al. (1991), using a translog production function model argue that depending on the amounts of unskilled labor, education, and experience that a person is endowed with, a "disturbance in the rates of return to these three inputs will result in a change in wages." Thus, an inflow of immigrants affects the native born by changing the returns to education, experience, and unskilled labor. The rates of return are affected not only by the magnitude of the labor flow and the relative endowments of education,

experience, and unskilled labor that the immigrants have but also by the degree of complementarity or substitutability among the inputs. The authors provide the following example to make their point. "If, for instance, education and unskilled labor are complements, then an inflow of highly schooled immigrants will tend to raise the rate of return to unskilled labor; if the two inputs are substitutes, however, the rate of return to physical labor will decline."

In another study, Borjas (1987) argues that immigrants tend to be substitutes for low-skilled native labor and complements for high-skilled natives. On the basis of labor demand elasticities and regression analysis, he asserts that any negative effect immigrants may have on natives, if at all, is negligible and at an extreme may slightly have an impact on earlier immigrants. For example, Borjas (1987) asserts that a 10% increase in immigration appears to decrease the wages of residents born abroad by between 2 and 9 percent. In a similar study, Stewart and Hyclak (1986), using data for central cities of the largest SMSAs in 1970, examine the effects of recent immigrants (10 years or less) on the relative earnings of black males in comparison to white males. They find some degree of substitutability between black males and recent immigrants from countries other than Mexico, Cuba, and the West Indies. According to this study, if any competition takes place between immigrants and domestic laborers, it occurs only with other minorities or recent immigrants of similar backgrounds.

Bean, Lowell and Taylor (1986) extend Borjas' work to analyze the effects of illegal immigration on the annual earnings of native workers. They show that the undocumented Mexican population has no depressive effect on the annual earnings of black males or females and that legal Mexican immigrants and native Mexicans actually complement blacks in the labor market.

Borjas (1990) in his summary of the labor market impact of immigration concludes:

...the empirical evidence is likely to be controversial: the methodological arsenal of modern econometrics cannot detect a single shred of evidence that immigrants have a sizable adverse impact on the earnings and employment opportunities of natives in the United States. (Pg. 81)

ii. Industrial/Sectoral Studies

Sectoral studies examine the relationships between immigrant and native workers in particular labor markets, rather than throughout the nation as a whole. A few of these studies focus on the impact of immigration on the employment and earnings of natives. The studies that address this issue rely on census data or are based on specific case studies. It is important to review research on specific industrial and occupational labor markets to see if: 1) these studies corroborate or negate existing aggregate multivariate analysis on immigration impact; and 2) the case studies reveal factors not captured in multivariate studies. This section summarizes the literature in a few selected industries and occupations in which immigrants are concentrated. On the basis of the review of the literature, I conclude that the effects of immigration on U.S. workers and more specifically in industries and occupations with a large number of immigrants are varied.

Agriculture is one of the most thoroughly researched industries in sectoral studies of immigration and labor markets, probably due to its historical reliance on cheap labor and its appeal to immigrant labor, both legal and illegal. Most of these studies evaluate immigration effects on particular crops and regions. One study (Mines and Martin, 1984) concludes that the loss of immigrant workers leads to an increase in crop prices insofar as native labor is unwilling to perform agricultural labor at immigrant wages.

DeFrietas (1988) and DeFrietas and Marshall (1984) claim that heavy concentrations of immigrant labor affect the wages of less-skilled workers in manufacturing. They conclude that in industries with concentrations of immigrants of over 20%, a 1% increase in immigration results in about a 1.2% decrease in the rate of wage growth. However, this evidence can also be interpreted differently. As immigrants

become absorbed or replace workers in the lower paying occupational sectors, domestic workers move to better paying industries and occupations. Waldinger (1985), in his study of the garment industry in New York City, argues that, "To some extent immigrants may have displaced domestic workers, but [only] to the extent that complementary jobs were available elsewhere." Thomas Bailey (1987) in his analysis of New York City's restaurant industry provides convincing evidence that immigrant men do not compete with native black workers, but may compete with other immigrants, specifically recently arrived women and teenagers.

Research on the service industry indicates an increasing concentration of immigrants in a variety of service sector occupations (Sassen, 1987; Waldinger, 1987). On the basis of interviews with more than 1,000 Hispanic and black unemployed workers seeking employment at two local Los Angeles service centers of the California Employment Development Department, Maram and King (1983), conclude that over 51% of the Hispanics and blacks interviewed would be willing to work for lower wages than those presently being paid in most service sector occupations. Thus, the authors conclude that the downward pressure exerted by immigrants on the wages of current legal workers has caused some job displacement.

Most industry studies on the impact of immigration are largely based on a qualitative approach with some limited quantitative analysis. Those most affected by immigrants seem to be earlier immigrant cohorts or low-skilled native workers employed in occupations and industries with high concentrations of women, teenagers and minorities. However, these sectoral studies lack the explicit connection to other sectors in the economy and should not be taken as conclusive evidence regarding the impact of immigration on native workers. Native workers may be moving, in some instances to better paying jobs and in other instances to lower paying ones, as suggested by Waldinger (1985), Maram and King (1983), and others, to better employment opportunities.

The effects of immigration on specific industries and occupations seem to vary.

These effects depend on the size of the firm and its vitality, the type and market area of the industry, and the skills and other characteristics of the immigrants. A large firm that employs many workers in an area with a large surplus of immigrant laborers could easily assert down-ward wage pressures because immigrants have a lower reservation wage than do native workers. Likewise, a growing industry with strong internal labor markets and a union presence would insulate native-born labor from any wage or employment downswing as a result of increased immigration.

iii. Regional and Metropolitan Studies

Regional and metropolitan studies focus on the local distribution of immigrants and their aggregate effects on location patterns, regional labor forces, and on "immigrant cities" such as Los Angeles and New York. Regional studies of immigration and its economic impact focus on two broad categories: 1) regional, which is composed of four major U.S. geographical areas (Northeast, North Central, South, and West); and 2) on several metropolitan "immigrant" cities (New York, Los Angeles, Miami, Houston, Chicago). Examples of large and thorough regional studies of immigration include Muller and Espenshade (1985) on California, Saskia Sassen (1987) on New York, and Massey et al., (1987) on both Western Mexico and California.

It is important to review this research because of immigration's uneven regional distribution and regional differences in economic development. The uneven distribution of immigrants will probably mean that their regional economic effects will also be uneven. Moreover, their distribution may be influenced by patterns of regional economic development. For example, it is no coincidence that the growth of immigration to Los Angeles and New York during 1970 and 1980 also occurred during a time when both cities were experiencing strikingly divergent economic development trajectories with the former being a major manufacturing growth pole and the latter declining in almost every industry. In addition, the geographic distribution of the foreign-born is shifting toward the

Sunbelt and the West, areas that have also sustained economic growth.[12]

Data about the regional distribution and characteristics of immigration provide a recent, yet preliminary, picture of immigrants in labor markets. Immigrants contribute to regional labor forces differently. For example, 20 percent of the West's overall labor force growth during 1970 and 1980 came from immigrants. This differs from the Northeast (13%), the South (9%), and the North Central region (4%).[13] Immigrants' labor force characteristics, such as occupational concentration, human capital characteristics, labor force participation, and earnings, also differ significantly by region. For example, Lowell (1989), using census data for 1970 and 1980 by region, shows how Mexican-origin migrants tend to have lower human capital characteristics (education, skills, job experience) than other foreign-born, particularly Asians, in the West. Lowell (1989) also shows that time of arrival is correlated with human capital characteristics and variations in occupational concentration and earnings. For example, half of all immigrants in the West have arrived since 1970, meaning that they, on average, have fewer years in the labor market than the native-born. Immigrants in the West are also younger, less likely to complete high school, and are less likely to speak English than the native-born (Bean and Tienda, 1987). What do these regional differences mean in regard to regional economic impact on native wages and employment?

As I described in the "Production Function Models" section, the aggregate negative effect of increases in the supply of immigrants on the earnings and employment of natives is small (relegated to other immigrants) and in many instances does not exist. Regional studies report similar results, and some show increases in job creation and labor

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[12]Between 1900 and 1970, more than four-tenths of the foreign-born lived in the Northeast; by 1980 the proportion had dropped to only three-tenths. At the same time, the West, which held barely one-twentieth of the foreign born in 1870, had increased its share to one-third of all the foreign-born by 1980 (Lowell, 1989, pg.47).

[13]Figures from U.S. Census Bureau of the Census, 1970 and 1980 Census of Population. Detailed Population Characteristics, United States Summary, Section A: United States. Washington, D.C.: U.S. Government Printing Office. From (Lowell, 1989, Pg. 54).

demand because immigrants bring monetary assets and income with them. Studies show that international migration is frequently associated with inflows of capital (Johnson, 1980; Gerking and Mutti, 1980; Rivera-Batiz, 1983; Sassen, 1987), which in turn provide incentives for domestic investment and lead to increases in employment.

Regional job creation as a result of immigration is documented through multivariate and other research models (Muth, 1971; Greenwood and Hunt, 1984). For example, Greenwood and Hunt (1984) conclude that for every employed migrant, 1.29 jobs are created in the Northeast, 1.10 jobs in the North Central, 1.30 in the South, and 1.36 jobs in the West. Lowell (1989), in his review of regional impact as a result of immigration, concludes that small aggregate effects of a positive nature result from increased migration. However, further disaggregation of the data by metropolitan areas may reveal different conclusions.

New York City, the gateway for many of our nation's immigrants, is a rich source of research on the roles of immigrants in metropolitan labor markets. Some of the major works on New York includes Waldinger and Lapp (1988), Bailey and Waldinger (1988), Sassen (1987), Waldinger (1986, 1987), and Bailey (1987). They provide us with an assortment of data that mostly focus on immigrant economic mobility as a result of industrial restructuring rather than on the specific impact of immigrants on native worker's job opportunities. Immigration research on Chicago, as in New York, has mostly addressed the issue of group mobility and industrial restructuring (Lowell, 1989). Studies on Miami focus on the Cuban enclave as an example of largely self-contained social and economic environments that provide for successful mobility patterns and labor market integration (Portes and Bach, 1985).

Research on Los Angeles suggests that immigrants affect wages in selected low-skilled industries (Muller and Espenshade, 1985; McCarthy and Valdez, 1985; Cornelius et al., 1982; Maram and King, 1983). This effect is primarily concentrated on Hispanic recent arrivals with similar education, skills, age, sex, and ethnic-origin characteristics

(Muller and Espenshade, 1985).

Morales (1983) and Gill and Long (1988) show that there is a great disparity between legal and illegal gross income, but this disparity diminishes after controlling for human capital and job characteristics. As a result, Lowell (1989) suggests that if there is a relationship between immigrant competition and declining wages for low skilled jobs, it may be the result of differences in the characteristics of competing sets of workers. Lastly, research in specific industries in Los Angeles such as agriculture (Martin, 1988) and electronics (Gran, 1988) shows an increasing reliance on female immigrants and other minority workers because of their cheaper than average labor rates.

Two broad conclusions emerge from regional and metropolitan studies: 1) the economic effects of immigration on natives, regionally, are small; and 2) metropolitan studies suggest that some level of displacement occurred in several low-skilled occupations and between earlier and later immigrant groups that shared similar human capital and job qualifications.

Despite the recent upsurge of empirical studies, conclusive evidence regarding the economic effects of immigration is generally scarce. In fact, Greenwood and McDowell (1986) claim that "little direct evidence is available on immigration's impact on the employment opportunities and wages of domestic workers." However, most labor market analysts will agree that, indeed, some form of labor market competition and complementarity exists, but are more tentative and divided regarding the magnitude and regional concentration of these effects.

When analyzed separately or as a whole, production function models, sectoral studies, and regional and metropolitan studies, provide us with some answers as to the overall economic impact that immigrants have on native earnings and employment. The impact generally is not adverse, though immigration may result in slight wage depression and displacement for some groups of workers (Borjas and Tienda, 1987). Immigrants also expand employment opportunities for complementary workers (Greenwood and

McDowell, 1988).

The displacement and segmentation hypotheses propose an either/or situation that doesn't correspond to available empirical evidence. The issue then becomes under what circumstances there is displacement and under what circumstances there isn't. The key to further specifying immigrant impact on natives is to document in greater detail which groups of workers and which industries and occupations are affected. A more thorough analysis of the economic impacts of increased immigration depends on numerous factors that include: the size and composition of the domestic labor supply; the education, experience, and other human capital characteristics of immigrants; the growth or decline of the firm or industrial segment where immigrants are employed; the race, ethnicity, and gender of immigrants; the regional and metropolitan location of the industrial segment; and the protected or unprotected nature of the labor markets in which immigrants work.

The impact of immigrants on the domestic labor force is largely mediated by regional, occupational, and industrial change. A complete examination must incorporate the changing occupational and industrial structure into the labor market analysis. The next chapter (2) describes an alternative research paradigm designed to do just that.

CHAPTER 2
RESEARCH METHODOLOGY

I INTRODUCTION AND HYPOTHESES

This chapter detail the research methodology used in this dissertation. I briefly introduce the nature of the research, the main hypotheses and explain how the results of the experiments undertaken in this study can either support or reject the main argument of this study. I then introduce the research methods, the data used in the study, and lastly, I discuss a number of key variables and tables that facilitate the analysis.

In general terms, the research task is to determine the industrial and occupational concentration effects of the immigrant population on the U.S.-born population for Los Angeles and New York for the period 1970-1980. In this study, I argue that immigrants, because they are of different races and ethnicities, are employed in different labor markets (core and periphery industries, occupations, occupational segments), they may be affecting the employment opportunities of U.S.-born labor in disparate ways. Immigrants in and of themselves, do not simply function as either negative or complementary sources of labor thus curtailing or improving the employment opportunities of U.S.-born labor. Rather, Immigrants, depending on the industry where they are employed (e.g., core or periphery), or the occupational structure of the region, and the compositional position of their U.S.-born counterparts in the same labor markets mediate the extent and likelihood of job competition between them and the U.S.-born population. I hypothesize that the likelihood that competition (displacement or complementarity) between U.S.-born and immigrant workers depend in part on whether these two groups of workers belong to protected (core, independent primary, subordinate primary, and craft) or unprotected (periphery and secondary) industries and occupations and whether they are locating in industries that grew or waned[14] during the 1970s. In addition, competition between these two groups of

[14]Industrial change is important in several dimensions. Immigrants may play a different

workers is mediated by other social factors such as their race and ethnicity.

For reasons that I explained in the previous chapter (literature review), job competition between workers is more likely to occur in those labor markets that are unprotected (secondary occupations and industries in the periphery) and declining in their employment. Job competition likewise is less likely to occur in those labor markets that are protected (primary occupations and core industries) and growing in their employment. The acceptance of these hypotheses is dependent on showing the disproportionate employment of immigrants and disadvantaged workers in unprotected labor markets and in declining industries. The overwhelming concentration of immigrants and other disadvantaged groups in the secondary sector and in peripheral and declining industries will increase the likelihood of competition between them because of the structural conditions evident in these labor markets (i.e., high turnover, an employer's market, little to no internal labor markets) and because a tight labor market (declining industries) allows employers to discriminate among an increased supply of readily available and unskilled labor. In addition, the sparse employment of immigrant and minority workers in these labor markets provides U.S.-born and white workers, in the primary occupations and core industries, with an immigrant "competition buffer" because so few of them can be found in the primary. This situation makes competition between them and the U.S.-born a moot point.

Alternatively, if this research shows that immigrants are not predominantly

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role in growing or declining industries. Even after controlling for type of labor market, location in expanding or declining industries may affect native worker's labor market outcomes. Competitive pressure in declining industries may induce institutional changes that allow the replacement of native workers by immigrant labor. Manufacturing in New York City during the 1970s is an example of this dynamic. Conversely, when the competitive position of an industry in a given region improves, immigrants serve as a labor reserve that allows the industry expansion. Other things equal, immigrant employment will not have a negative effect on native employment in expanding industries. Manufacturing growth in Los Angeles during the 1970s and 1980s provides a good example of this scenario.

concentrated in secondary occupations or peripheral industries and in industries that declined during the 1970s, than the main hypothesis is rejected. That is, U.S.-born labor may not be immune to competition from immigrant laborers because the data will have shown that immigrant industrial and occupational location is not an important factor in mediating employment opportunities and job competition between both groups. It may even be the case that immigrant job competition (displacement or complementary) is occurring regardless of industrial or occupational change (growth and decline) or location (e.g., core/periphery, independent primary, craft, subordinate primary and secondary) patterns. This research, as I highlight in the next two chapters, reveals instances of job complementarity and displacement due to a variety and combination of several factors that I discuss in chapters 3 and 4.

To assess the labor market incorporation and job competition effects of increased immigrant labor, I implement a series of "shift-share" models (to be explained later in this chapter) on several industrial and occupational classifications. The first test is on forty-six industrial categories divided along Tolbert, et. al.'s (1980) typology of core and periphery sectors. I also arrange these industries, per each sector, according to those industries that grew and those that declined. This industrial classification will enable me to test if two institutional structural properties (core/periphery, decline/growth) make a difference in where negative or positive job competition patterns emerge. The second test is on occupations aggregated into fifteen broad census defined categories and according to those that grew and those that declined between 1970 and 1980. The third and last test are on occupational categories aggregated according to four "segmentation" classifications (e.g., independent primary, craft, subordinate primary, secondary) and occupations change (i.e., growth/decline). Similar to the industrial test above, the primary purpose of this occupational experiment is to see of "segmentation" patterns make a difference in where job competition (displacement or complement) is occurring. I employ these three tests for both Los Angeles and New York and constitute the primary focus of analysis for this

research. The following figure (2.1) provides a visual interpretation of the three tests and shows how the main hypotheses of this study are either rejected or accepted.

I expect immigrants and U.S.-born minorities (blacks and U.S.-born Hispanics) to be concentrated in the unskilled-unprotected labor markets, and to be disproportionally concentrated in declining industrial sectors. These results should be consistent across regions and through time. If immigrants and U.S.-born minorities locate following clear patterns corresponding to type of job markets and industry as I expect, I will have shown that institutional barriers to immigrant employment and industrial growth are important factors affecting job competition between immigrants and U.S.-born workers. That is, if immigrants, to a large extent are predominantly employed in the secondary and peripheral sectors and in declining industries than they are more likely to compete among themselves and with other groups in this sector than in the primary or core where they are employed in fewer numbers.

I expect to answer the following questions regarding the concentration effects of immigrant labor on the employment situation of U.S.-born labor.

- In which sectors have immigrants gained in employment shares at the expense of U.S.-born workers?
- How have these gains in immigrant's employment affected different groups of native-born workers? Who are the most directly affected (women, U.S.-born, racial or ethnic minorities)?
- How different are the answers to the previous questions for the Los Angeles and New York region? Which are the most significant contrasts?

I expect unskilled U.S.-born workers in protected (core) labor markets to be largely immune to immigrants' employment gains regardless of industrial growth or decline. Thus, immigrant gains in employment share should come largely from U.S.-born workers in the unskilled and unprotected labor market -- those industries in the periphery. Depending on sectoral growth or decline and the population change of particular groups

of workers, immigrants may be moving (job succession) either at the expense of U.S.-born workers or they may be moving along with U.S.-born workers.

Industrial location (i.e., growth or decline) may be important in another dimension, particularly in testing the queuing hypothesis in the core and periphery sectors. For instance, it is possible to have a situation in which unskilled and unprotected U.S.-born workers lose in their employment share but their employment conditions are not affected because industrial growth or stability serves as a buffer, immigrants could provide labor reserves that allow economic expansion. Conversely, immigrant gains in employment share could be strongly associated with worsening employment conditions for U.S.-born workers in declining industries --a classic case of substitutability in the current literature. However, this does not need to be interpreted as displacement of domestic workers. It could be possible that immigrant gain in employment share is at the expense of a native group (e.g., white adult males) for whom there are significant gains in the core labor market sectors. Analogous situations to these two examples in the 1970s and 1980s or across regional labor markets will suggest an even more complex array of immigrant effects on U.S.-born workers than those described by the existing literature and conceptualizations.

II METHOD

To test the hypotheses of this study, I adapt Waldinger's (1987) shift share model and apply it to industries and occupations categorized according to the three different typologies summarized above. Using shift share allows me to test factors contributing to industrial and/or occupational employment change between two time periods.

Waldinger (1987) first applied this method to measure employment differentials between racial and ethnic immigrant and U.S.-born groups in New York during 1970 and 1980. He found that the composition of the workforce is a crucial factor in the occupational position of nonwhites and that changes in the size of the white population set

the stage for an upward realignment of nonwhite workers. New York's economic shift from goods to services was primarily responsible for the decline in the availability of white workers which in turn created a replacement demand for nonwhite workers (Waldinger, 1987: 397). That is, a process of job succession whereby immigrants replace workers that were vacated by white labor in New York during the 1970s. He concludes by suggesting that the impact of compositional change was blunted by a trend toward ethnic competition, as reflected in a declining employment total and share for U.S.-born blacks.

Waldinger's study (1987), however, only analyzed eleven major industrial categories for the region of New York. Such a broad, aggregated study may mask important compositional differences between immigrant and U.S.-born workers in industries that are not "lumped" (aggregated) together or analyzed as one regional economy. Thus, my research expands on Waldinger's by disaggregating industrial categories and dividing the regional industrial economy by two. I analyze forty-six[15] major industrial categories that fall under "core" or "periphery" - following dual labor market theory (Beck, Horan, and Tolbert, 1978; Tolbert, Horan, and Beck, 1980). In addition, I apply this method to occupations organized according to 1) fifteen broad categories, and 2) four occupational segments (e.g., independent primary, craft, subordinate primary, and secondary).[16]

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[15]See Appendix E and F for the 1970 and 1980 list of census defined (3-digit SIC codes) industries classified according to the 46 industrial categories used in this study.

[16]Dividing industries into core and peripheral sectors and occupations into four segments is derived from dual labor market theory that proposes that the economic system is characterized by the existence of two distinct industrial sectors and four occupational segments. In the core sector, firms have oligopoly power (small number of large firms) in their product markets, employ large number of workers, have vast financial resources, are favored by government regulations and contracting, and workers are more likely to be in unions. Firms in the periphery are smaller, have less influence over product markets, lack access to financial resources, and are usually dependent on sub-contracting or retailing for larger firms. Jobs characterized in this category are low-paying, non-union, and exhibit high levels of job turnover. Occupations are similarly categorized into four segments: 1) independent primary, 2) craft, 3) subordinate primary, and 4) secondary. Jobs in the primary market (independent) are characterized by educational credentials or state

Shift share allows me to analyze for any given region whether immigrants compared to other groups in the same labor markets, grew or declined over time in their industrial and occupational concentration as a result of: 1) changes in the relative labor supply of different ethnic groups (group size), 2) changes in the size of an industry or occupations (industry/occupation effect); and 3) changes in a group's employment in an industry or occupation net of group size and industry/occupation effect. This last variable reflects the extent to which a group is concentrating or de-concentrating[17] in a specific labor market. Adding together group size and industry/occupation change reveals whether the two factors undercut or reinforced the trends to concentrate or de-concentrate in a particular industry or occupation. The column labeled "Interactive Effect" adds group size and industry/occupation change effects, thus indicating whether the two factors worked in opposite or reinforcing directions.

A positive figure in "share" represents an increasing group share of all industries/occupations in a particular sector. Thus, for example, if a particular immigrant group in and industry or occupation shows a positive group share (total), it is being employed in that sector at rates higher than those at which it is entering other sectors and thus becoming more concentrated in that sector. A negative "share" signifies the opposite; that is, a particular group is entering that sector at rates lower than those at which it is entering other sectors and thus becoming less concentrated or "de-concentrated." For a more "technical" explanation of shift-share method, see Appendix A.

I apply the shift share model to several selected racial and ethnic groups according

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licensing of the occupation. These jobs offer a clear path for advancement, are better paid, and have a well-defined occupational structure. The subordinate Primary is characterized by the presence of unions and technical or "machine paced" system of labor control. Craft fall somewhere in between these two categories. Secondary jobs are described as the worst, employing low educated workers, having high turnover, low pay and bad working conditions, and with very little upward integration.

[17]"De-concentration" refers to the departure of a group of workers from a specific segment of the labor market such as an industry or occupation.

to their nativity (U.S.-born whites, blacks, Mexicans, Puerto Ricans in New York, and foreign-born Latinos, Asians, Mexicans, and Puerto Ricans in New York).

Job Competition?

This research is primarily concerned with the displacement of U.S.-born workers in industries and occupations due to an increase in the supply of immigrant labor. More specifically, the employment shares of four native groups (whites, African Americans, Puerto Ricans, and Mexicans) are assessed to see how they respond to changes in the employment share of three immigrant groups (Mexicans, Island-born Puerto Ricans, Latinos,[18] and Asians). After analyzing the results of the shift share model, five possible job competition patterns have surfaced. These patterns allow us to distinguish between various job competition scenarios that are not easily identifiable or clear cut when analyzed only as raw (absolute figures) shift share results. As a result, each native group in every industrial and occupational category is analyzed and coded with one of these five possible patterns to correspond to the model results. They are:

1. *Complete Displacement (CD)* takes place when all native groups lose jobs, while all immigrant groups gain.

2. *Displacement (D*)* occurs when some native groups and some immigrant groups lose jobs in the same industry during the same time period. I attribute this pattern to factors other than immigration, such as industrial restructuring.

3. *Partial Displacement (PD)* happens when one or two native groups lose jobs, while one or two immigrant groups gain. In this pattern, particular attention is given to the native Mexican group because they are closer substitutes for the immigrant groups analyzed here; and as a result, these native groups may be especially vulnerable to displacement.

4. *Complete Complementarity (CC)* occurs when native group's job gain is

[18]The term *Latino* refers to all the census defined Hispanic subgroups (i.e., Puerto Ricans, Cubans, Central and South Americans) in the aggregate with the exception of Mexicans who are analyzed separately and are referred to as such.

simultaneous with all three immigrant groups' gains. The gain in native and immigrant jobs is due not only to increases in immigration but also to industrial growth, a robust economy and other structural factors.

5. *Native Complementarity (NC)* takes place when native groups gain jobs, while immigrant groups lose.

I conduct three industrial and occupational tests using shift share and the above coding schema to identify in which labor markets and for which groups displacement or complement is occurring. In the first test I see if institutional structural properties (core and periphery, and decline and growth) make a difference in where negative or positive job competition patterns emerge. The second test is on occupations aggregated into fifteen broad categories and according to those that grew and those that declined between 1970 and 1980. I also look at a structural factor, growth and decline, which may or may not mediate job competition patterns. The third and last test are on occupational categories aggregated according to four segmentation classifications (e.g., independent primary, craft, subordinate primary, secondary). The primary purpose of this experiment is to asses if structural (e.g., occupational segments and growth and decline) differences between occupations make a difference in the location of job competition. Figure 2.1 provides three flow charts that interpret these three tests and shows how the hypotheses are either rejected or accepted.

FIGURE 2.1
Schematic Diagram of Three Labor Market Tests and Their Predicted Results and Hypothesis Decision.

METHOD	LABOR MARKTS	STRUCTURAL ANALYSIS		PREDICTED RESEARCH RESULTS (*)	RESEARCH DECISION
INDUSTRIAL REPOSITIONING					
				Displacement	REJECT HO
		HO: #1	GROWTH	*Complement**	ACCEPT HO
		CORE			
		HO: #2	DECLINE	*Displacement*	REJECT HO
				*Complement**	ACCEPT HO
Test No. 1	INDUSTRIES				
				*Displacement**	ACCEPT HO
		HO: #3	GROWTH	*Complement*	REJECT HO
		PERIPHERY			
		HO: #4	DECLINE	*Displacement**	ACCEPT HO
				Complement	REJECT HO
OCCUPATIONAL REPOSITIONING					
				Displacement	REJECT HO
		HO: #1	GROWTH		
				*Complement**	ACCEPT HO
Test No. 2	OCCUPATIONS				
				*Displacement**	ACCEPT HO
		HO: #2	DECLINE		
				Complement	REJECT HO
				Displacement	REJECT HO
		HO: #1	I. PRIMARY		
				*Complement**	ACCEPT HO
				Displacement	REJECT HO
		HO: #2	CRAFT		
				*Complement**	ACCEPT HO
Test No. 3	OCCUPATIONS				
				Displacement	REJECT HO
		HO: #3	S. PRIMARY		
				*Complement**	ACCEPT HO
				*Displacement**	ACCEPT HO
		HO: #4	SECONDARY		
				Complement	REJECT HO

III DATA

Recent immigrants are a small proportion of the U.S. population at any given time. The data set I utilized had to be large enough to include the different sub populations by race, ethnicity, and gender among native-born and foreign-born persons in Los Angeles. In addition, the data set had to be comparable between two time periods, 1970 and 1980, to assess shifts in the labor market due to immigration. The best data for this task are the Public Use Sample (PUS) of the 1970 Census and the Public Use Microdata Sample (PUMS) of the 1980 Census.

These data sources are large stratified samples of housing units enumerated in the U.S. Census. The samples contain socio-demographic information on housing units (household records) and each person living within them (individual records). Specifically, I gather my data from the 1% sample of the PUS from the 1970 Census and the 5% sample of the PUMS "A" from the 1980 Census. The 1990 decennial Census (PUMS) is not yet available at the disaggregated level needed for this study.[19]

My study group is civilians, by race (white, African American, Asian, Mexican, and Latino) who are employed and received wage or salary income in the previous year. Those respondents who did not indicate occupation or industry are excluded. This definition also excludes the self-employed and unemployed in the labor force to reflect more accurately employment concentration according to industrial and occupational definitions.[20] Due to this definition, my sample (employed civilians, 16 and over) is smaller than the labor force as usually defined in published data. I aggregate over four hundred fifty census defined

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[19]I am also limited to these two data sets because other data (e.g., Current Population Survey), even though they may be more current, do not have a significantly large sample to analyze Latinos or Asians in specific labor markets in single SMSA regions. The decennial census, despite well known and documented criticisms, is nonetheless unique for the detailed data on ethnic and industrial and occupational characteristics that it provides.

[20]The "self-employed" are certainly represented across many different industries and occupations but are not analyzed in this study because one cannot specifically identify in which labor markets this employment may be occurring.

Industries into forty-six classifications while the two hundred plus occupations are aggregated into 15 categories and four segments.

I have selected New York[21] and Los Angeles[22] as the two regional areas of study for this research because they are the largest Standard Metropolitan Statistical Areas (SMSA) receiving immigrants. Furthermore, both cities have experienced a decline in the socio- economic fortunes of their inner-city residents. Both cities have experienced distinct and dramatic shifts in the restructuring of their economies with New York declining and Los Angeles growing. Lastly, the ethnic make-up, while quite diverse, affords me the unique opportunity to compare and contrast the issue of displacement for the two largest Latino subgroups (Mexican & Puerto Rican) in the United States. Comparing and contrasting two poverty stricken, immigrant receiving, ethnically diverse, and economically changing cities provides a framework from which to better understand some of the structural factors affecting immigrant and native-born labor and their relationship in specific labor markets.

To assist in analyzing industries and occupations according to segmentation theories, I have utilized the occupational "segmentation" classification schema derived by Gordon, Edwards, & Reich (1982) and the industrial dualism classification derived by Beck, Horan, and Tolbert (1978); Tolbert, Horan, and Beck (1980). This allows me to distinguish between two major types of occupational labor markets; protected/skilled (independent primary, subordinate primary, and craft) and unprotected/unskilled (secondary), and between two industrial sectors; core and periphery. To allocate all the Census defined occupations into four segments according to "segmentation theory," I use

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[21]The definition of New York used for this research includes the counties of Bronx, Kings, New York, Queens, Richmond. As a result of the use of this definition, figures will differ from other data sources, published or otherwise, used to describe New York.

[22]Los Angeles in this study refers to the Los Angeles - Long Beach Standard Metropolitan Statistical Area as defined by the U.S. Census Bureau.

Gordon's (1989) analysis as explained in "Procedure for Allocating Jobs into Labor Segments" (Gordon, 1986). After implementing this procedure, I am able to classify workers according to occupations in four labor market segments; 1) independent primary, 2) independent primary craft, 3) subordinate primary, and 4) secondary.[23]

IV IMPORTANCE OF CHOSEN METHODOLOGY

An empirical test designed to analyze some of the theoretical issues discussed in the introduction chapter and in chapter 2 would focus on comparing regional urban centers, industrial and occupational sectors, and immigrant and U.S.-born employment (disaggregated by race and ethnicity).

The inconclusive nature of the evidence on whether immigrants compete or complement the domestic labor force is largely mediated by regional, occupational, and industrial change. An analysis that incorporates these differences and looks at the changing occupational and industrial structure will provide a complete analysis. It is evident that past studies (aggregated) point to some limited competition as well as complementarity effect(s) due to immigration. Industrial and occupational studies, while also mixed on the issue of competition and complementarity, are analyzed on specific settings and time periods. Little reference is made to similar industries and occupations as well as region specific economies. In short, industrial and occupational case studies are to narrow and specific, while aggregate studies are too broad and all encompassing. I Hypothesize that immigrants do complement the domestic labor force in some occupations and industries, and that competition occurs in other labor markets as well. I also believe that immigrants may not be the only group displacing or complementing -- native labor may very well be displacing or complementing U.S.-born and/or immigrant labor. The

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[23]For a detailed explanation of the procedure used in allocating census occupations according to "segmentation" theory, and for a complete listing of these occupations according to the four segments for 1970 and 1980, see the appendix B, C, and D.

key question is where (specifically) does this displacement and complementarity occur? And, what are the economic factors most conducive to such circumstances?

An empirical test as explained in this chapter would explore the hypothesis that, when the data are disaggregated by specific types of labor markets (considering industries and occupations as well as regional contexts, e.g., Los Angeles and New York) and races (national origin), immigrants in and of themselves, do not simply function as either competitive (negative) or complementary (positive) sources of labor, thereby reducing the wages and employment opportunities of U.S.-born workers. Instead, I assert that the likelihood that competition between U.S.-born and immigrant workers depend in part on whether these two groups of workers belong to protected (core) or unprotected (periphery) occupations and whether they are employed in growing or declining industries. In other words, occupation and industrial location are important key factors mediating job competition.

Industrial and occupational location is important for workers depending on which labor market they are employed. For those in protected (core) labor markets, their location makes little difference because the horizontal dimension of labor markets dominates the determination of employment conditions and salaries. However, for those employed in the unskilled or "unprotected" (periphery) labor markets, industrial and occupational location is very important. Unskilled workers may or may not be protected from competition with immigrant labor depending on recruitment and promotion practices and institutions in a given industry. U.S.-born workers are protected from competition if institutional barriers such as unions, internal labor markets in large corporations, or patronage in government employment prevent immigrants from access to these sectors. It is here that I propose a critical distinction with respect to the existing literature on this topic. The effects of immigration on unskilled native employment depend on the specific job market in which they are located. Other things equal, native workers located in protected labor markets (primary) are not affected by job displacement, while the opposite

result should be expected in unprotected segments (secondary).

The research approach described in this chapter will provide useful evidence to clarify some theoretical immigration issues. Most analysis in the literature (see previous chapter) presents an "either/or" situation. U.S.-born and immigrant workers are assumed to be skilled or unskilled and no differentiation is made among workers in unskilled labor markets. Or in a similar vein, immigrants are assumed to function as labor reserves in growing industries or as "cheap/replacement" labor in declining industries. Given these assumptions, I argue that the current debate about immigrant labor is limited and narrow -- immigrants are either reserves or replacement labor. The division of unskilled labor into two groups, categories of industrial and occupational structure and change, the various job competition patterns already identified, and an analysis at a regional level (New York and Los Angeles) allows for an exploration of a more complex array of employment substitutability and complementarity. In the following two chapters (3 and 4), I describe the data results from the shift-share model on the industrial and occupational categories discussed earlier for New York and Los Angeles, respectively. However, to place these findings in historical and present perspective, I also present a broad demographic and economic summary of each region since 1960.

Chapter 3
DECLINE IN NEW YORK CITY

I INTRODUCTION

Between 1970 and 1980 the city of New York and its surrounding regional area underwent a massive economic restructuring of its industrial base. Harmonious with this change was the formation of a new ethnic, racial, and gender division of labor.[24] New York, long the gateway of immigrants continues to be a magnate for recent arrivals, especially those of the Caribbean and other Third World countries. Nationally, employment has shifted from manufacturing toward corporate, public, and nonprofit services; similarly occupations have shifted from manual workers to managers, professionals, secretaries, and service workers. This National trend is exemplified in New York's restructured economy. Data in this chapter will describe employment, economic, and demographic characteristics and then the industrial and occupational concentration effects of workers in the New York region.[25]

This chapter is divided into three major sections. The first component is an economic summary of the New York region during the past three decades. This overview is based on published (Census data used in this study) data sources. The second component, industrial repositioning, is a test of forty-six industries categorized according to core and periphery and growth and decline. Here, I test whether industrial dualism and change are important factors in the number of industries that have instances of displacement or complement. The third and last component, occupational repositioning, analyzes two occupational typologies; 1) fifteen broadly defined Census categories, and 2) four occupational segments derived from "segmentation" theory.

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[24]See Mollenkopf and Castells (1991) for a selection of articles on the economic restructuring of New York and Waldinger (1986-87) and Baily and Waldinger (1991) for discussions of the new ethnic division of Labor in New York city.

[25]The definition of New York used for this study includes the counties of Bronx, Kings, New York, Queens, Richmond. As a result of the use of this definition, figures will differ from other data sources, published or otherwise, used to describe New York.

II THE BIG APPLE: FLUCTUATING PATTERNS OF CHANGE

Most economic analysis on "New York" uses the New York-Northern New Jersey -Long Island Consolidated Metropolitan Statistical Area (CMSA) definition. This definition includes 24 contiguous counties in 3 States (11 in New York, 12 in New Jersey, and 1 in Connecticut). New York City (Manhattan, Bronx, Queens, Brooklyn, and Staten Island) in the above definition represents two-fifths (40%) of the region's population which totaled 18 million in 1980. Any analysis of "New York" without reference to the wider metropolitan area will fail to capture its totality and assess its local and regional characteristics, geographic size, and overall economic scale.

The population of New York City is smaller in absolute numbers in the 1980s and relative to what it was 30 years ago. In 1955 the city's population was 7.8 million (52% of the SMSA's total population). By 1969 the city's population remained unchanged, however, the SMSA's population grew to 56 percent of the total. By 1980, New York city's population had dropped to 7.3 million or 40% of the region's population (U.S. Department of Commerce, 1987; Drennan, 1991). This situation contrast with Los Angeles which has experience growth in every decennial year since 1960.[26]

The population in New York, similar to Los Angeles and other cities has also become increasingly black, Latino, and Asian. From 1969 to 1979, the share of black families rose markedly, and the share of white families dropped. Between 1979 and 1987, while blacks and whites share of the population expanded very little, Latinos and Asians grew substantially (Drennan, 1991 and U.S. Bureau of the Census, Current Population Reports). Waldinger (1987) describes the demographic transformation of New York during the 1970s as having occurred in two stages. The first, pre-1960s, involved the exodus of the city's white population and the immigration of blacks and Puerto Ricans.

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[26]Between 1960 and 1970, Los Angeles grew by over 280,000 jobs a 4 percent increase. In 1980, Los Angeles had grown by over 6.4 percent (compared to 1970) and by over 50 percent in 1990 (compared to 1980)!

The second phase, post-1960s (the "New Immigration"), involved the mass immigration of foreign immigrants mainly from the Third World. Census data show that Latin Americans, Caribbean, and Asians have accounted for the majority of the new arrivals to this region.

Since the 1960s the region's industrial base has shifted away from manufacturing toward corporate, public, and nonprofit services; occupations have similarly shifted from manual workers to managers, professionals, secretaries, and service workers (Mollenkopf and Castells, 1991; Drennan, 1991; Bailey and Waldinger, 1991; Waldinger, 1987). Indeed, the regional area of New York has experienced a massive restructuring of its economy and paradoxically this restructuring has been of simultaneous decay and growth.

As mentioned above, manufacturing, once the region's industrial pillar has declined since the late 1960s. Employment loss in New York City since 1969 has concentrated in goods production and the distribution of these goods (manufacturing, administrative offices, wholesale trade, water transportation, trucking and warehousing, and railroads). Manufacturing however, was not the only sector that showed decline since the 1960s. Massive losses also occurred in construction, communications, utilities, trade, and personal services. Total employment in the public sector also declined during the mid-1970s but rebounded by the end of the decade and well into the 1980s. Throughout the 1980s, manufacturing, which momentarily gained jobs in the late 1970s, has again been on the decline (Baily and Waldinger, 1991).

New York's industrial manufacturing demise is best described by the following authors. Waldinger (1987) blames the loss of manufacturing on a "new stage of intensified interregional and international competition" that has prompted the flight of jobs from "high-cost" New York to "lower-cost" regions. Drennan (1991) attributes New York's industrial manufacturing job loss as part of a larger national trend in which the Northeast and North Central states have collectively lost substantial numbers of manufacturing jobs. In addition, the departure of *Fortune* 500 headquarters is also blamed for New York's crumbling economic base during this period (Drennan, 1991).

The second part of New York's industrial restructuring paradox is the strong growth of corporate service firms since the mid 1970s. Preceding the growth of services was the buildup of New York's white-collar, corporate complex. Changes in technology provided new jobs in communications and transport, advertising also sky-rocketed. Economic growth in the 1960s led to hundreds of jobs in Wall Street that occurred concurrently during the corporate merger boom. Lastly, as more government regulations were imposed and services increased so did the expansion of public sector employment.

In sum, New York grew and declined in its industrial base during the same period -- it declined in manufacturing by over 12.5 percent (-123,180 jobs) and grew by over 9.9 percent (+339,480) in the remaining industries. In fact, this paradoxical process could not have occurred without the other -- one induced the other and visa versa. This process, according to Drennan (1991) are: "Concurrent phenomenon with some common technological causes." The city's population has also changed, from mostly a white majority to a non-white majority. Likewise, similar to most large cities in the United States, New York has become relatively poorer. In the following two sections, I describe in detail some of the region's economic and employment demographic patterns that suggest a division of labor segmented along lines of race, gender, and occupation/industries.

III INDUSTRIAL REPOSITIONING

Industrial Change

Below, I describe New York's industrial base during 1970 and 1980 with a particular focus on how these industries grew or waned between the two decades.[27] I highlight specific industrial growth and decline trends for the region of New York while occasionally contrasting them with Los Angeles and the United States as a whole.

[27]For this section I employ data from the 1970 and 1980 PUMS files from the Census for the Los Angeles-Long Beach SMSA.

Table 3.1 provides data for New York on the number of jobs per industry (core and periphery) for the total population and by nativity. Between 1970 and 1980, total employment for New York declined by over 546,800 jobs, a 13 percent decrease. A large portion of this decline came from the loss of jobs in manufacturing, wholesale and durable trade, and specialty retail industries. There was also substantial decline in the, construction, apparel, transportation, and personal service industries.

Table 3.1
Industrial Change by Core and Periphery, New York 1970 - 1980

	Total Employment				*Nativity*					
					Immigrants			U.S. Born		
	1970	1980	DIFF	% Diff.	1970	1980	DIFF	1970	1980	DIFF
CORE										
MINING	4,500	2,900	-1,600	-0.36	200	700	500	4,300	2,200	-2,100
CONSTRUCTION	144,000	111,700	-32,300	-0.22	39,900	41,000	1,100	104,100	70,700	-33,400
FOOD MFG	50,100	30,400	-19,700	-0.39	12,200	13,000	800	37,900	17,400	-20,500
TOBACCO MFG	1,900	2,000	100	0.05	200	400	200	1,700	1,600	-100
PAPER MFG	27,600	18,400	-9,200	-0.33	4,800	6,800	2,000	22,800	11,600	-11,200
PRINTING & PUB	120,900	113,200	-7,700	-0.06	20,900	28,800	7,900	100,000	84,400	-15,600
CHEMICAL MFG	30,000	19,700	-10,300	-0.34	5,800	6,600	800	24,200	13,100	-11,100
PETRO/COAL MFG	5,600	1,900	-3,700	-0.66	600	500	-100	5,000	1,400	-3,600
RUBB & MISC MFG	13,000	10,600	-2,400	-0.18	2,200	5,600	3,400	10,800	5,000	-5,800
ST/CLY/GLS MFG	8,100	6,600	-1,500	-0.19	1,500	3,000	1,500	6,600	3,600	-3,000
METAL INDUST	38,000	33,100	-4,900	-0.13	8,900	13,800	4,900	29,100	19,300	-9,800
GEN MACH MFG	22,900	18,800	-4,100	-0.18	7,200	9,100	1,900	15,700	9,700	-6,000
ELECT MACH MFG	39,800	24,300	-15,500	-0.39	10,600	12,100	1,500	29,200	12,200	-17,000
TRANSP EQ MFG	15,400	15,500	100	0.01	3,400	6,000	2,600	12,000	9,500	-2,500
PHT/TIME EQ MF	12,100	7,300	-4,800	-0.40	3,000	3,700	700	9,100	3,600	-5,500
HIGH TECH MFG	47,600	45,900	-1,700	-0.04	9,600	16,200	6,600	38,000	29,700	-8,300
AIR ORDINANCE	8,100	3,700	-4,400	-0.54	2,000	900	-1,100	6,100	2,800	-3,300
RAIL SRVC	18,600	9,500	-9,100	-0.49	2,500	1,400	-1,100	16,100	8,100	-8,000
TRK/WARE/POST	110,400	77,700	-32,700	-0.30	10,400	12,700	2,300	100,000	65,000	-35,000
TRANSPORTATION	175,500	153,500	-22,000	-0.13	37,400	43,900	6,500	138,100	109,600	-28,500
COMMUNICATIONS	84,600	66,000	-18,600	-0.22	9,500	11,000	1,500	75,100	55,000	-20,100
WHOL NONDURABL	94,300	109,900	15,600	0.17	21,900	33,700	11,800	72,400	76,200	3,800
FIRE	437,800	409,400	-28,400	-0.06	71,900	102,500	30,600	365,900	306,900	-59,000
HEALTH SRV	236,600	330,800	94,200	0.40	59,300	111,600	52,300	177,300	219,200	41,900
EDUCATION	257,800	245,700	-12,100	-0.05	35,000	46,300	11,300	222,800	199,400	-23,400
PROF SRVC	273,200	261,700	-11,500	-0.04	39,300	55,000	15,700	233,900	206,700	-27,200
PUBLIC ADMIN	164,200	183,500	19,300	0.12	17,400	33,800	16,400	146,800	149,700	2,900
Core Total	2,442,600	2,313,700	-128,900	-0.05	437,600	620,100	182,500	2,005,000	1,693,600	-311,400
PERIPHERY										
AG FOR & FISH	10,100	7,500	-2,600	-0.26	1,900	2,700	800	8,200	4,800	-3,400
TEXTILE MFG	43,900	36,500	-7,400	-0.17	14,600	18,200	3,600	29,300	18,300	-11,000
APPAREL MFG	227,400	188,000	-39,400	-0.17	98,900	114,800	15,900	128,500	73,200	-55,300
LEATHER MFG	25,100	17,200	-7,900	-0.31	9,000	10,200	1,200	16,100	7,000	-9,100
LOG/LUMBER PROD	4,800	3,800	-1,000	-0.21	1,600	2,300	700	3,200	1,500	-1,700
FURN MFG	16,600	10,700	-5,900	-0.36	4,700	5,500	800	11,900	5,200	-6,700
MISC MFG	177,000	68,800	-108,200	-0.61	37,600	35,000	-2,600	139,400	33,800	-105,600
UTIL & SANIT	82,000	37,600	-44,400	-0.54	10,600	6,500	-4,100	71,400	31,100	-40,300
WHOLE & DURABLE	114,500	65,900	-48,600	-0.42	25,700	20,500	-5,200	88,800	45,400	-43,400
BLD/HD/DEPT ST	123,300	98,300	-25,000	-0.20	21,900	20,700	-1,200	101,400	77,600	-23,800
FOOD STORE	103,400	91,600	-11,800	-0.11	26,000	32,200	6,200	77,400	59,400	-18,000
MV ST/SERV STA	26,800	22,100	-4,700	-0.18	4,500	5,600	1,100	22,300	16,500	-5,800
EAT/DRINK ESTAB	135,500	159,000	23,500	0.17	51,600	73,300	21,700	83,900	85,700	1,800
SPEC RETAIL	247,900	164,500	-83,400	-0.34	50,200	50,900	700	197,700	113,600	-84,100
BUSINESS SERV	163,700	206,800	43,100	0.26	28,700	50,000	21,300	135,000	156,800	21,800
REPAIR SERV	67,000	42,900	-24,100	-0.36	11,200	18,000	6,800	55,800	24,900	-30,900
DOMEST SERV	56,700	39,600	-17,100	-0.30	20,000	19,700	-300	36,700	19,900	-16,800
PERSONAL SERV	162,700	98,900	-63,800	-0.39	43,700	39,700	-4,000	119,000	59,200	-59,800
ENTER & REC	57,700	68,500	10,800	0.19	8,400	10,300	1,900	49,300	58,200	8,900
Periphery Total	1,846,100	1,428,200	-417,900	-0.23	470,800	536,100	65,300	1,375,300	892,100	-483,200
TOTAL	4,288,700	3,741,900	-546,800	-0.13	908,400	1,156,200	247,800	3,380,300	2,585,700	-794,600

SOURCE: 1970 Figures from U.S. Bureau of the Census, Public Use Samples (1/100)
1980 Figures from U.S. Bureau of the Census, Public Use Microdata Samples, (5%, "A" Sample)

Both the core and periphery for this region declined at 5 and 23 percent, respectively. In the periphery, major losses came to the miscellaneous manufacturing,

utilities and sanitation, specialty retail, personal services, and domestic service industries. Only three industries experienced gains in the periphery during the 1970s; business, entertainment and recreation, and eating and drinking establishments. When the total industrial population is divided according to nativity an interesting trend emerges. Immigrants show few losses in their industrial employment in both the periphery and core. Indeed, for those industries that showed loss of employment between 1970 and 1980, almost 100 percent of that loss was by the U.S.-born laborer.

By further disaggregating the data by race and ethnicity (see Table 3.2), we see that whites were the primary losers of industrial employment in Los Angeles during the 1970s for both the core and periphery.[28] Blacks lost in several industries in the core (7) and many more in the periphery (11) between these two decades. However, overall, blacks gained over 150,000 jobs in the core and lost over 25,000 jobs in the periphery. Latinos, similar to blacks, also experienced large gains in the core and some loss in the periphery while Asians experienced substantial gains in both sectors. Table 3.2 clearly shows these results and highlights the overall job (industrial) growth experienced by Latinos, blacks, and whites.

[28]This is of course true in absolute numbers since they are by far the largest employed group in New York, but is also true in terms of a percent of their total population.

Table 3.2
Industrial Change by Race and Ethnicity, New York 1970-1980

	WHITES			LATINOS			BLACKS			ASIANS		
Industries	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.
MINING	3,900	2,300	-1,600	0	100	100	600	400	-200	0	0	0
CONSTRUCTION	112,300	74,900	-37,400	11,100	12,900	1,800	20,100	21,500	1,400	300	1,500	1,200
FOOD MFG	37,400	16,600	-20,800	7,000	6,600	-400	5,500	5,900	400	200	800	600
TOBACCO MFG	1,700	1,100	-600	200	400	200	0	500	500	0	0	0
PAPER MFG	16,400	8,500	-7,900	6,100	5,200	-900	4,800	4,000	-800	100	200	100
PRINTING & PUB	96,000	80,300	-15,700	13,500	12,900	-600	10,400	15,600	5,200	900	3,000	2,100
CHEMICAL MFG	21,900	12,000	-9,900	3,600	3,500	-100	4,300	3,600	-700	200	400	200
PETRO/COAL MFG	4,500	1,500	-3,000	800	0	-800	300	300	0	0	100	100
RUBB & MISC PLAS	6,800	3,700	-3,100	4,500	3,700	-800	1,700	2,400	700	0	300	300
ST/CLY/GLS MFG	5,400	3,400	-2,000	1,400	1,100	-300	1,200	1,800	600	100	300	200
METAL INDUST	23,000	15,500	-7,500	9,200	8,400	-800	5,700	8,200	2,500	100	600	500
GEN MACH MFG	15,900	9,600	-6,300	4,000	4,600	600	2,900	3,900	1,000	100	400	300
ELECT MACH MFG	23,800	12,600	-11,200	10,100	6,700	-3,400	5,400	4,100	-1,300	400	700	300
TRANSP EQ MFG	9,400	7,100	-2,300	1,800	2,600	800	4,100	5,200	1,100	0	400	400
PHT/TIME EQ MF	7,300	3,900	-3,400	2,200	1,300	-900	2,200	1,600	-600	300	200	-100
HIGH TECH MFG	36,300	26,400	-9,900	6,000	8,700	2,700	4,400	7,500	3,100	500	2,200	1,700
AIR ORDINANCE	6,300	2,300	-4,000	1,100	400	-700	600	900	300	100	0	-100
RAIL SRVC	11,500	6,000	-5,500	300	500	200	6,800	2,600	-4,200	0	200	200
TRK/WARE/POST	66,500	44,500	-22,000	10,900	6,900	-4,000	32,500	24,800	-7,700	400	800	400
TRANSPORTATION	124,500	90,300	-34,200	20,000	18,200	-1,800	29,000	39,800	10,800	1,400	4,200	2,800
COMMUNICATIONS	60,400	41,500	-18,900	5,700	5,400	-300	18,000	18,100	100	300	900	600
WHOL NONDURABLE	76,900	73,400	-3,500	9,300	14,000	4,700	7,400	14,700	7,300	700	6,900	6,200
FIRE	336,800	265,200	-71,600	40,600	47,300	6,700	56,700	79,900	23,200	2,400	13,000	10,600
HEALTH SRV	131,500	149,500	18,000	30,700	39,800	9,100	70,100	120,300	50,200	3,100	17,700	14,600
EDUCATION	205,900	173,600	-32,300	13,800	19,700	5,900	35,200	44,700	9,500	2,200	5,300	3,100
PROF SRVC	202,500	165,000	-37,500	20,200	22,100	1,900	46,200	66,500	20,300	2,800	5,400	2,600
PUBLIC ADMIN	120,700	99,300	-21,400	9,100	19,100	10,000	31,900	59,900	28,000	1,900	3,500	1,600
Subtotal	1,765,500	1,390,000	-375,500	243,200	272,100	28,900	408,000	558,700	150,700	18,500	69,000	50,500
AG FOR & FISH	6,800	5,600	-1,200	1,200	800	-400	1,900	500	-1,400	100	500	400
TEXTILE MFG	31,000	22,600	-8,400	8,500	8,300	-200	4,200	4,000	-200	200	600	400
APPAREL MFG	146,600	85,400	-61,200	53,300	56,100	2,800	21,300	21,400	100	5,700	20,400	14,700
LEATHER MFG	12,900	5,400	-7,500	10,000	7,300	-2,700	2,200	3,400	1,200	0	400	400
LOG/LUMBER PROD	2,800	2,500	-300	700	600	-100	1,300	600	-700	0	100	100
FURN MFG	10,800	5,100	-5,700	3,800	2,900	-900	2,000	2,600	600	0	0	0
MISC MFG	106,900	26,500	-80,400	34,900	24,400	-10,500	33,400	13,500	-19,900	1,100	1,800	700
UTIL & SANIT	55,800	26,000	-29,800	6,100	2,800	-3,300	19,000	8,200	-10,800	800	300	-500
WHOLE & DURABLE	87,600	46,800	-40,800	12,100	6,900	-5,200	12,500	9,100	-3,400	2,100	2,500	400
BLD/HD/DEPT ST	94,500	56,500	-38,000	11,200	10,200	-1,000	16,000	29,400	13,400	1,300	1,500	200
FOOD STORE	75,400	54,900	-20,500	14,700	18,300	3,600	12,300	13,000	700	800	4,000	3,200
MV ST/SERV STA	19,900	14,200	-5,700	2,900	3,300	400	4,000	3,800	-200	0	600	600
EAT/DRINK ESTAB	83,700	82,800	-900	23,500	27,300	3,800	17,600	23,500	5,900	10,100	21,700	11,600
SPEC RETAIL	187,700	114,800	-72,900	25,000	20,800	-4,200	32,900	22,600	-10,300	1,800	4,800	3,000
BUSINESS SERV	127,800	128,600	800	14,500	21,100	6,600	20,300	49,000	28,700	1,000	6,400	5,400
REPAIR SERV	44,100	18,900	-25,200	8,800	9,200	400	13,600	12,500	-1,100	400	1,100	700
DOMEST SERV	17,400	9,900	-7,500	4,700	5,100	400	34,400	22,900	-11,500	200	1,000	800
PERSONAL SRVC	87,800	52,300	-35,500	26,300	19,200	-7,100	42,800	23,500	-19,300	4,800	3,400	-1,400
ENTER & REC	46,700	52,400	5,700	2,700	5,200	2,500	7,500	9,200	1,700	600	1,000	400
Subtotal	1,246,200	811,200	-435,000	264,900	249,800	-15,100	299,200	272,700	-26,500	31,000	72,100	41,100
Total	3,011,700	2,201,200	-810,500	508,100	521,900	13,800	707,200	831,400	124,200	49,500	141,100	91,600

SOURCE: 1970 Figures from U.S. Bureau of the Census, Public Use Samples (1%).
1980 Figures from U.S. Bureau of the Census, Public Use Microdata Samples (5%).

In the following section, I present the results of the shift share model for New York on forty-six industries, spanning two decades, and five ethnic and racial groups. This method will provide information on the number of industries in which job competition for the U.S.-born population is a factor in the city of New York. The research will address three primary questions:

1) Do instances of job competition exist and if so in what industrial categories?

2) Does industrial dualism[29] make a difference in the number of industries that have instances of displacement or complementarity? In other words, are industries in the core more or less likely to have patterns of job displacement or complementary as a result of increased immigrant employment share?

3) Do patterns of job displacement or complementarity increase or decrease when the forty-six industries in this study are analyzed according to whether they grew or declined between 1970 and 1980?

Six tables highlight several patterns and trends related to these three questions and are presented below.

Table 3.3 organizes the population according to five racial and ethnic groups (white, black, Asian, Puerto Rican, Latino) and nativity (native or foreign-born), and shows the number of industrial jobs per sector held by each group in New York in 1970 and 1980. The fourth column ("Expected") in the table shows the number of jobs each group would have gained or lost had its gains or losses been proportional to the growth or decline in the overall New York economy. During this period, industrial employment declined by 13 percent, from 4,288,700 jobs in 1970 to 3,741,900 in 1980. The table then indicates how many jobs the group lost and the difference between "expected" and "actual" employment losses.

Table 3.3 allows us to get a glimpse of the different dynamics affecting the process of job change in New York during 1970 and 1980. Here we can see that the biggest losers of jobs were whites, Puerto Ricans (native and foreign-born), and then blacks. Combined this group lost over 400,000 jobs in the core and over 200,000 in the periphery. However, some of this loss is offset by moderate job gain by some non-white groups (both native and foreign-born) in both sectors. This gain was not nearly enough to provide New York with an overall positive growth rate. On the contrary, New York experienced an overall decline of 13 percent. What accounts for white and Puerto Rican job loss and the

[29]The categorization of industries into either the "core" or "periphery" is implemented to correspond to dual labor market theory.

remaining group's job gain? Is job competition in the form of displacement between some of these groups partly to blame for this job loss? In the following section I attempt to answer these questions.

TABLE 3.3

CHANGES IN INDUSTRIAL EMPLOYMENT FOR SELECTED ETHNIC GROUPS
NEW YORK, 1970 - 1980

	EMPLOYMENT		JOB CHANGE			
					Actual -	A - E/
Groups in Core Industries	1970	1980	Expected	Actual	Expected	1970 Emp.
NATIVE-BORN White	1,466,000	1,155,700	-73,300	-310,300	-237,000	-16.17%
NATIVE-BORN Blacks	365,500	422,000	-18,275	56,500	74,775	20.46%
NATIVE-BORN PUERTO RICANS	142,900	43,400	-7,145	-99,500	-92,355	-64.63%
ISLAND-BORN PUERTO RICANS	1,800	81,900	-90	80,100	80,190	4455.00%
FOREIGN-BORN Latinos	77,600	96,600	-3,880	19,000	22,880	29.48%
FOREIGN-BORN Asians	12,900	59,200	-645	46,300	46,945	363.91%
Groups in Periphery Industries						
NATIVE-BORN White	917,400	607,100	-211,002	-310,300	-99,298	-10.82%
NATIVE-BORN Blacks	271,700	205,800	-62,491	-65,900	-3,409	-1.25%
NATIVE-BORN PUERTO RICANS	159,800	29,100	-36,754	-130,700	-93,946	-58.79%
ISLAND-BORN PUERTO RICANS	1,700	66,900	-391	65,200	65,591	3858.29%
FOREIGN-BORN Latinos	86,200	118,400	-19,826	32,200	52,026	60.35%
FOREIGN-BORN Asians	25,200	67,100	-5,796	41,900	47,696	189.27%

SOURCE: Author's estimates based on data taken from U.S. Census Bureaus 1970 PUS (5%, 1/100) and 1980 PUMS (5%, "A" Sample) files.

To assess the impact of industrial and occupational compositional change, I have used "shift-share" analysis (see Methods Chapter 2). Table 3.4 below provides the "share" result for each industry by racial and ethnic group by nativity.

Table 3.4

INDUSTRIAL SHIFT SHARE MODEL RESULTS FOR "SHARE" FOR NEW YORK, 1970-1980 (% of Total Industry Emp.)

		Change due to SHARE			*Change due to SHARE*		
	Total Emp.	**U.S. Born**			**Immigrant**		
	1980	**Whites**	**Blacks**	**P. Ricans**	**P. Ricans**	**Latinos**	**Asians**
CORE (Growth)							
TOBACCO MFG	2,000	-16.27	10.00	0.00	7.97	-1.74	0.00
TRANSP EQ MFG	15,500	-5.05	-3.75	5.81	-2.09	2.96	2.58
WHOL NONDURABLE	109,900	-0.84	2.60	-0.34	-0.55	0.44	3.20
HEALTH SRV	330,800	-0.10	-4.19	2.78	-2.04	-2.58	0.81
PUBLIC ADMIN	183,500	-9.27	6.54	3.16	1.24	0.39	-1.73
(Decline)							
MINING	2,900	7.37	-14.12	3.45	0.00	0.00	0.00
CONSTRUCTION	111,700	2.29	-2.99	2.78	1.57	0.36	0.77
FOOD MFG	30,400	-2.80	1.40	7.24	1.90	4.00	-0.16
PAPER MFG	18,400	0.17	-1.88	-38.28	1.68	6.23	-1.80
PRINTING & PUB	113,200	5.11	0.78	-0.57	-1.22	1.03	-0.17
CHEMICAL MFG	19,700	4.78	-3.12	-18.38	1.40	4.31	-0.15
PETRO/COAL MFG	1,900	19.57	1.94	0.00	8.08	-6.67	0.00
RUBB & MISC MFG	10,600	-9.39	2.53	6.60	-5.42	15.21	2.83
ST/CLY/GLS MFG	6,600	-13.70	4.28	7.58	0.48	-0.50	-2.20
METAL INDUST	33,100	-2.29	0.39	-6.17	-2.37	3.88	0.45
GEN MACH MFG	18,800	-2.94	0.22	7.98	-0.89	4.87	-0.78
ELECT MACH MFG	24,300	1.63	-5.89	9.88	1.22	-2.44	-2.37
PHT/TIME EQ MF	7,300	-3.42	-10.91	10.96	0.53	-9.28	-16.06
HIGH TECH MFG	45,900	-6.19	0.78	5.45	-0.06	0.54	0.35
AIR ORDINANCE	3,700	4.47	9.98	0.00	9.64	-11.52	-11.07
RAIL SRVC	9,500	24.78	-24.73	2.11	0.43	3.16	2.11
TRK/WARE/POST	77,700	8.47	-7.43	-2.74	1.08	-0.38	-0.90
TRANSPORTATION	153,500	1.60	2.13	-2.99	-0.40	1.41	0.16
COMMUNICATIONS	66,000	5.52	-3.54	-12.37	2.07	-0.81	-0.28
FIRE	409,400	0.72	0.26	1.89	0.65	-0.27	1.04
EDUCATION	245,700	3.98	-0.10	-0.85	0.71	0.07	-1.01
PROF SRVC	261,700	0.43	1.67	-2.62	0.38	-0.38	-1.60
Core Total	2,313,700	0.18	0.04	0.0002	0.02	0.01	0.00
PERIPHERY (Growth)							
EAT/DRINK ESTAB	159,000	1.12	0.17	-4.36	-2.71	-0.34	-4.21
BUSINESS SERV	206,800	-8.00	7.52	0.25	-0.64	-1.16	1.15
ENTER & REC	68,500	6.18	-0.79	2.04	0.09	0.13	-1.23
(Decline)							
AG FOR & FISH	7,500	8.50	-12.19	2.67	-2.06	3.08	0.49
TEXTILE MFG	36,500	-2.79	1.74	-3.40	-2.23	2.23	0.90
APPAREL MFG	188,000	-4.12	0.04	7.71	-2.53	1.95	2.87
LEATHER MFG	17,200	-2.71	4.77	16.28	-2.16	-0.63	1.74
LOG/LUMBER PROD	3,800	3.77	-19.34	5.26	-0.59	1.59	2.63
FURN MFG	10,700	-7.12	7.12	5.61	-1.54	9.13	0.00
MISC MFG	68,800	-7.63	-3.03	-0.14	10.26	4.17	-0.04
UTIL & SANIT	37,600	15.99	-3.53	-7.46	2.94	-3.19	-1.08
WHOLE & DURABLE	65,900	6.70	-0.22	3.19	1.50	-3.01	-1.91
BLD/HD/DEPT ST	98,300	-5.00	11.10	-5.88	2.24	-1.85	-0.80
FOOD STORE	91,600	-1.75	1.45	2.79	0.41	0.75	1.61
MV ST/SERV STA	22,100	1.52	0.26	4.98	1.03	-0.64	2.71
SPEC RETAIL	164,500	3.50	-1.55	-6.08	1.54	-0.44	1.18
REPAIR SERV	42,900	-12.78	-0.96	5.36	2.38	2.25	0.56
DOMEST SERV	39,600	2.39	-13.00	2.27	-0.03	-1.51	1.87
PERSONAL SERV	98,900	5.23	-4.79	-2.36	1.21	-1.94	-6.78
Periphery Total	1,428,200	-0.24	-0.07	-0.0004	-0.04	-0.02	-0.01
TOTAL	3,741,900						

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS and 1980 PUMS files.
Industrial classification by Core and Periphery adapted from Tolbert, Horan and Beck (1980).

All forty-six industries in this table are classified according to dual labor market theory and are listed following Tolbert, Horan and Beck's (1980) typology. I extend the authors' matrix and further classify the industries according to those that grew between 1970 and 1980, and those that declined during the same period per sector. In New York's core sector 5 industries grew and 22 declined while in its periphery, 3 grew and 16 declined. These two patterns alone, show that during the 1970s, New York's economy, unlike Los Angeles's, declined.

Table 3.4 provides data on the "share" results of the shift share model for three major groups of workers; those born in the U.S. (whites, blacks, and Puerto Ricans) and those abroad (Puerto Ricans, Latinos, and Asians). The data in column 2 describe the total employment of each industry in the region. The "share" results of the model are then presented in columns' 3-8 for each group and calculated in percentages of total employment to measure the relative change in employment for each group.

The share results in Table 3.4 show several combinations of both native and immigrant losses and gains in industrial employment. These gains and losses reflect different instances of displacement and complementarity that, in part, are attributable to immigrant growth and other factors such as industrial restructuring, the general economic climate and other factors not tested in this model. Analyzed as a whole, this table provides much information about specific ethnic and native/foreign born employment change but very little room for interpreting trends and patterns. To better make sense of the shift share results and what they imply for job competition, I have coded different immigrant employment "share" patterns that assist in identifying industries in which job competition possibly is occurring between immigrant and native born workers.

Table 3.5 lists the job competition patterns for each industry and group. I use the code "CD" to describe the pattern of *complete displacement*, a situation in which a native group's job loss occurs simultaneously with a gain in all three immigrant group's share. Because mainland born Puerto Ricans are closer substitutes to island-born Puerto Ricans,

job loss for the former coupled with job gain for the latter, regardless of immigrant Asian or Latino job loss or gain, is classified as complete displacement. Patterns of native and immigrant displacement in the same industry that are not due to increases in the employment of immigrants but rather to other factors such as white employment share gain or industrial restructuring is coded as "D*." Partial displacement -- "PD," refers to native displacement (negative employment share) while one or two immigrant group's gain in their employment share. In this situation, displacement is "partial" because other native and immigrant groups have gained in their employment share. *Complete complementarity* is coded as "CC" and refers to situations that are the exact opposite of complete displacement -- patterns of native job gain simultaneously with immigrant (all three) employment gain. Finally, "NC" conveys patterns of native job gain simultaneously with immigrant job loss.

While Table 3.5 summarizes the "share" results of the model for each industry, it provides few recognizable patterns with which to analyze job competition. To ameliorate this problem, I have created several tables that examine specific characteristics of industries in which displacement or complementarity is prevalent. In addition, I have also grouped and analyzed the shift share model results and the displacement or complementarity effects for the top fifteen industries with the largest number of immigrants and the top fifteen industries with the largest number of native born workers. This will allow us to asses if new immigrants are having an inordinate impact on industries that employ a large number of their immigrant counterparts and likewise on those industries that have a large number of non-immigrants. I now turn to an analysis of these data to see if they can provide useful insights in how industrial change and dualism mediate labor market patterns of job competition.

Table 3.5

Effects of Job Competition on Native Workers by Immigrants and Industries, New York

	EFFECTS OF JOB COMPETITION ON NATIVE WORKERS		
	Whites	**Blacks**	**P. Ricans**
CORE: Growth Industries			
TOBACCO MFG	PD	NC	CC
TRANSP EQ MFG	PD	PD	NC
WHOL NONDURABLE	PD	NC	PD
HEALTH SRV	PD	PD	CC
PUBLIC ADMIN	PD	NC	CC
CORE: Decline Industries			
MINING	CC	D*	CC
CONSTRUCTION	CC	CD	CC
FOOD MFG	PD	NC	NC
PAPER MFG	NC	PD	CD
PRINTING & PUB	NC	NC	PD
CHEMICAL MFG	CC	PD	CD
PETRO/COAL MFG	NC	NC	CC
RUBB & MISC MFG	PD	NC	NC
ST/CLY/GLS MFG	D*	NC	NC
METAL INDUST	PD	NC	PD
GEN MACH MFG	PD	NC	NC
ELECT MACH MFG	NC	PD	NC
PHT/TIME EQ MF	D*	D*	NC
HIGH TECH MFG	PD	CC	CC
AIR ORDINANCE	NC	NC	NC
RAIL SRVC	CC	PD	CC
TRK/WARE/POST	NC	PD	PD
TRANSPORTATION	NC	NC	PD
COMMUNICATIONS	NC	PD	PD
FIRE	NC	NC	NC
EDUCATION	NC	PD	CD
PROF SRVC	NC	NC	PD
PERIPHERY: Growth Industries			
EAT/DRINK ESTAB	NC	NC	D*
BUSINESS SERV	PD	NC	NC
ENTER & REC	NC	PD	NC
PERIPHERY: Decline Industries			
AG FOR & FISH	NC	PD	NC
TEXTILE MFG	PD	NC	PD
APPAREL MFG	PD	NC	NC
LEATHER MFG	PD	NC	NC
LOG/LUMBER PROD	NC	PD	NC
FURN MFG	PD	NC	NC
MISC MFG	PD	PD	CD
UTIL & SANIT	NC	PD	PD
WHOLE & DURABLE	NC	PD	NC
BLD/HD/DEPT ST	PD	NC	PD
FOOD STORE	CD	CC	CC
MV ST/SERV STA	NC	NC	NC
SPEC RETAIL	NC	PD	PD
REPAIR SERV	CD	CD	CC
DOMEST SERV	NC	PD	CC
PERSONAL SERV	NC	PD	PD

+ Industrial classification by Core and Periphery adapted from Tolbert, Horan and Beck (1980).

"CD" refers to complete displacement, "D" refers to displacement due to factors other than immigration, and "P refers to native displacement due to one or two immigrant group's job gain.*

"CC" refers to complete complementarity, while "NC" conveys native job gain the result of immigrant job loss.

Does Competition Exist?

Table 3.6 provides a general summary of job competition patterns for three native-born groups in core and peripheral sectors in New York. The data in the two columns for each native born group show the number of industries that fall into each job competition pattern. The first column provides the actual number of industries that meet the criteria of one of the five patterns, while the second column provides the percentage total of this figure. This table is important because it provides us with a summary of the different competition patterns that are possible for all forty-six industries and for each native-born group as a result of increased immigrant employment share.

Table 3.6
Summary of Immigrant Job Competition Patterns on Native Workers, New York

	Whites		Blacks		Puerto Ricans	
JOB COMPETITION PATTERNS	No. Indust.	% of Total	No. Indust.	% of Total	No. Indust.	% of Total
1. Complete Displacement	2	0.04	2	0.04	4	0.09
2. Partial Displacement	17	0.37	18	0.39	12	0.26
"Overall" Displacement	***19***	***0.41***	***20***	***0.43***	***16***	***0.35***
3. Displ. Due to Other Factors	2	0.04	2	0.04	1	0.02
4. Complete Complement.	4	0.09	2	0.04	11	0.24
5. Complement. Due to Immig.	21	0.46	22	0.48	18	0.39
"Overall" Complement	***25***	***0.54***	***24***	***0.52***	***29***	***0.63***
TOTAL	46	1.00	46	1.00	46	1.00

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS (1%) and 1980 PUMS (5%) files.
NOTE: "Overall" Displacement is the sum of numbers1&2, while "overall" Complement is the sum of numbers 4 & 5.
TOTAL does not take into account "Overall" Displacement or Complement.

The data in this table show that both job displacement and complementarity exist in New York. However, more industries show complementarity than displacement for all three native-born groups. Combining "Complete Displacement" with "Partial Displacement" yields an overall displacement trend,[30] and combining "Complete

[30]It is important to distinguish between complete displacement and partial displacement

Complementarity" and "Complementarity Due to Immigrant Job Loss" produces an overall complement trend.[31] Comparing the job competition trends of overall displacement with overall complement shows that immigrants complement native-born groups in much larger proportions than they displace them.[32] For mainland born Puerto Ricans, 29 industries (63%) experienced instances of complementarity as compared to 16 industries (35%) which had displacement. Whites and blacks experienced similar patterns of displacement (41 and 43 percent respectively) and complementarity (54 and 52 percent respectively).

What is interesting about this table is pattern number five that shows the number of industries in which immigrant groups were displaced by native born workers. The above finding suggests that, similar to native-born displacement as a result of increased immigration, immigrants are likewise displaced in particular industries as a result of native-born employment gains. As the regional labor market fluctuates through cycles of growth and decline, different groups compete for different jobs but displacement can harm either immigrants or the native-born. In New York, this was especially true for whites and blacks who experienced complements in 46 and 48 percent of their total industries, respectively.

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because the former is an instance were all three native groups have been displaced in a particular industry while the latter includes the displacement of one or two native-born groups. None-the-less, I combine these two patterns to get an "overall" displacement" trend while at the same time acknowledging that this combination is not as accurate (i.e. some native born groups in an industry in this category may actually be gaining jobs)if analyzed individually.

[31]Combining these two job competition patterns (Complete Complement with Complementarity Due to Immigrant Job Loss) provides us with an "overall" complement figure that is broad based because they both describe native-born employment share gain the result of either immigrant employment share loss or gain. None-the-less, in this study I differentiate between these two patterns describe instances of immigrant job displacement as a result of native-born white, black, and Mexican employment share gain.

[32]The exception to this is for native-born whites in Los Angeles.

Does Industrial Dualism and Industrial Change Matter?

The second and third inquiries of this section are whether industrial dualism (core and periphery) and industrial change (growth or decline) matter in stimulating or thwarting job competition. Tables' 3.7, 3.8, and 3.9 provide data on the five individual job competition patterns analyzed separately by industrial dualism and industrial change. Indeed, as the data in these tables show, industrial dualism and industrial change make very little difference in stratifying the five job competition patterns.

Industrial Dualism

As Table 3.7 shows in the core sector of New York, there is a higher proportion of industries where immigrants more often complement than displace native workers.[33] Similarly, with the exception of blacks, a clear majority of the industries in the periphery show that immigrants complement, as opposed to displace, native-born labor. No one sector showed an overwhelming concentration of either displacement or complementarity. That is, complementarity, while more frequent than displacement, is not largely concentrated in either the core or periphery. Thus, at the outset, these two patterns suggest that industrial dualism does not seem to concentrate job displacement in the periphery as originally hypothesized. No clear pattern of either displacement or complement emerged in the two sectors implying that industrial dualism has little effect in stratifying job competition (displacement or complement). However, a careful and more detailed analysis of the differences between the data for the five job competition patterns reveal several important findings.

[33]The only exception is the native born white group which had a slightly larger percentage (48%)of industries showing displacement than complementarity (41%).

Table 3.7
Summary of Immigrant Job Competition Patterns for Native Workers by Industrial Dualism, New York

	Whites		Blacks		Puerto Ricans	
	No. Indust.	% of Sec. Total	No. Indust.	% of Sec. Total	No. Indust.	% of Sec. Total
CORE INDUSTRIES						
1. Complete Displacement	0	0.00	1	0.04	3	0.11
2. Partial Displacement	10	0.37	9	0.33	7	0.26
"Overall" Displacement	***10***	***0.37***	***10***	***0.37***	***10***	***0.37***
3. Displ. Due to Other Factors	2	0.07	2	0.07	0	0.00
4. Complete Complement.	4	0.15	1	0.04	8	0.30
5. Complement. Due to Immig.	11	0.41	14	0.52	9	0.33
"Overall" Complement	***15***	***0.56***	***15***	***0.56***	***17***	***0.63***
TOTAL*	27	1.00	27	1.00	27	1.00
PERIPHERY INDUSTRIES						
1. Complete Displacement	2	0.11	1	0.05	1	0.05
2. Partial Displacement	7	0.37	9	0.47	5	0.26
"Overall" Displacement	***9***	***0.47***	***10***	***0.53***	***6***	***0.32***
3. Displ. Due to Other Factors	0	0.00	0	0.00	1	0.05
4. Complete Complement.	0	0	1	0.05	3	0.16
5. Complement. Due to Immig.	10	0.53	8	0.42	9	0.47
"Overall" Complement	***10***	***0.53***	***9***	***0.47***	***12***	***0.63***
TOTAL*	19	1.00	19	1.00	19	1.00

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS (1%) and 1980 PUMS (5%) files.
NOTE: "Overall" Displacement is the sum of numbers1&2, while "overall" Complement is the sum of numbers 4 & 5.
TOTAL * is the sum of "Overall Displacment" and "Overall Complement."

New York's core sector, several industries for whites and blacks experienced "displacement as a result of factors other than immigration" (pattern number 3). That is, native-born white and black labor is being displaced in those particular industries because of either industrial restructuring, white or other group employment gain, or other factors not tested in this model. This suggests that immigrants may be playing a minimal role in several core industries in the displacement of white and black labor in New York.

Last, job gains for native workers come largely at the expense of immigrant labor (see pattern number 5 for each sector). That is, the employment gains that native labor accrues, do not similarly accrue to the immigrant population. This finding suggests that

competition is a two way phenomenon: both immigrants and natives can displace each other.

Industrial Growth

Industrial change, whether an industry grew or declined between 1970 and 1980, may influence whether job displacement or complementarity occurs in an industry. In declining industries, immigrant and native labor is more likely to displace one another than in a robust (growth) labor market. This fundamental economic theorem, which is critical to my analysis, is absent in the job competition literature (see Chapter 1 "Participation and Economic Effects of immigration") and is addressed in the following section. Table 3.8 summarizes the job competition patterns according to those industries that declined and those that grew during the 1970s.

Table 3-8
Summary of Immigrant Job Competition Patterns on Native Workers by Industrial Dualism and Change

	Whites		Blacks		Puerto Ricans	
	Number of Industries Affected		Number of Industries Affected		Number of Industries Affected	
CORE INDUSTRIES						
DISPLACEMENT	12		12		10	
Growth		5		2		1
Decline		7		10		9
COMPLEMENTARY	15		15		17	
Growth		0		3		4
Decline		15		12		13
PERIPHERY INDUSTRIES						
DISPLACEMENT	9		10		7	
Growth		1		1		1
Decline		8		9		6
COMPLEMENTARY	10		9		12	
Growth		2		2		2
Decline		8		7		10

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS (1%) and 1980 PUMS (5%) files.

This table lists those industries for each sector and native-born group according to whether native-born workers are displaced or complemented[34] by the employment of

[34]The "Displaced" row category has been aggregated to include the three displacement

immigrants. The table also separates the "Displacement" and "Complementarity" categories based on whether these industries grew or declined during the 1970s.

Because New York had more industries in the core that declined (.81 or 22 out of 27) rather than grow, one would expect that a larger percentage of the negative immigrant effects (displacement) would be concentrated in the decline sectors of the core. I would expect the corollary to occur in the peripheral sector. Below, I present data on employment share for industries in the core and periphery analyzed between growth and decline and speculate on the two competition (displacement or complementarity) patterns.

New York did not follow job competition patterns corresponding to my initial hypothesis that they would be stratified among the growing and declining industries depending on whether the pattern was complementarity or displacement. No clear patterns emerged showing job displacement to be more prevalent in the declining industries and complement to be concentrated in the growth industries. Complementarity was just as likely to be concentrated in the decline as well as the growth industries in both sectors. This finding suggests that both instances of immigrant displacement and complementarity occur regardless of whether an industry is declining or growing. Industrial change makes no difference in stratifying complementary or negative (displacement) effects of increased immigration.

Thus far, this analysis has focused on industries that give an adequate but broad picture of where immigrant employment may be displacing or complementing native labor. These industries comprise thousands of jobs. To better interpret the shift share results and job competition trends, I have calculated the number of actual jobs as well as a total percentage (per growth or decline and sector) of the jobs affected in those industries where displacement or complementarity is likely (see table 3.9 for these results) per each

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patterns (numbers 1-3) discussed earlier. Likewise, the "Complementarity" row category has been aggregated to include the two complement patterns (numbers 4 & 5) also discussed earlier.

native group.

Table 3.9
Likely Number of Jobs Affected by Competition Effects According to Industrial Dualism and Change

	Whites			Blacks			Puerto Ricans		
	No. of Jobs Affected	*Percent of Ind. Change	**Percent of Sector	No. of Jobs Affected	Percent of Ind. Change	Percent of Sector	No. of Jobs Affected	Percent of Ind. Change	Percent of Sector
CORE INDUSTRIES									
DISPLACEMENT									
Growth	641,700	1.00	27.73	346,300	54.00	14.97	109,900	17.10	4.75
Decline	152,700	9.80	6.60	583,200	34.90	25.21	989,000	59.20	42.75
COMPLEMENTARY									
Growth	0	0.00	0.00	295,400	46.00	12.77	531,800	82.90	22.98
Decline	1,491,300	90.20	64.46	1,088,800	65.20	47.06	671,000	41.20	29.00
Total			98.79			100.00			99.48
PERIPHERY INDUSTRIES									
DISPLACEMENT									
Growth	206,800	47.60	14.48	68,500	15.80	4.80	159,000	36.60	11.13
Decline	554,000	55.70	38.79	529,500	53.30	37.07	504,600	50.80	35.33
COMPLEMENTARY									
Growth	227,500	52.40	15.93	365,800	84.20	25.61	275,300	63.40	19.28
Decline	439,900	44.30	30.80	464,400	46.70	32.52	489,300	49.20	34.26
Total			100.00			100.00			100.00

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS (1%) and 1980 PUMS (5%) files.
NOTE: *Percent of Ind. Change refers to the total number of jobs "afflected" for a specific category divided by the corresponding total number of jobs for either the growth or decline industries.
**Percent of Sector refers to the total number of jobs "affected" divided by the total number of jobs for either the core or periphery sector.

Whites in New York's core sector showed a larger percentage of industries with complemented jobs than with displaced ones. However, among blacks and Puerto Ricans, the number and proportion of total of complementary to displaced jobs is lower than for whites. In the peripheral sector whites had larger numbers of jobs that were displaced than those that were complemented (54% or over 790,000 jobs).

To further identify those industries most affected by the presence of immigrants, I analyzed the fifteen[35] industries with the largest number of immigrants with the fifteen industries with the largest number of native-born workers. This typology reveals whether those industries with the largest concentration of immigrants are having an inordinate effect on native employment. Likewise, analyzing those industries with the largest concentration of native labor indicates whether immigrant employment is having a positive (complement) or negative (displacement) effect on native employment.

Table 3.10 first lists for each region the top fifteen industries with the largest

[35]This number is arbitrary.

concentration of immigrant workers. Columns 2 and 3 identify whether these industries are in the core or periphery and whether they grew or declined between 1970 and 1980. The last three columns show the job competition patterns that emerged for native-born whites, blacks, and Puerto Ricans. At the bottom of each region I provide a summary of the data for columns 2 - 6.

TABLE 3. 10
Summary of Job Competition Effects for the Top 15 Industries With Largest Number of Immigrants and Native-Born, New York.

Top 15 Industries w/ Largest Number of Immigrants	Core or Periph.	Growth or Decline	*EFFECTS OF JOB COMPETITION* Whites	Blacks	P. R.
Apparel Mfg.	P	D	PD	NC	NC
Health Services	C	G	PD	PD	CC
Eat/Drinking Estab.	P	G	NC	NC	D*
FIRE	C	D	NC	NC	NC
Misc. Mfg.	P	D	PD	PD	CD
Business Services	P	G	PD	NC	NC
Specialty Retail	P	D	NC	PD	PD
Personal Services	P	D	NC	PD	PD
Professional Serv.	C	D	NC	NC	PD
Transportation	C	D	NC	NC	PD
Education	C	D	NC	PD	CD
Wholesale-N Dur.	C	G	PD	NC	PD
Food Store	P	D	CD	CC	CC
Public Admn.	C	G	PD	NC	CC
Print. & Publish.	C	D	NC	NC	PD
Total Core	8				
Total Periphery	7				
Total Growth		5			
Total Decline		10			
Total Displacement			6	5	8
Total Complement			9	10	7

Top 15 Industries w/ Largest Number of Native-born	Core or Periph.	Growth or Decline	*EFFECTS OF JOB COMPETITION* Whites	Blacks	P.R.
FIRE	C	D	NC	NC	NC
Health Services	C	G	PD	PD	CC
Professional Serv.	C	D	NC	NC	PD
Education	C	D	NC	PD	CD
Business Services	P	G	PD	NC	NC
Public Admn.	C	G	PD	NC	CC
Specialty Retail	P	D	NC	PD	PD
Transportation	C	D	NC	NC	PD
Print. & Publish.	C	D	NC	NC	PD
Eat/Drinking Estab.	P	G	NC	NC	D*
Bld/Hd/Dept. Stores	P	D	PD	NC	PD
Wholesale-N Dur.	C	G	PD	NC	PD
Construction	C	D	CC	CD	CC
Apparel Mfg.	P	D	PD	NC	NC
Trk/Ware/Post	C	D	NC	PD	PD
Total Core	10				
Total Periphery	5				
Total Growth		5			
Total Decline		10			
Total Displacement			6	5	8
Total Complement			9	10	7

"CD" refers to complete displacement, "D" refers to displacement due to factors other than immigration, and "PD" refers to native displacement due to one or two immigrant group's job gain.*
"CC" refers to complete complementarity, while "NC" conveys native job gain the result of immigrant job loss.

The immigrant concentrated industries show no clear job competition pattern as a result of immigrant employment in New York. Whites, blacks, and Puerto Ricans experienced displacement in as many industries as they did complementarity. In addition, the top fifteen immigrant concentrated industries were spread almost evenly among the core and peripheral categories. Because New York had more industries that declined than grew during the 1970s, I expected that these top fifteen industries would generally be declining. Indeed, ten of the fifteen immigrant-concentrated industries were expanding.

When compared to the immigrant concentrated industries, the top fifteen native concentrated industries yield disparate patterns. The top fifteen native-concentrated

patterns are similar to the immigrant concentrated industries only in that they were growing at about the same rate. For this region, most of the native-concentrated industries are in the core and the three native born groups show more instances (in most cases more than double) of complementarity than displacement due to immigrant employment. In industries with a large concentration of natives, immigrants have few, if any, displacement effects.

IV OCCUPATIONAL REPOSITIONING

The previous data indicate the extent of immigrant and native-born labor access to different sectors of the economy. However, they say little about the levels at which these workers are employed. Here, I look at occupational repositioning for the same ethnic groups under consideration in this paper.

Between 1970 and 1980, the New York economy, like the national economy, shifted from goods producing to services that resulted in expanded white-collar and service occupations. However, New York, similar to other Northeastern cities and unlike Los Angeles experienced a net decline of 546,800 jobs mostly concentrated in the clerical, semi-skilled, and personal service occupations.

Table 3.11 provides data for New York on the number of jobs per occupation for the total populations and by nativity. Immigrants gained in their employment share in almost every occupation between 1970 and 1980. Their largest gains are concentrated in the professional, clerical, and laborers' occupations that coincidentally also had some of the largest employment losses for the native-born population. Almost 250,000 immigrants gained in occupational employment while natives lost almost 800,000 jobs.

Table 3.11
Occupational Change in New York, 1970 - 1980 by Total Employment, Nativity, Race and Ethnicity

	Total Employment				*Nativity*					
					Immigrants			*U.S. Born*		
	1970	1980	DIFF	%Diff	1970	1980	Diff.	1970	1980	Diff.
MGRL & ADMIN	295,500	382,400	86,900	0.29	65,000	90,500	25,500	230,500	291,900	61,400
PROFESSIONAL	608,400	604,100	-4,300	-0.01	108,400	137,600	29,200	500,000	466,500	-33,500
SALES	307,900	341,500	33,600	0.11	61,200	90,100	28,900	246,700	251,400	4,700
CLERICAL	1,231,000	919,400	-311,600	-0.25	175,700	206,300	30,600	1,055,300	713,100	-342,200
CRAFT	412,000	314,200	-97,800	-0.24	111,700	130,000	18,300	300,300	184,200	-116,100
SEMI-SKILLED	539,900	317,400	-222,500	-0.41	180,700	188,200	7,500	359,200	129,200	-230,000
TRANSPORT	151,500	116,300	-35,200	-0.23	19,000	29,400	10,400	132,500	86,900	-45,600
LABORERS	148,200	157,100	8,900	0.06	29,200	57,400	28,200	119,000	99,700	-19,300
PRVT HSHID SRV	64,200	33,000	-31,200	-0.49	20,200	16,100	-4,100	44,000	16,900	-27,100
PROTECTIVE SRV	69,700	79,500	9,800	0.14	6,200	13,600	7,400	63,500	65,900	2,400
FOOD & FD PREP SRV	141,200	152,100	10,900	0.08	51,700	67,800	16,100	89,500	84,300	-5,200
HEALTH SRV	60,900	91,300	30,400	0.50	13,400	37,300	23,900	47,500	54,000	6,500
JANITORIAL & BLDG S	102,800	126,100	23,300	0.23	31,700	56,100	24,400	71,100	70,000	-1,100
PERSONAL SRV	151,700	93,200	-58,500	-0.39	33,600	32,100	-1,500	118,100	61,100	-57,000
FARM FOREST FISH	3,800	14,300	10,500	2.76	700	3,700	3,000	3,100	10,600	7,500
Total	4,288,700	3,741,900	-546,800	-0.13	908,400	1,156,200	247,800	3,380,300	2,585,700	-794,600

	WHITES			*LATINOS*			*BLACKS*			*ASIANS*		
	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.
MGRL & ADMIN	255,900	289,200	33,300	16,600	29,300	12,700	18,600	46,500	27,900	3,800	15,700	11,900
PROFESSIONAL	505,900	439,500	-66,400	28,900	33,700	4,800	60,500	99,000	38,500	10,800	28,400	17,600
SALES	262,000	236,500	-25,500	22,200	39,200	17,000	21,300	51,300	30,000	1,900	10,800	8,900
CLERICAL	913,500	552,000	-361,500	111,500	102,900	-8,600	193,800	229,900	36,100	9,000	24,800	15,800
CRAFT	294,100	192,900	-101,200	55,000	52,500	-2,500	60,800	56,100	-4,700	1,400	7,200	5,800
SEMI-SKILLED	285,400	115,500	-169,900	144,500	108,400	-36,100	98,400	61,300	-37,100	9,900	22,700	12,800
TRANSPORT	93,200	61,000	-32,200	20,800	17,200	-3,600	37,400	34,900	-2,500	100	2,100	2,000
LABORERS	92,200	71,800	-20,400	19,300	36,800	17,500	34,900	42,600	7,700	1,200	3,400	2,200
PRVT HSHID SRV	17,200	7,700	-9,500	5,100	4,500	-600	41,200	19,500	-21,700	400	800	400
PROTECTIVE SRV	53,500	43,300	-10,200	4,300	8,000	3,700	11,500	27,200	15,700	100	600	500
FOOD & FD PREP SRV	81,700	75,800	-5,900	27,400	26,700	-700	22,500	27,900	5,400	9,000	18,800	9,800
HEALTH SRV	20,000	21,700	1,700	9,000	10,600	1,600	31,400	54,700	23,300	100	2,300	2,200
JANITORIAL & BLDG S	44,100	45,400	1,300	23,700	33,600	9,900	34,300	43,700	9,400	200	1,700	1,500
PERSONAL SRV	90,800	40,300	-50,500	19,200	16,700	-2,500	39,700	33,500	-6,200	1,500	1,300	-200
FARM FOREST FISH	2,200	8,600	6,400	600	1,800	1,200	900	3,300	2,400	100	500	400
Total	3,011,700	2,201,200	-810,500	508,100	521,900	13,800	707,200	831,400	124,200	49,500	141,100	91,600

Occupational Segments	*Total Employment*				*Immigrants*			*U.S. Born*		
	1970	1980	DIFF	%Diff	1970	1980	Diff.	1970	1980	Diff.
I. Primary	869,600	1,002,300	132,700	0.15	158,400	238,600	80,200	711,200	763,700	52,500
Craft	332,300	278,900	-53,400	-0.16	88,500	107,600	19,100	243,800	171,300	-72,500
S. Primary	1,819,850	1,439,150	-380,700	-0.21	334,300	398,100	63,800	1,485,550	1,041,050	-444,500
Secondary	1,266,950	1,021,550	-245,400	-0.19	327,200	411,900	84,700	939,750	609,650	-330,100
Total	4,288,700	3,741,900	-546,800	-0.13	908,400	1,156,200	247,800	3,380,300	2,585,700	-794,600

	WHITES			*LATINOS*			*BLACKS*			*ASIANS*		
	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.
I. Primary	731,500	744,500	13,000	47,500	77,200	29,700	75,400	133,400	58,000	12,600	40,400	27,800
Craft	229,600	162,400	-67,200	44,700	40,600	-4,100	52,300	56,600	4,300	4,800	15,300	10,500
S. Primary	1,320,400	848,800	-471,600	190,500	175,350	-15,150	289,500	355,600	66,100	15,100	43,250	28,150
Secondary	730,200	445,500	-284,700	225,400	228,750	3,350	290,000	285,800	-4,200	17,000	42,150	25,150
Total	3,011,700	2,201,200	-810,500	508,100	521,900	13,800	707,200	831,400	124,200	49,500	141,100	91,600

SOURCE: 1970 Figures from U.S. Bureau of the Census, Public Use Samples (1/100)
1980 Figures from U.S. Bureau of the Census, Public Use Microdata Samples, (5%, "A" Sample)

An alternative way to classify occupations are by segments (Gordon, Edwards and Reich, 1982). The bottom third of table 3.11 shows data on the number of jobs per occupational segment for the total population and by nativity.[36] As the data for the four occupational segments show, the largest employer in New York in 1970 is the subordinate

[36]Appendix B describes how I delineate and classify all Census defined categories into these four segments.

primary, followed by the secondary, independent primary, and craft. During the 1970s, occupations that are characterized in the subordinate primary declined by 21 percent, followed by the secondary (-19%) and the craft (-16%). The independent primary, however, experienced a gain of 15 percent. When disaggregated by nativity, the data show that native workers experienced the largest loss of jobs in the subordinate primary, secondary and craft occupations. However, these losses were somewhat offset by the large growth of immigrant employment in each of the four segments, and by native growth in the independent primary.

Similar to industries in New York, occupational growth is concentrated among the immigrant and minority populations (see Table 3.11) while whites and the native-born lost in their concentration. What can shift share tell us about the occupational employment change for these population groups? Is competition a factor in white and native occupational job loss? In the following section I analyze data from the shift share model results implemented on two occupational typologies; 1) fifteen broadly defined categories, and 2) four segments following "segmentation" theory.

1. Shift Share Model Results on 15 Occupational Categories

Table 3.12 shows the changes in occupational employment for the total population in Los Angeles and each ethnic group. As the Actual (job change) column shows, U.S.-born whites, blacks, and native-born Puerto Ricans suffered significant job loss in New York with the other racial and ethnic groups partially offsetting that loss by growth. These later groups far exceeded the "expected" job growth rate.[37] These data reveal a different set of dynamics affecting the process of job change and concentration in New York. As the New York economy waned, it absorbed large numbers of immigrants (Puerto Ricans,

[37]"Expected" growth rate calculates the number of jobs each group would have gained had its gains or losses been proportional to the growth or loss experienced by the overall economy (region) during this period, when employment declined by 13 percent in New York from 4,288,700 jobs in 1970 to 3,741,900 in 1980.

Latinos, and Asians) mostly in the services and in some white-collar jobs. White employment declined for the same reasons cited in an earlier study of New York City by Waldinger (1987). He attributes the decline in white employment in New York to their older age, higher death rate, lower birthrate, and out-migration to the suburbs or to other regions of the United States as compared to non-whites. In addition, Waldinger notes that a large cohort of European immigrants who arrived between 1900 and 1915 reached retirement age during the 1970s. In the following section, similar to "industrial repositioning" one, I address the extent of and type of occupational job competition as a result of the ethnic and racial repositioning of its labor force.

TABLE 3.12
CHANGES IN EMPLOYMENT FOR SELECTED ETHNIC GROUPS
NEW YORK, 1970 - 1980

	EMPLOYMENT		JOB CHANGE			
Groups in New York	1970	1980	Expected	Actual	Actual - Expected	A - E/ 1970 Emp.
TOTAL EMPLOYMENT	4,288,700	3,741,900	-557,531	-546,800	10,731	0.25%
NATIVE-BORN White	2,383,400	1,762,800	-309,842	-620,600	-310,758	-13.04%
NATIVE-BORN Blacks	637,200	627,800	-82,836	-9,400	73,436	11.52%
NATIVE-BORN Puerto Ricans	302,700	72,500	-39,351	-230,200	-190,849	-63.05%
FOREIGN-BORN Puerto Ricans	3,500	148,800	-455	145,300	145,755	4164.43%
FOREIGN-BORN Latinos	163,800	215,000	-21,294	51,200	72,494	44.26%
FOREIGN-BORN Asians	38,100	126,300	-4,953	88,200	93,153	244.50%

SOURCE: Author's estimates based on data taken from U.S. Census Bureaus 1970 PUS (1%) and 1980 PUMS (5%, "A" Sample) files.

Table 3.13 provides data on racial and ethnic groups according to their nativity status and the results of "share" from the shift share model (presented in absolute, and percentage figures in bold) in fifteen occupations. In addition, I have included the total employment in each occupation during 1980.

Table 3.13

OCCUPATIONAL SHIFT SHARE MODEL RESULTS FOR "SHARE" 1970-1980 (Absolute & Percent*)
NEW YORK

	Total 1980 Emp.	*Change due to SHARE* Whites	Blacks	P. Ricans	*Change due to SHARE* P. Ricans	Latinos	Asians
MGRL & ADMIN	382,400	6,021	12,801	-642	2,706	312	2,857
		1.57	**3.35**	**-0.17**	**0.71**	**0.08**	**0.75**
PROFESSIONAL	604,100	1,266	17,853	2,460	-3,991	-8,136	-4,910
		0.21	**2.96**	**0.41**	**-0.66**	**-1.35**	**-0.81**
SALES	341,500	-13,437	16,081	1,499	-7,501	4,445	6,201
		-3.93	**4.71**	**0.44**	**-2.20**	**1.30**	**1.82**
CLERICAL	919,400	-13,020	27,034	16,487	-15,791	-10,821	2,945
		-1.42	**2.94**	**1.79**	**-1.72**	**-1.18**	**0.32**
CRAFT	314,200	-592	-10,190	819	2,778	2,347	3,613
		-0.19	**-3.24**	**0.26**	**0.88**	**0.75**	**1.15**
SEMI-SKILLED	317,400	-12,452	-20,564	9,480	13,707	13,028	-5,396
		-3.92	**-6.48**	**2.99**	**4.32**	**4.10**	**-1.70**
TRANSPORT	116,300	1,566	-2,995	474	-15,306	2,369	1,679
		1.35	**-2.57**	**0.41**	**-13.16**	**2.04**	**1.44**
LABORERS	157,100	-11,912	-2,791	-1,100	12,500	9,039	897
		-7.58	**-1.78**	**-0.70**	**7.96**	**5.75**	**0.57**
PRVT HSHID SRV	33,000	600	-8,582	263	800	139	208
		1.82	**-26.01**	**0.80**	**2.42**	**0.42**	**0.63**
PROTECTIVE SRV	79,500	-9,496	8,986	-30	4,000	50	500
		-11.94	**11.30**	**-0.04**	**5.03**	**0.06**	**0.63**
FOOD & FD PREP SRV	152,100	4,497	-886	-4,636	-6,716	-238	-10,882
		2.96	**-0.58**	**-3.05**	**-4.42**	**-0.16**	**-7.15**
HEALTH SRV	91,300	-4,590	-9,674	-2,343	3,100	-2,796	1,706
		-5.03	**-10.60**	**-2.57**	**3.40**	**-3.06**	**1.87**
JANITORIAL SRV	126,100	307	-8,400	-5,192	4,126	-2,459	766
		0.24	**-6.66**	**-4.12**	**3.27**	**-1.95**	**0.61**
PERSONAL SRV	93,200	-3,278	-1,610	2,584	4,900	-108	-1,042
		-3.52	**-1.73**	**2.77**	**5.26**	**-0.12**	**-1.12**
FARM FOREST FISH	14,300	624	-691	-1,466	700	-21	-321
		4.37	**-4.83**	**-10.25**	**4.90**	**-0.14**	**-2.24**
Total	3,741,900	-5,926	-1,564	-754	-9	-414	-97
		-0.16	**-0.04**	**-0.02**	**-0.0002**	**-0.01**	**-0.0026**

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS and 1980 PUMS files.
* Percent of total employment per occupation in 1980 in bold.

This table shows several combinations of both native and immigrant occupational gain and loss. For example, both natives and immigrants gained in their employment share in several occupations, while losing in others. These gains and losses reflect different instances of native displacement and complement that, in part, are attributed to immigrant employment share gain. Other factors such as occupational change, the general economic climate of each region, and other variables not tested in this model can also be factors when both native and immigrant groups lose jobs in an occupation. It is important to note here that these share figures are derived from a shift share model (described in detail in Appendix Q) and are based on three different assumptions; 1) size of the group per

occupation, 2) each occupation's overall change rate, and 3) an "interactive" rate that looks at both of these factors. As a result, while a group may have lost in their absolute number in a particular occupation between 1970 and 1980, their shift "share" may be positive. In other words, relative to their group size and occupation growth or decline rate, a particular group may be either gaining in their share or losing, regardless of their absolute employment figure.

The data in table 3.13 show for New York, those occupations that suffered the severest decline in their employment also produced some of the largest share losses for immigrants and the native-born. For example, the occupations in New York with the largest job loss were in the clerical and semi-skilled where close to 535,000 jobs were lost. Both immigrant and native employment share in these occupations were mixed (i.e., share was negative or positive) suggesting that some groups may have contributed to the complement or displacement of native-born labor. Whites and blacks lost in their share in the semi-skilled occupations, while Puerto Ricans (mainland and island - born) and Latinos gained. This suggests that some of the white and black loss in this occupation was the result of Puerto Rican and other Latino gain.

The patterns in Table 3.14 assist in identifying occupations in which job competition (displacement or complementarity) is possible as a result of each group's employment share. The first column of this table lists the 15 occupational categories for both regions while the following three columns presents the job competition patterns for each occupation and for the three native born groups. The codes of "CC" and "NC" refer to complete complementarity and complete complementarity as a result of immigrant job loss, respectively. The three other codes are in reference to some form of displacement with "CD" and "PD" referring to complete displacement and partial displacement, respectively.

Table 3.14

Effects of Job Competition on Native Workers by Immigrants in Occupations for New York

	EFFECTS OF JOB COMPETITION ON NATIVE WORKERS		
	Whites	**Blacks**	**Puerto Ricans**
MGRL & ADMIN	CC	CC	CD
PROFESSIONAL	NC	NC	NC
SALES	PD	NC	NC
CLERICAL	PD	NC	NC
CRAFT	CD	CD	CC
SEMI-SKILLED	PD	PD	NC
TRANSPORT	NC	PD	NC
LABORERS	CD	CD	CD
PRVT HSHID SRV	CC	PD	CC
PROTECTIVE SRV	CD	CC	CD
FOOD & FD PREP SRV	NC	D*	D*
HEALTH SRV	PD	PD	PD
JANITORIAL SRV	NC	PD	PD
PERSONAL SRV	PD	PD	NC
FARM FOREST FISH	NC	PD	PD
Total			

"CD" refers to complete displacement, "D" refers to displacement due to factors other than immigration, and "PD" refers to native displacement due to one or two immigrant group's job gain.*
"CC" refers to complete complementarity, while "NC" conveys native job gain the result of immigrant job loss.

As table 3.15 shows for New York, the white population experienced partial displacement in more occupations than did the black or Puerto Rican population. Likewise, whites showed more instances of complementarity as a result of immigrant job loss than did blacks or Puerto Ricans suggesting "reverse displacement." This table then aggregates these patterns enabling us to identify trends into two simple categories of either "displacement" or "complementary."

Table 3.15
Summary of Immigrant Job Competition Patterns on Native Workers (Occupations), New York

JOB COMPETITION PATTERNS	Whites No. Occup.	Whites % of Total	Blacks No. Occup.	Blacks % of Total	Puerto Ricans No. Occup.	Puerto Ricans % of Total
1. Complete Displacement	3	0.07	2	0.04	3	0.07
2. Partial Displacement	5	0.11	7	0.15	3	0.07
"Overall" Displacement	***8***	***0.53***	***9***	***0.60***	***6***	***0.40***
3. Displ. Due to Other Factors	0	0.00	1	0.02	1	0.02
4. Complete Complement.	2	0.04	2	0.04	2	0.04
5. Complement. Due to Immig.	5	0.11	3	0.07	6	0.13
"Overall" Complement	***7***	***0.47***	***5***	***0.33***	***8***	***0.53***
TOTAL*	15	1.00	15	0.93	15	0.93

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS (1%) and 1980 PUMS (5%) files.
NOTE: "Overall" Displacement is the sum of numbers1&2, while "overall" Complement is the sum of numbers 4 & 5.
TOTAL* is the sum of "Overall" Displacement and Complement.

New York showed more instances of "complementarity due to immigration" and partial displacement for its white, black and Puerto Rican populations; its white and black population, however, experienced more "overall" displacement than complementarity. However, for whites, most were partially, not completely displaced suggesting that the aggregated "overall displacement" sub category is not as fraught with native displacement as the title implies. In general, most occupations in Los Angeles that experienced displacement did so partially and not completely suggesting that for New York, immigrants complement natives in occupations more than they displace them and that when displacement occurs, it is typically partial.

2. Shift Share Model Results on Four Occupational "Segments"

The third and final test of this research are to asses the shift share model results for occupations divided among four segments. Table 3.16 shows data on changes in occupational segment employment for selected racial and ethnic groups. The first column lists the five groups by nativity per segment. Columns 2 and 3 provides data on their total employment (per segment) for 1970 and 1980. The "Expected" column shows the number

of jobs each group (per segment) would have gained or lost had their gains or losses been identical to that segment's overall growth or loss rate. The Actual column provides data on job change per each group and segment between 1970 and 1980. This table (3.16) provides us with a glimpse of the changing employment composition for each group per occupational segment.

TABLE 3.16
CHANGES IN OCCUPATIONAL SEGMENT EMPLOYMENT FOR SELECTED ETHNIC GROUPS NEW YORK, 1970-1980

	EMPLOYMENT		JOB CHANGE			
Groups in Independet Primary	1970	1980	Expected	Actual	Actual - Expected	A - E/ 1970 Emp.
NATIVE-BORN White	608,800	619,000	91,320	10,200	-81,120	-13.32%
NATIVE-BORN Blacks	69,200	109,000	10,380	39,800	29,420	42.51%
NATIVE-BORN PUERTO RICANS	24,000	12,300	3,600	-11,700	-15,300	-63.75%
ISLAND-BORN PUERTO RICANS	400	21,300	60	20,900	20,840	5210.00%
FOREIGN-BORN Latinos	17,800	29,000	2,670	11,200	8,530	47.92%
FOREIGN-BORN Asians	9,900	35,400	1,485	25,500	24,015	242.58%
Groups in Craft						
NATIVE-BORN White	166,100	118,000	-26,576	-48,100	-21,524	-12.96%
NATIVE-BORN Blacks	45,900	39,100	-7,344	-6,800	544	1.19%
NATIVE-BORN PUERTO RICANS	26,500	4,900	-4,240	-21,600	-17,360	-65.51%
ISLAND-BORN PUERTO RICANS	400	12,100	-64	11,700	11,764	2941.00%
FOREIGN-BORN Latinos	14,000	16,700	-2,240	2,700	4,940	35.29%
FOREIGN-BORN Asians	4,000	14,500	-640	10,500	11,140	278.50%
Groups in Subordinate Primary						
NATIVE-BORN White	1,092,650	703,300	-229,457	-389,350	-159,894	-14.63%
NATIVE-BORN Blacks	259,850	261,150	-54,569	1,300	55,869	21.50%
NATIVE-BORN PUERTO RICANS	109,550	31,900	-23,006	-77,650	-54,645	-49.88%
ISLAND-BORN PUERTO RICANS	1,600	46,450	-336	44,850	45,186	2824.13%
FOREIGN-BORN Latinos	63,600	66,550	-13,356	2,950	16,306	25.64%
FOREIGN-BORN Asians	10,400	37,250	-2,184	26,850	29,034	279.17%
Groups in Secondary						
NATIVE-BORN White	515,850	322,500	-98,012	-193,350	-95,339	-18.48%
NATIVE-BORN Blacks	262,250	218,550	-49,828	-43,700	6,128	2.34%
NATIVE-BORN PUERTO RICANS	142,650	23,400	-27,104	-119,250	-92,147	-64.60%
ISLAND-BORN PUERTO RICANS	1,100	68,950	-209	67,850	68,059	6187.18%
FOREIGN-BORN Latinos	68,400	102,750	-12,996	34,350	47,346	69.22%
FOREIGN-BORN Asians	13,800	39,150	-2,622	25,350	27,972	202.70%

SOURCE: Author's estimates based on data taken from U.S. Census Bureaus 1970 PUS (1/100) and 1980 PUMS (5%, Sample) files.

The data in this table shows that whites were the primary losers of jobs in the craft, subordinate primary, and secondary segments. They, however, gained 10,200 jobs in the independent primary segment suggesting that some of their losses, albeit a few compared to their large losses in the other segments, may have been the result of their upward

mobility into this segment.

Table 3.17 presents the shift share model results for each racial and ethnic group per occupational segment. These data allow us to measure the employment share gain or loss and speculate on the different job competition patterns described earlier. On the basis of the shift share results on the occupational segments, whites and mainland-born Puerto Ricans were the only groups that experienced instances of displacement (partial) as a result of increased immigrant employment share. Native-born blacks benefited from the presence of immigrant employment in each of the four segments. The subordinate primary was the one segment in New York that experienced the largest loss of jobs between 1970 and 1980 presumably making it more vulnerable than the other segments to instances of job competition. However, as the shift share model results suggest, no job displacement by immigrants on natives occurred implying that other factors may be responsible for the massive loss experienced by whites. In addition, mainland-born Puerto Ricans experienced some job displacement as a result of increased island-born Puerto Rican job share gain.

The job competition patterns for the occupational segments in New York show that immigrants may have played a significant role in the displacement of native-born groups in each of the four segments. While whites did lose in each segment, some of this loss is the result of their upward mobility into the independent primary segment or occupational restructuring -- a situation that is suggested by some of the data results of the shift share model. Several non-white native-born groups gained in their employment share suggesting that immigrants are not displacing them but are instead serving as complements to their employment.

TABLE 3.17

OCCUPATIONAL SEGMENT SHIFT SHARE MODEL RESULTS FOR SELECTED ETHNIC GROUPS
NEW YORK, 1970 - 1980

	EMPLOYMENT				*Change due to*				
Groups in Independet Primary	**1970**	**1980**	**Change**	**LA I.E.% C.**	**Industry Change**	**Interactive Effect**	**Group Size**	**Share**	**Job Comp. Pattern**
NATIVE-BORN White	608,800	619,000	10,200	0.15	91,320	12,176	-79,144	-1,976	PD
NATIVE-BORN Blacks	69,200	109,000	39,800	0.15	10,380	39,444	29,064	356	CC
NATIVE-BORN PUERTO RICANS	24,000	12,300	-11,700	0.15	3,600	-11,520	-15,120	-180	PD
ISLAND-BORN PUERTO RICANS	400	21,300	20,900	0.15	60	20,900	20,840	0	
FOREIGN-BORN Latinos	17,800	29,000	11,200	0.15	2,670	11,036	8,366	164	
FOREIGN-BORN Asians	9,900	35,400	25,500	0.15	1,485	25,443	23,958	57	
Groups in Craft									
NATIVE-BORN White	166,100	118,000	-48,100	-0.16	-26,576	-48,169	-21,593	69	CC
NATIVE-BORN Blacks	45,900	39,100	-6,800	-0.16	-7,344	-6,885	459	85	CC
NATIVE-BORN PUERTO RICANS	26,500	4,900	-21,600	-0.16	-4,240	-21,465	-17,225	-135	PD
ISLAND-BORN PUERTO RICANS	400	12,100	11,700	-0.16	-64	11,696	11,760	4	
FOREIGN-BORN Latinos	14,000	16,700	2,700	-0.16	-2,240	2,660	4,900	40	
FOREIGN-BORN Asians	4,000	14,500	10,500	-0.16	-640	10,480	11,120	20	
Groups in Subordinate Primary									
NATIVE-BORN White	1,092,650	703,300	-389,350	-0.21	-229,457	-393,354	-163,898	4,004	CC
NATIVE-BORN Blacks	259,850	261,150	1,300	-0.21	-54,569	0	54,569	1,300	CC
NATIVE-BORN PUERTO RICANS	109,550	31,900	-77,650	-0.21	-23,006	-77,781	-54,775	131	CC
ISLAND-BORN PUERTO RICANS	1,600	46,450	44,850	-0.21	-336	44,784	45,120	66	
FOREIGN-BORN Latinos	63,600	66,550	2,950	-0.21	-13,356	2,544	15,900	406	
FOREIGN-BORN Asians	10,400	37,250	26,850	-0.21	-2,184	26,936	29,120	-86	
Groups in Secondary									
NATIVE-BORN White	515,850	322,500	-193,350	-0.19	-98,012	-190,865	-92,853	-2,486	PD
NATIVE-BORN Blacks	262,250	218,550	-43,700	-0.19	-49,828	-44,583	5,245	883	NC
NATIVE-BORN PUERTO RICANS	142,650	23,400	-119,250	-0.19	-27,104	-118,400	-91,296	-851	PD
ISLAND-BORN PUERTO RICANS	1,100	68,950	67,850	-0.19	-209	67,881	68,090	-31	
FOREIGN-BORN Latinos	68,400	102,750	34,350	-0.19	-12,996	34,200	47,196	150	
FOREIGN-BORN Asians	13,800	39,150	25,350	-0.19	-2,622	25,254	27,876	96	

SOURCE: Author's estimates based on data taken from U.S. Census Bureaus 1970 PUS (1/100) and 1980 PUMS (5% Sample) files.

NOTE: The "Job Competition Pattern" column only provides data for the native born group per each segment to maintain consistency with this study's emphasis on the native-born labor force.

CHAPTER 4
GROWTH IN THE CITY OF ANGELS

I INTRODUCTION

Los Angeles,[38] the "City of Angels," founded in 1781, has been growing for over 200 years. While still relatively young, Los Angeles has emerged as a mature metropolis. Metropolitan Los Angeles remains one of the largest industrial regions in the world. Since the 1960s it has experienced a large concentration of economic growth, including the expansion of industrial production and manufacturing, and international corporate finances. Los Angeles, like New York, is also one of the largest immigrant-receiving cities in the U.S. today.[39]

Los Angeles' population growth, especially its workforce, has produced a surplus of labor that rivals almost any Third World City. This workforce, coupled with the region's changing industrial base, has transformed the area's division of labor from mostly white to Latino, Asian, and African American. Many consider greater Los Angeles to be the largest Mexican metropolitan area outside Mexico City, the second largest Salvadorian area outside El Salvador, the second largest Chinese metropolitan area outside China, the second largest Japanese metropolitan area outside Japan, the Largest Korean metropolitan area outside Korea, the largest Philippine metropolitan area outside the Philippines, and the largest Vietnamese metropolitan area outside Vietnam. Indeed, the magnitude of

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[38]Throughout the text of this research I refer to "Los Angeles" as one of two regional areas used in this study. Although the greater metropolitan Los Angeles area consists of a conglomeration of smaller cities that fills a 60-mile circle around the downtown (civic center) hub, including all or parts of four counties (Orange, Riverside, San Bernardino, and Ventura), the "Los Angeles" used in this study specifically refers to the Los Angeles-Long Beach Standard Metropolitan Statistical Area as defined by the United States Census Bureau. As a result of my use of this Census definition, figures used in this study differ from other studies, published or otherwise, of "Los Angeles."

[39]1980 Census data for all Standard Metropolitan Statistical Areas (SMSA) and for the ten metropolitan areas with the largest new immigrant populations show New York, Los Angeles, and Chicago as having the largest numbers of documented and undocumented arrivals from the Third World.

diversity in the metropolitan Los Angeles area has resulted in numerous ethnic labor market processes that include job competition between the foreign and native - born. The findings of this research suggest that Los Angeles is experiencing a different process of labor market mobility among its various groups of workers. For consistency in the analysis, the format and method of this chapter is identical to the previous one.

I divided this chapter into three major components. The first component is an economic summary of the Los Angeles region during the past three decades that I base on published and unpublished (Census data used in this study) data sources. The second component, industrial repositioning, is a test of forty-six industries categorized according to core and periphery and growth and decline. Here, I analyze whether industrial dualism and change are important in concentrating patterns of displacement or complementarity. The third and last component, occupational repositioning, analyzes two occupational typologies; the first according to fifteen broad Census categories and the second according to four occupational segments.

The greater metropolitan Los Angeles area consists of a conglomeration of smaller cities that fills a 60-mile circle around the downtown (civic center) hub. This area extends over all or parts of four counties in addition to Los Angeles County (Orange, Riverside, San Bernardino, and Ventura).[40]

The total population within this 60-mile circle is now nearly 12.5 million, and its "gross regional product" ranks it 14th among all countries in the world. Contrary to popular belief, industrial employment is not predominantly concentrated in the north and northeast of the United States. Since the 1930s, the Los Angeles area has been the premier "growth pole" of industrial capitalism in the United States.

During Los Angeles' recent history (post-1970s), industrial growth is best

[40]For methodological reasons, I will only be looking at the "Los Angeles-Long Beach" Standard Metropolitan Statistical Area (SMSA), henceforth referred to as Los Angeles, Los Angeles SMSA, or City of Angels. This area does not include the counties of Orange, Riverside, San Bernardino, and Ventura.

described paradoxically has having both "sunbelt" and "frostbelt" characteristics, though not as severe as New York. Similar to major Northeast cities, such as Detroit and Cleveland, Los Angeles experienced a decline in traditional, highly unionized, heavy industry. Also similar to other major Northeast cities, such as Boston and New York, Los Angeles has emerged as a control and managerial center for international capital. It's downtown area has transformed into a center for corporate multinational headquarters replete with financial, banking, and insurance conglomerates. The growth of employment in the skilled services is also accompanied by a growth in the low-skilled services.

However, what is unique about Los Angeles is that, unlike many northeastern cities, it has managed to attract new industry and maintain itself as one of the largest manufacturing and industrial regions in the world. In fact, Los Angeles has actually shown an expansion in its manufacturing base, at least during the 1970s[41] As highly specialized heavy industry, such as automobile and rubber, relocated or closed, more diversified and decentralized industry, such as apparel, electronics, and high-tech finance, replaced it. Thus, Los Angeles, on the one hand, can be characterized as "sunbelt," with the expansion of high-technology industry associated with services and centered on electronics and aerospace component manufacturing. On the other hand, Los Angeles is also described as a "Detroit-like" or "frostbelt" city with its decline of traditional, blue-collar, and unionized industry.[42] The growth of high-technology manufacturing has

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[41]According to the U.S. Bureau of Labor Statistics, between 1970 and 1980, Los Angeles accounted for approximately one-fourth of the net growth in manufacturing jobs for the entire country. While New York, Chicago, Philadelphia, and Detroit together lost a total of 651,000 jobs, Los Angeles had a net gain of 225,000!

[42]Between 1972 and 1980, Los Angeles' automobile production, once second only to Detroit, the "Motor City," virtually disappeared, as did the entire rubber-tire industry and a major portion of the auto-related glass, steel, and steel products sector (Soja et al., 1983). What is striking about these shutdowns are that they are concentrated in areas and industries that are the most highly unionized, pay relatively high blue-collar wages, and have employed large numbers of minorities. Examples include McDonnell Douglas, General Motors, Ford, Firestone, Goodyear, Lockheed, General Electric, Kaiser, United States Steel, and Bethleham Steel.

brought change to the geographic periphery of Los Angeles.[43] Most of this new industry was not replacing the closed and empty factories of the once thriving heavy industry located nearest to the civic center. Rather, new "outer cities" or the "suburbanization" of industry was taking place (Scott, 1988). Most of this new industry is centered in Orange County and in the areas around Los Angeles International Airport, with a smaller sub-center growth in West San Fernando. This rapid expansion of high-technology industries is similar to the addition of a Silicon Valley to the Los Angeles regional economy (Soja et al., 1983).

In short, the Los Angeles economy has shifted from being a highly specialized industrial center focused on aircraft and electronics production to a more diversified and decentralized industrial and financial metropolis. Along with this shift is the emergence of manufacturing and service sectors such as the garment and textiles industries, which easily resemble Third World firms that rely on supplies of cheap, mostly immigrant, and female labor. Within these industries, the Los Angeles area can readily and easily compete with it's Third World neighbors to the South, as well as across the Pacific in Asia.

Lastly, the emergence of Los Angeles as a control and managerial center for international capital (as some would call it, "the New York of the Pacific Rim") make Los Angeles a major player in the international economy. The internationalization of Los Angeles' economy has transformed the downtown area into a "real hub" complete with capital headquarters and financial, accounting, and insurance firms, as well as a full range of supportive business, entertainment, hotel, and other services. All these characteristics

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[43]The core "high-tech" manufacturing segment of the Los Angeles area, between 1972-1979, was in the aerospace and electronics clusters. It was during this period that aerospace and electronics grew by 50 percent, adding over 110,000 jobs, and raising its percentage of total manufacturing employment from 23 to 26 percent. Complementary growth sectors naturally followed, especially electronic components and accessories, and aircraft and parts. These clusters of production not only serve private technology but also government military-related production. Los Angeles has been a leading recipient of prime defense contracts ever since World War II (Soja et al., 1983).

make Los Angeles a truly global city (Sassen, 1987).

The changing structure of Los Angeles' economy occurred, not coincidentally but simultaneously, with the enormous growth of its urban population. A large portion of this growth is traced to the significant influx of immigrants, primarily from Third World countries and especially Latin America.[44] Another part of this growth can be attributed to domestic migration from declining or "rustbelt" cities within the United States. The population of the Los Angeles SMSA area in 1980 was at 7.4 million (U.S. Bureau of the Census). Preliminary results of the 1990 Census show a 1.4 million increase, bringing the total in the area to 8.8 million people.

Indeed, the magnitude and diversity of the Los Angeles area migration and subsequent population growth since the 1960s are only comparable with the wave of European migrants to New York City in the late 19th and early 20th centuries. Thirty years ago, Los Angeles county was over 85 percent white. Today, Latinos, African Americans, and Asians together comprise over 50 percent of the population, with the Latino population expected to surpass whites as the largest single group some time in the 1990s. One quarter of the nation's immigrants lives in California and, of these, half live in Los Angeles county. In 1980, immigrants made up over one fifth of Los Angeles' population.[45]

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[44]During 1970 and 1980, the U.S. experienced a resurgence in the number of immigrants. Approximately 1.4 million immigrants were admitted into the U.S. in the 1960s, nearly two-thirds of the annual legal immigrants to the U.S. from Europe and Canada (45 percent and 12 percent, respectively). In the 1970s this rate was cut in half; fewer than one-third of the new arrivals came from European nations and Canada, 28 percent and 3 percent, respectively. Between 1961 and 1981, the number of legal immigrants from South America, Asia, and Africa numbered approximately 733,000, compared to 505,000 from Europe (Wong, 1987). When one adds, as estimated by the U.S. Bureau of the census (1980), 2 million undocumented immigrants that crossed the Mexican-U.S. border, the number of Third World, mostly Latino entrants to the U.S. in recent decades are indeed dramatic (Passel and Woodrow, 1984).

[45]See U.S. Department of Labor, Bureau of International Affairs, "The Effects of Immigration on the U.S. Economy and Labor Market," immigration and Policy Report 1, 1989, pp.73-74.

II INDUSTRIAL REPOSITIONING

Industrial Change

Below, I describe Los Angeles' industrial base during 1970 and 1980 with a particular focus on how these characteristics changed between the two decades.[46] I highlight specific industrial growth and decline trends for the region of Los Angeles while occasionally contrasting them with New York and the United States as a whole.

Table 4.1 provides data for Los Angeles on the number of jobs per industry (core and periphery) for the total population and by nativity. Total employment for Los Angeles grew by over 349,960 jobs or 9 percent during 1970 and 1980. A large portion of this increase came from the growth of the health, education, FIRE, and business industries when combined, account for over two-thirds of the total growth rate. There was also substantial growth in the, restaurant, apparel, high technology, transportation, and public administration industries. However, Los Angeles, similar to the New York region, experienced major losses in several industries such as personal services, miscellaneous manufacturing, air and ordnance, and specialty retail stores.

[46]For this section I employ data from the 1970 and 1980 PUMS files from the Census for the Los Angeles-Long Beach SMSA.

Table 4.1
Industrial Change by Core and Periphery, Los Angeles 1970 - 1980

	Total Employment				*Nativity*					
					Immigrants			U.S. Born		
	1970	1980	DIFF	% Diff.	1970	1980	DIFF	1970	1980	DIFF
CORE										
MINING	13,700	9,760	-3,940	-0.29	800	1,720	920	12,900	8,040	-4,860
CONSTRUCTION	171,300	191,420	20,120	0.12	21,800	42,180	20,380	149,500	149,240	-260
FOOD MFG	53,200	56,520	3,320	0.06	14,000	23,440	9,440	39,200	33,080	-6,120
TOBACCO MFG	400	120	-280	-0.70	200	40	-160	200	80	-120
PAPER MFG	17,500	19,360	1,860	0.11	3,200	6,040	2,840	14,300	13,320	-980
PRINTING & PUB	62,200	74,520	12,320	0.20	7,900	13,980	6,080	54,300	60,540	6,240
CHEMICAL MFG	25,900	25,740	-160	-0.01	4,100	7,760	3,660	21,800	17,980	-3,820
PETRO/COAL MFG	12,200	12,920	720	0.06	1,300	1,780	480	10,900	11,140	240
RUBB & MISC MFG	30,500	28,320	-2,180	-0.07	5,000	10,980	5,980	25,500	17,340	-8,160
ST/CLY/GLS MFG	26,900	24,740	-2,160	-0.08	5,200	8,800	3,600	21,700	15,940	-5,760
METAL INDUST	97,900	103,920	6,020	0.06	18,400	37,540	19,140	79,500	66,380	-13,120
GEN MACH MFG	68,100	74,960	6,860	0.10	10,900	22,020	11,120	57,200	52,940	-4,260
ELECT MACH MFG	84,000	76,660	-7,340	-0.09	11,100	26,080	14,980	72,900	50,580	-22,320
TRANSP EQ MFG	46,700	49,160	2,460	0.05	6,900	16,460	9,560	39,800	32,700	-7,100
PHT/TIME EQ MF	4,400	5,860	1,460	0.33	1,100	1,420	320	3,300	4,440	1,140
HIGH TECH MFG	85,300	103,340	18,040	0.21	12,900	26,500	13,600	72,400	76,840	4,440
AIR ORDINANCE	193,700	168,460	-25,240	-0.13	16,300	22,240	5,940	177,400	146,220	-31,180
RAIL SRVC	14,300	9,240	-5,060	-0.35	1,700	1,460	-240	12,600	7,780	-4,820
TRK/WARE/POST	80,500	90,880	10,380	0.13	4,700	11,580	6,880	75,800	79,300	3,500
TRANSPORTATION	59,800	82,440	22,640	0.38	7,600	17,020	9,420	52,200	65,420	13,220
COMMUNICATIONS	70,300	69,060	-1,240	-0.02	4,900	7,680	2,780	65,400	61,380	-4,020
WHOL NONDURABL	67,400	93,380	25,980	0.39	11,600	25,080	13,480	55,800	68,300	12,500
FIRE	241,300	293,960	52,660	0.22	31,700	56,880	25,180	209,600	237,080	27,480
HEALTH SRV	214,000	308,340	94,340	0.44	27,800	66,340	38,540	186,200	242,000	55,800
EDUCATION	259,600	307,620	48,020	0.18	21,600	41,940	20,340	238,000	265,680	27,680
PROF SRVC	177,600	202,180	24,580	0.14	18,800	30,240	11,440	158,800	171,940	13,140
PUBLIC ADMIN	140,700	149,300	8,600	0.06	8,000	16,780	8,780	132,700	132,520	-180
Core Total	2,319,400	2,632,180	312,780	0.13	279,500	543,980	264,480	2,039,900	2,088,200	48,300
PERIPHERY										
AG FOR & FISH	41,200	48,720	7,520	0.18	10,300	19,740	9,440	30,900	28,980	-1,920
TEXTILE MFG	10,800	13,480	2,680	0.25	3,100	7,780	4,680	7,700	5,700	-2,000
APPAREL MFG	77,700	98,260	20,560	0.26	36,400	69,820	33,420	41,300	28,440	-12,860
LEATHER MFG	6,300	10,400	4,100	0.65	2,800	7,740	4,940	3,500	2,660	-840
LOG/LUMBER PROD	7,100	13,540	6,440	0.91	1,600	6,240	4,640	5,500	7,300	1,800
FURN MFG	32,000	41,880	9,880	0.31	8,800	24,200	15,400	23,200	17,680	-5,520
MISC MFG	108,700	66,720	-41,980	-0.39	14,300	30,100	15,800	94,400	36,620	-57,780
UTIL & SANIT	50,700	36,360	-14,340	-0.28	3,300	4,820	1,520	47,400	31,540	-15,860
WHOLE & DURABLE	107,800	104,500	-3,300	-0.03	13,500	21,500	8,000	94,300	83,000	-11,300
BLD/HD/DEPT ST	132,300	123,860	-8,440	-0.06	18,000	19,660	1,660	114,300	104,200	-10,100
FOOD STORE	93,000	103,500	10,500	0.11	10,700	22,860	12,160	82,300	80,640	-1,660
MV ST/SERV STA	75,800	67,000	-8,800	-0.12	8,200	15,860	7,660	67,600	51,140	-16,460
EAT/DRINK ESTAB	164,200	206,960	42,760	0.26	25,600	66,420	40,820	138,600	140,540	1,940
SPEC RETAIL	235,900	213,100	-22,800	-0.10	30,000	45,040	15,040	205,900	168,060	-37,840
BUSINESS SERV	122,000	181,980	59,980	0.49	12,900	29,360	16,460	109,100	152,620	43,520
REPAIR SERV	65,700	69,880	4,180	0.06	11,700	24,660	12,960	54,000	45,220	-8,780
DOMEST SERV	60,600	45,500	-15,100	-0.25	10,200	22,300	12,100	50,400	23,200	-27,200
PERSONAL SERV	140,500	104,400	-36,100	-0.26	25,800	34,040	8,240	114,700	70,360	-44,340
ENTER & REC	97,200	116,640	19,440	0.20	8,800	16,500	7,700	88,400	100,140	11,740
Periphery Total	1,629,500	1,666,680	37,180	0.02	256,000	488,640	232,640	1,373,500	1,178,040	-195,460
TOTAL	3,948,900	4,298,860	349,960	0.09	535,500	1,032,620	497,120	3,413,400	3,266,240	-147,160

SOURCE: 1970 Figures from U.S. Bureau of the Census, Public Use Samples (1/100)
1980 Figures from U.S. Bureau of the Census, Public Use Microdata Samples, (5%, "A" Sample)

Both the core and periphery for this region grew at 13 and 2 percent, respectively. In the periphery, major losses came to the miscellaneous manufacturing, utilities and

sanitation, specialty retail, personal services, and domestic service industries. However, these losses were offset by large increases in the business, entertainment and recreation, apparel, and eating and drinking establishments industries. The core suffered less severe losses in that its largest industrial decline was in air and ordnance which lost over 25,000 jobs. Dividing the total industrial population by nativity reveals an interesting trend. Immigrants show no losses in their industrial employment in the periphery and two insignificant losses in the core (-160 in tobacco manufacturing and -240 in rail service). Indeed, in those industries that showed loss of employment between 1970 and 1980, almost 100 percent was by the U.S.-born laborer.

When I further disaggregate the data by race and ethnicity (see Table 4.2), it reveals that whites were the primary losers of industrial employment loss in Los Angeles during the 1970s for both the core and periphery.[47] Blacks lost in several industries in the core and periphery between these two decades but in fewer numbers and as a percentage of total loss per industry. Latinos and Asians showed a large gain in industrial employment between 1970 and 1980. Table 4.2 clearly shows these results and highlights the overall job (industrial) growth experienced by Latinos, blacks, and whites.

[47]This is of course true in absolute numbers and proportionally since whites are by far the largest employed group in Los Angeles.

Table 4.2

Industrial Change by Race and Ethnicity, Los Angeles 1970-1980

	WHITES			LATINOS			BLACKS			ASIANS		
Industries	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.
MINING	11,800	7,540	-4,260	1,100	1,020	-80	600	540	-60	200	440	240
CONSTRUCTION	128,100	125,900	-2,200	25,300	42,380	17,080	14,900	13,720	-1,180	1,800	5,560	3,760
FOOD MFG	32,000	23,020	-8,980	15,100	23,700	8,600	4,800	4,860	60	900	3,660	2,760
TOBACCO MFG	200	20	-180	100	40	-60	100	40	-60	0	20	20
PAPER MFG	10,500	9,000	-1,500	4,600	7,120	2,520	2,100	2,100	0	200	620	420
PRINTING & PUB	53,000	50,500	-2,500	6,000	14,560	8,560	2,100	4,660	2,560	800	3,820	3,020
CHEMICAL MFG	19,000	13,880	-5,120	4,800	7,580	2,780	1,400	2,240	840	600	1,700	1,100
PETRO/COAL MFG	10,000	8,960	-1,040	1,200	1,840	640	700	1,320	620	300	640	340
RUBB & MISC PLA	17,600	12,640	-4,960	8,900	11,860	2,960	3,600	2,100	-1,500	100	1,040	940
ST/CLY/GLS MFG	18,100	11,720	-6,380	6,800	9,960	3,160	1,300	2,020	720	400	720	320
METAL INDUST	60,000	46,900	-13,100	27,700	42,320	14,620	8,300	9,020	720	1,500	3,400	1,900
GEN MACH MFG	54,600	45,460	-9,140	9,400	20,820	11,420	2,500	3,880	1,380	1,200	3,440	2,240
ELECT MACH MF	64,400	39,180	-25,220	12,000	24,360	12,360	5,500	6,180	680	1,600	5,540	3,940
TRANSP EQ MFG	32,000	20,780	-11,220	8,800	17,780	8,980	4,900	7,600	2,700	700	2,000	1,300
PHT/TIME EQ MF	3,500	3,940	440	600	600	0	0	620	620	300	640	340
HIGH TECH MFG	65,900	61,480	-4,420	11,700	23,660	11,960	5,100	8,700	3,600	1,800	7,720	5,920
AIR ORDINANCE	158,200	117,140	-41,060	16,500	22,380	5,880	14,700	19,500	4,800	3,800	7,360	3,560
RAIL SRVC	9,500	5,200	-4,300	2,400	2,220	-180	2,200	1,480	-720	100	180	80
TRK/WARE/POST	53,400	49,660	-3,740	9,600	17,400	7,800	14,400	18,520	4,120	2,400	3,880	1,480
TRANSPORTATIO	46,700	52,320	5,620	5,900	9,780	3,880	4,800	13,320	8,520	1,900	5,860	3,960
COMMUNICATION	58,200	46,300	-11,900	5,400	9,320	3,920	5,900	9,440	3,540	600	3,020	2,420
WHOL NONDURA	47,900	54,660	6,760	11,100	22,680	11,580	5,000	6,760	1,760	3,100	7,580	4,480
FIRE	200,900	199,600	-1,300	22,300	36,820	14,520	13,000	31,800	18,800	4,500	22,020	17,520
HEALTH SRV	159,400	177,100	17,700	16,300	45,700	29,400	30,300	53,400	23,100	7,100	27,660	20,560
EDUCATION	210,400	199,680	-10,720	16,700	41,820	25,120	22,600	45,420	22,820	8,900	17,320	8,420
PROF SRVC	144,400	146,560	2,160	10,300	19,920	9,620	16,600	22,220	5,620	5,600	11,020	5,420
PUBLIC ADMIN	105,000	83,160	-21,840	11,600	20,380	8,780	20,200	34,260	14,060	3,000	9,500	6,500
Subtotal	1,774,700	1,612,300	-162,400	272,200	498,020	225,820	207,600	325,720	118,120	53,400	156,360	102,960
AG FOR & FISH	24,100	20,360	-3,740	9,800	17,340	7,540	2,100	3,040	940	4,900	6,300	1,400
TEXTILE MFG	6,100	3,920	-2,180	3,400	7,200	3,800	1,200	1,080	-120	100	900	800
APPAREL MFG	28,600	20,700	-7,900	33,200	59,180	25,980	10,400	4,960	-5,440	4,900	11,160	6,260
LEATHER MFG	2,800	2,200	-600	3,000	7,380	4,380	400	280	-120	100	220	120
LOG/LUMBER PRO	4,400	5,720	1,320	2,000	6,340	4,340	600	940	340	100	160	60
FURN MFG	18,200	12,360	-5,840	11,800	25,360	13,560	1,500	2,320	820	300	840	540
MISC MFG	70,000	27,080	-42,920	21,300	29,120	7,820	15,600	5,160	-10,440	1,600	3,640	2,040
UTIL & SANIT	36,300	21,240	-15,060	5,300	6,400	1,100	7,900	6,300	-1,600	1,100	2,020	920
WHOLE & DURAB	85,400	70,840	-14,560	12,600	19,160	6,560	5,300	6,860	1,560	3,400	6,200	2,800
BLD/HD/DEPT ST	100,300	77,720	-22,580	16,800	23,240	6,440	12,300	14,960	2,660	2,500	6,060	3,560
FOOD STORE	72,100	61,860	-10,240	9,500	20,100	10,600	5,600	9,640	4,040	5,000	10,220	5,220
MV ST/SERV STA	60,900	44,180	-16,720	7,600	12,960	5,360	5,400	4,920	-480	1,300	3,920	2,620
EAT/DRINK ESTA	126,900	116,720	-10,180	20,000	53,720	33,720	8,100	15,540	7,440	8,200	16,900	8,700
SPEC RETAIL	192,400	147,200	-45,200	20,100	34,380	14,280	18,000	16,840	-1,160	4,600	12,080	7,480
BUSINESS SERV	98,700	123,400	24,700	7,900	23,320	15,420	12,600	23,860	11,260	2,400	8,580	6,180
REPAIR SERV	47,100	36,520	-10,580	10,300	22,920	12,620	6,800	5,900	-900	1,400	3,260	1,860
DOMEST SERV	29,200	13,640	-15,560	7,200	19,060	11,860	22,100	9,420	-12,680	1,600	1,900	300
PERSONAL SRVC	96,500	56,340	-40,160	20,800	26,180	5,380	18,400	12,340	-6,060	4,200	7,500	3,300
ENTER & REC	85,000	92,260	7,260	6,400	11,060	4,660	4,300	7,980	3,680	1,100	3,560	2,460
Subtotal	1,185,000	954,260	-230,740	229,000	424,420	195,420	158,600	152,340	-6,260	48,800	105,420	56,620
Total	2,959,700	2,566,560	-393,140	501,200	922,440	421,240	366,200	478,060	111,860	102,200	261,780	159,580

SOURCE: 1970 Figures from U.S. Bureau of the Census, Public Use Samples (1%).
1980 Figures from U.S. Bureau of the Census, Public Use Microdata Samples (5%).

In the following section, I present the results of the shift share model for Los Angeles on forty-six industries, spanning two decades, and five ethnic and racial groups. This method will provide information on the number of industries in which job competition for the U.S.-born population is a factor in the city of Los Angeles. The research will address three primary questions:

1) Do instances of job competition exist and if so in what industrial categories?

2) Does industrial dualism[48] make a difference in the number of industries that have instances of displacement or complementarity? In other words, are industries in the core more or less likely to have patterns of job displacement or complementary as a result of increased immigrant employment share?

3) Do patterns of job displacement or complementarity increase or decrease when the forty-six industries in this study are analyzed according to whether they grew or declined between 1970 and 1980?

Six tables highlight several patterns and trends related to these three questions and are presented below.

Table 4.3 organizes the population according to five racial and ethnic groups (white, black, Asian, Mexican, Latino) and nativity (native or foreign-born), and shows the number of industrial jobs per sector held by each group in Los Angeles in 1970 and 1980. The fourth column ("Expected") in the table shows the number of jobs each group would have gained had its gains been proportional to the growth in the overall Los Angeles economy during this period, when industrial employment grew by 9 percent, from 3,948,900 jobs in 1970 to 4,298,860 in 1980. The table then indicates how many jobs the group gained or lost and the difference between "expected" and "actual" employment losses.

[48]The categorization of industries into either the "core" or "periphery" is implemented to correspond to dual labor market theory.

TABLE 4.3
CHANGES IN INDUSTRIAL EMPLOYMENT FOR SELECTED ETHNIC GROUPS
LOS ANGELES, 1970 - 1980

	EMPLOYMENT		JOB CHANGE			
Groups in Core Industries	1970	1980	Expected	Actual	Actual - Expected	A - E/ 970 Emp.
NATIVE-BORN White	1,615,200	1,452,280	209,976	-162,920	-372,896	-23.09%
NATIVE-BORN Blacks	205,400	316,860	26,702	111,460	84,758	41.26%
NATIVE-BORN Mexicans	141,700	200,320	18,421	58,620	40,199	28.37%
FOREIGN-BORN Mexicans	64,500	188,640	8,385	124,140	115,755	179.47%
FOREIGN-BORN Latinos	32,000	71,100	4,160	39,100	34,940	109.19%
FOREIGN-BORN Asians	19,500	103,420	2,535	83,920	81,385	417.36%
Groups in Periphery Industries						
NATIVE-BORN White	1,060,500	840,160	21,210	-220,340	-241,550	-22.78%
NATIVE-BORN Blacks	156,600	147,180	3,132	-9,420	-12,552	-8.02%
NATIVE-BORN Mexicans	99,300	114,660	1,986	15,360	13,374	13.47%
FOREIGN-BORN Mexicans	74,400	210,620	1,488	136,220	134,732	181.09%
FOREIGN-BORN Latinos	30,600	74,640	612	44,040	43,428	141.92%
FOREIGN-BORN Asians	22,200	70,880	444	48,680	48,236	217.28%

SOURCE: Author's estimates based on data taken from U.S. Census Bureaus 1970 PUS (1/100) and 1980 PUMS (5% Sample) files.

This table allows us to get a glimpse of the different dynamics affecting the process of job change in Los Angeles during 1970 and 1980. Here we can see that the biggest losers of jobs were whites. This group lost close to 400,000 jobs in the core and peripheral industries! However, this loss is offset by the large job gain experienced by non-white groups (both native and foreign-born) in both sectors providing Los Angeles with an overall job growth rate of 9 percent. What accounts for the white job loss and the non-white job gain? Is job competition in the form of displacement between immigrants and non-immigrants or white vs non-white partly to blame for mostly white and some black loss? In the following section I attempt to answer these questions.

To assess the impact of industrial and occupational compositional change, I have used "shift-share" analysis (see Methods Chapter 2). Table 4.4 below provides the "share" result for each industry by racial and ethnic group by nativity.

Table 4.4

INDUSTRIAL SHIFT SHARE MODEL RESULTS FOR "SHARE" FOR LOS ANGELES, 1970-1980 (% of Total Industry Emp.)

		Change due to SHARE			*Change due to SHARE*		
	Total Emp. 1980	**U.S. Born Whites**	**U.S. Born Blacks**	**Mexicans**	**Immigrant Mexicans**	**Immigrant Latinos**	**Asians**
CORE (growth)							
CONSTRUCTION	191,420	4.69	-4.77	-1.24	-3.10	0.70	0.74
FOOD MFG	56,520	-6.44	-3.84	0.18	-9.85	-3.01	0.43
PAPER MFG	19,360	-1.12	-5.94	-3.19	-1.35	-4.85	-0.35
PRINTING & PUB	74,520	-0.03	1.64	3.48	0.23	0.43	0.23
PETRO/COAL MFG	12,920	5.89	2.09	-2.85	0.23	1.86	-9.83
METAL INDUST	103,920	-3.23	-3.23	-6.04	-3.83	-0.07	0.89
GEN MACH MFG	74,960	-2.67	0.02	0.07	3.16	0.89	0.22
TRANSP EQ MFG	49,160	-11.50	0.29	-0.15	6.44	-1.33	-1.53
PHT/TIME EQ MF	5,860	4.56	9.90	-3.12	-11.57	-2.77	-0.18
HIGH TECH MFG	103,340	-2.76	0.11	0.65	1.67	-1.39	0.73
TRK/WARE/POST	90,880	0.32	-3.85	1.88	0.65	0.94	-1.50
TRANSPORTATION	82,440	-3.83	5.24	-1.50	1.47	-0.77	-2.00
WHOL NONDURABLE	93,380	-0.47	-2.67	-0.76	-3.25	1.12	-1.19
FIRE	293,960	0.23	3.28	-0.41	-0.47	-0.88	2.80
HEALTH SRV	308,340	-4.51	-1.13	1.48	1.69	0.40	0.93
EDUCATION	307,620	-1.35	2.62	2.63	0.61	0.34	-2.57
PROF SRVC	202,180	6.55	-1.77	0.82	0.21	0.14	-2.02
PUBLIC ADMIN	149,300	-3.51	2.99	0.88	-0.36	0.54	1.30
(Decline)							
MINING	9,760	13.68	-1.79	-2.03	3.48	1.84	-2.34
TOBACCO MFG	120	10.91	-26.05	0.00	16.67	-99.33	0.00
CHEMICAL MFG	25,740	-0.62	1.44	-4.59	6.10	-0.36	-0.74
RUBB & MISC MFG	28,320	0.35	-9.77	-10.24	3.05	-1.68	0.88
ST/CLY/GLS MFG	24,740	-1.61	0.92	-7.24	1.21	-0.43	-6.38
ELECT MACH MFG	76,660	-6.20	-1.76	-1.48	6.31	2.21	2.77
AIR ORDINANCE	168,460	8.61	0.26	0.19	-0.20	-0.78	-0.63
RAIL SRVC	9,240	11.08	-9.19	0.26	-17.28	0.07	-3.27
COMMUNICATIONS	69,060	4.08	1.35	2.71	0.45	0.26	1.92
Core Total	2,632,180	-0.30	-0.04	-0.03	-0.01	-0.01	0.00
PERIPHERY (Growth)							
AG FOR & FISH	48,720	-5.60	1.45	-2.67	-6.25	1.48	-10.66
TEXTILE MFG	13,480	-15.46	-2.26	-1.06	0.19	-1.39	5.79
APPAREL MFG	98,260	-5.78	-7.39	-6.22	-10.29	-5.64	-2.41
LEATHER MFG	10,400	-21.13	-3.35	-0.70	-12.72	-6.68	1.92
LOG/LUMBER PROD	13,540	-9.11	-1.74	-5.60	10.38	3.01	0.89
FURN MFG	41,880	-16.41	1.04	-5.87	7.35	-2.61	0.41
FOOD STORE	103,500	-2.50	3.44	1.26	2.04	0.70	1.53
EAT/DRINK ESTAB	206,960	-7.39	2.69	0.01	3.89	2.96	-3.02
BUSINESS SERV	181,980	-0.33	2.95	1.12	1.20	0.49	1.09
REPAIR SERV	69,880	-4.89	-1.39	1.10	3.11	-1.77	0.89
ENTER & REC	116,640	6.40	2.67	0.21	0.14	0.37	0.74
(Decline)							
MISC MFG	66,720	-3.93	-4.90	-1.21	1.91	-2.57	3.18
UTIL & SANIT	36,360	8.12	3.27	2.76	-0.63	-0.55	2.01
WHOLE & DURABLE	104,500	5.98	1.88	0.48	-0.17	-1.61	0.00
BLD/HD/DEPT ST	123,860	5.89	3.32	2.65	-2.44	-1.17	0.24
MV ST/SERV STA	67,000	3.32	0.75	1.01	0.91	-0.20	2.61
SPEC RETAIL	213,100	5.70	0.83	1.12	0.19	-1.44	1.45
DOMEST SERV	45,500	-5.41	-12.69	1.02	-2.01	13.45	-4.39
PERSONAL SERV	104,400	4.34	-0.11	-1.01	-6.65	0.91	-0.42
Periphery Total	1,666,680	-0.18	-0.03	-0.02	-0.01	-0.01	0.00
TOTAL	4,298,860	-0.14	-0.05	-0.02	-0.06	-0.02	-0.02

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS and 1980 PUMS files.
Industrial classification by Core and Periphery adapted from Tolbert, Horan and Beck (1980).

All forty-six industries in this table are classified according to dual labor market theory and are listed following Tolbert, Horan and Beck's (1980) typology. I extend the authors' matrix and further classify the industries according to those that grew between 1970 and 1980, and those that declined during the same period per sector. In Los Angeles's core sector 18 industries grew and 9 declined while in its periphery, 11 grew and 8 declined. The above two patterns show that, during the 1970s, Los Angeles' economy, especially it's core sector, was very robust in terms of industrial change.

Table 4.4 provides data on the "share" results of the shift share model for three major groups of workers; those born in the U.S. (whites, blacks, and Mexicans) and those abroad (Mexicans, Latinos, and Asians). The data in column 2 describe the total employment of each industry in the region. The "share" results of the model are then presented in columns' 3-8 for each group and calculated in percentages of total employment to measure the relative change in employment for each group.

The share results in Table 4.4 show several combinations of both native and immigrant losses and gains in industrial employment. These gains and losses reflect different instances of displacement and complementarity that, in part, are attributable to immigrant growth and other factors such as industrial restructuring, the general economic climate and other variables not tested in this model. Analyzed as a whole, this table provides much information about specific ethnic and native/foreign-born employment change but very little room for interpreting trends and patterns. To better make sense of the shift share results and what they imply for job competition, I have coded different immigrant employment "share" patterns that assist in identifying industries in which job competition possibly is occurring between immigrant and native born workers.

Table 4.5 lists the job competition patterns for each industry and group. In reference to the pattern of *complete displacement*, a situation in which a native group's job loss occurs simultaneously with a gain in all three immigrant group's share I use the code "CD." Because U.S.-born Mexicans are closer substitutes to immigrant Mexicans, job

loss for the former coupled with job gain for the latter, regardless of immigrant Asian or Latino job loss or gain, are classified as complete displacement. Patterns of native and immigrant displacement in the same industry that are not due to increases in the employment of immigrants but rather to other factors such as white employment share gain or industrial restructuring is coded as "D*." Partial displacement -- "PD," refers to native displacement (negative employment share) while one or two immigrant group's gain in their employment share. In this situation, displacement is "partial" because other native and immigrant groups have gained in their employment share. *Complete complementarity* is coded as "CC" and refers to situations that are the exact opposite of complete displacement -- patterns of native job gain simultaneously with immigrant (all three) employment gain. Finally, "NC" conveys patterns of native job gain simultaneously with immigrant job loss.

(4.5)

While Table 4.5 summarizes the "share" results of the model for each industry, it provides few recognizable patterns with which to analyze job competition. To ameliorate this problem, I have created several tables that examine specific characteristics of industries in which displacement or complementarity is prevalent. In addition, I have also grouped and analyzed the shift share model results and the displacement or complementarity effects for the top fifteen industries with the largest number of immigrants and the top fifteen industries with the largest number of native born workers. This will allow us to asses if new immigrants are having an inordinate impact on industries that employ a large number of their immigrant counterparts and likewise on those industries that have a large number of non-immigrants. I now turn to an analysis of these data to see if they can provide useful insights in how industrial change and dualism mediate labor market patterns of job competition.

Table 4.5

Effects of Job Competition on Native Workers by Immigrants in Industries, Los Angeles 1970-1980

	EFFECTS OF JOB COMPETITION ON NATIVE WORKERS		
+ INDUSTRIES	**Whites**	**Blacks**	**Mexicans**
CORE: Growth Industries			
CONSTRUCTION	NC	PD	D*
FOOD MFG	D*	D*	NC
PAPER MFG	D*	D*	D*
PRINTING & PUB	CD	CC	CC
PETRO/COAL MFG	NC	NC	CD
METAL INDUST	D*	D*	D*
GEN MACH MFG	CD	CC	CC
TRANSP EQ MFG	PD	NC	PD
PHT/TIME EQ MF	NC	NC	D*
HIGH TECH MFG	PD	NC	NC
TRK/WARE/POST	NC	PD	NC
TRANSPORTATION	PD	NC	CD
WHOL NONDURABLE	PD	PD	CD
FIRE	NC	NC	D*
HEALTH SRV	CD	CD	CC
EDUCATION	PD	NC	NC
PROF SRVC	NC	PD	NC
PUBLIC ADMIN	PD	NC	NC
CORE: Decline Industries			
MINING	NC	PD	CD
TOBACCO MFG	PD	PD	CC
CHEMICAL MFG	PD	NC	PD
RUBB & MISC MFG	NC	PD	PD
ST/CLY/GLS MFG	PD	NC	PD
ELECT MACH MFG	CD	CD	CD
AIR ORDINANCE	NC	NC	NC
RAIL SRVC	NC	D*	NC
COMMUNICATIONS	CC	CC	CC
PERIPHERY: Growth Industries			
AG FOR & FISH	PD	NC	PD
TEXTILE MFG	PD	PD	PD
APPAREL MFG	D*	D*	D*
LEATHER MFG	D*	D*	D*
LOG/LUMBER PROD	CD	CD	CD
FURN MFG	PD	NC	PD
FOOD STORE	CD	CC	CC
EAT/DRINK ESTAB	PD	NC	NC
BUSINESS SERV	CD	CC	CC
REPAIR SERV	PD	PD	NC
ENTER & REC	CC	CC	CC
PERIPHERY: Decline Industries			
MISC MFG	PD	PD	PD
UTIL & SANIT	NC	NC	NC
WHOLE & DURABLE	NC	NC	NC
BLD/HD/DEPT ST	NC	NC	NC
MV ST/SERV STA	NC	NC	NC
SPEC RETAIL	NC	NC	NC
DOMEST SERV	PD	PD	PD
PERSONAL SERV	NC	PD	PD

+ Industrial classification by Core and Periphery adapted from Tolbert, Horan and Beck (1980).

"CD" refers to complete displacement, "D" refers to displacement due to factors other than immigration, and "PD" refers to native displacement due to one or two immigrant group's job gain.*

"CC" refers to complete complementarity, while "NC" conveys native job gain the result of immigrant job loss.

Does Competition Exist?

Table 4.6 provides a general summary of job competition patterns for three native-born groups in core and peripheral sectors in Los Angeles. The data in the two columns for each native born group show the number of industries that fall into each job competition pattern. The first column provides the actual number of industries that meet

the criteria of one of the five patterns, while the second column provides the percentage total of this figure. This table is important because it provides us with a summary of the different competition patterns that are possible for all forty-six industries and for each native-born group as a result of increased immigrant employment share.

Table 4.6
Summary of Immigrant Job Competition Patterns on Native Workers
LOS ANGELES

JOB COMPETITION PATTERNS:	Whites		Blacks		Mexicans	
	No. Indust.	% of Total	No. Indust.	% of Total	No. Indust.	% of Total
1. Complete Displacement	7	0.15	3	0.07	6	0.13
2. Partial Displacement	16	0.35	12	0.26	10	0.22
"Overall" Displacement	***23***	***0.50***	***15***	***0.33***	***16***	***0.35***
3. Displ. Due to Other Factors	5	0.11	6	0.13	7	0.15
4. Complete Complement.	2	0.04	6	0.13	8	0.17
5. Complement. Due to Immig.	16	0.35	19	0.41	15	0.33
"Overall" Complement	***18***	***0.39***	***25***	***0.54***	***23***	***0.50***
TOTAL	46	1.00	46	1.00	46	1.00

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS (1%) and 1980 PUMS (5%) files.
NOTE: "Overall" Displacement is the sum of numbers1&2, while "overall" Complement is the sum of numbers 4 & 5.
TOTAL does not take into account "Overall" Displacement or Complement.

Indeed, the data in the table show that both job displacement and complementarity exist in Los Angeles. However, more industries show complementarity than displacement for blacks and Mexicans, the two groups most vulnerable to job competition with immigrants because of their substitutability. Combining "Complete Displacement" with "Partial Displacement" yields an overall displacement trend,[49] and combining "Complete

[49]It is important to distinguish between complete displacement and partial displacement because the former is an instance were all three native groups have been displaced in a particular industry while the latter includes the displacement of one or two native-born groups. None-the-less, I combine these two patterns to get an "overall displacement" trend while at the same time acknowledging that this combination is not as accurate (i.e., some native born groups in an industry in this category may be gaining jobs) if analyzed

Complementarity" and "Complementarity Due to Immigrant Job Loss" produces an overall complement trend.[50] Comparing the job competition trends of overall displacement with overall complement shows that immigrants complement native-born groups in much larger proportions than they displace them.[51]

Of particular note in this table is pattern number five that shows the numbers of industries in which immigrant groups were displaced by native born workers. The above finding suggests that, similar to native-born worker displacement because of increased immigration, immigrants are also displaced in particular industries as a result of native-born employment gains. While the regional labor market fluctuates through cycles of growth and decline, different groups compete for different jobs, but displacement can harm either immigrants or the native-born.

Does Industrial Dualism and Industrial Change Matter?

The second and third inquiries of this section are whether industrial dualism (core and periphery) and industrial change (growth or decline) matter in stimulating or thwarting job competition. Tables' 4.7, 4.8, and 4.9 provide data on the five individual job competition patterns analyzed separately by industrial dualism and industrial change. Indeed, as the data in these tables show, industrial dualism and industrial change make very little difference in stratifying the five job competition patterns.

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individually.

[50]Combining these two job competition patterns (Complete Complement with Complementarity Due to Immigrant Job Loss) provides us with an "overall" complement figure that is broad based because they both describe native-born employment share gain the result of either immigrant employment share loss or gain. None-the-less, in this study I differentiate between these two patterns describe instances of immigrant job displacement as a result of native-born white, black, and Mexican employment share gain.

[51]The exception to this is for native-born whites in Los Angeles.

Industrial Dualism

As Table 4.7 shows in the core sector of Los Angeles, there is a higher proportion of industries where immigrants more often complement than displace native workers.[52] Similarly, with the exception of Whites in Los Angeles, a clear majority of the industries in the periphery show that immigrants complement, as opposed to displace, native-born labor. Thus, at the outset, these two patterns suggest that industrial dualism does not seem to concentrate job displacement in the periphery as originally hypothesized. No clear pattern of either displacement or complement emerged in the two sectors implying that industrial dualism has little effect in stratifying job competition (displacement or complement). However, a careful and more detailed analysis of the differences between the data for the five job competition patterns reveal several important findings.

[52]The only exception is the native born white group that had a slightly larger percentage (48%)of industries showing displacement than complementarity (41%).

Table 4.7

Summary of Immigrant Job Competition Patterns on Native Workers by Industrial Dualism

LOS ANGELES

	Whites		Blacks		Mexicans	
	No. Indust.	% of Sec. Total	No. Indust.	% of Sec. Total	No. Indust.	% of Sec. Total
CORE INDUSTRIES						
1. Complete Displacement	4	0.15	2	0.07	5	0.19
2. Partial Displacement	9	0.33	7	0.26	4	0.15
"Overall" Displacement	***13***	***0.48***	***9***	***0.33***	***9***	***0.33***
3. Displ. Due to Other Factors	3	0.11	4	0.15	5	0.19
4. Complete Complement.	1	0.04	3	0.11	5	0.19
5. Complement. Due to Immig.	10	0.37	11	0.41	8	0.30
"Overall" Complement	***11***	***0.41***	***14***	***0.52***	***13***	***0.48***
TOTAL	27	1.00	27	1.00	27	1.00
PERIPHERY INDUSTRIES						
1. Complete Displacement	3	0.16	1	0.05	1	0.05
2. Partial Displacement	7	0.37	5	0.26	6	0.32
"Overall" Displacement	***10***	***0.53***	***6***	***0.32***	***7***	***0.37***
3. Displ. Due to Other Factors	2	0.11	2	0.11	2	0.11
4. Complete Complement.	1	0.05	3	0.16	3	0.16
5. Complement. Due to Immig.	6	0.32	8	0.42	7	0.37
"Overall" Complement	***7***	***0.37***	***11***	***0.58***	***10***	***0.53***
TOTAL	19	1.00	19	1.00	19	1.00

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS (1%) and 1980 PUMS (5%) files.
NOTE: "Overall" Displacement is the sum of numbers1&2, while "overall" Complement is the sum of numbers 4 & 5.
TOTAL does not take into account "Overall" Displacement or Complement.

Los Angeles shows several core industries that register "Complete Displacement" suggesting that native born groups in the core may be as vulnerable to increased immigrant employment as those in the periphery. Thus, competition between immigrants and the native-born in the high-skilled core sector may be as prevalent as the low-skilled peripheral sector in Los Angeles. Immigrants in Los Angeles may be more skilled than previously thought, given their ability to compete and in some instances displace native workers in core sector industries. For immigrants to compete with native labor in the core, similar

human capital characteristics must be evident for employers to view them as equal or close substitutes to native labor.

Los Angeles, in both its core and peripheral sectors, showed several industries that registered native-born employment "displacement as a result of factors other than immigration" (pattern number. 3). That is, native-born white, black, or Mexican labor is being displaced in those particular industries because of either industrial restructuring, white or other group employment gain, or other factors not tested in this model. This suggests that immigrants may be playing a minimal role in several industries in the displacement of native labor in Los Angeles.

Last, job gains for native workers come largely at the expense of immigrant labor (see pattern number 5 for each sector). That is, the employment gains that native labor accrues, do not similarly accrue to the immigrant population. This finding suggests that competition is a two way phenomenon: both immigrants and natives can displace each other.

Industrial Growth

Industrial change, whether an industry grew or declined between 1970 and 1980, may influence whether job displacement or complementarity occurs in an industry. In declining industries, immigrant and native labor is more likely to displace one another than in a robust (growth) labor market. This fundamental economic theorem, which is critical to my analysis, is absent in the job competition literature (see Chapter 1 "Participation and Economic Effects of immigration") and is addressed in the following section. Table 4.8 summarizes the job competition patterns according to those industries that declined and those that grew during the 1970s.

Table 4.8

Summary of Immigrant Job Competition Patterns on Native Workers According to Industrial Dualism and Change

LOS ANGELES

		Whites Number of Industries Affected	Blacks Number of Industries Affected	Mexicans Number of Industries Affected
CORE INDUSTRIES				
DISPLACEMENT		16	13	14
	Growth	12	8	9
	Decline	4	5	5
COMPLEMENTARY		11	14	13
	Growth	6	10	9
	Decline	5	4	4
PERIPHERY INDUSTRIES				
DISPLACEMENT		12	8	9
	Growth	10	5	6
	Decline	2	3	3
COMPLEMENTARY		7	11	10
	Growth	1	6	5
	Decline	6	5	5

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS (1%) and 1980 PUMS (5%) files.

This table lists those industries for each sector and native-born group according to whether native-born workers were displaced or complemented[53] by the employment of immigrants. The table also separates the "Displacement" and "Complementarity" categories based on whether the industries that grew or declined during the 1970s.

Because Los Angeles had more industries in the core that grew (.67 or 18 out of 27) rather than decline one would expect that a larger percentage of the positive immigrant effects (complementarity) would be concentrated in the growth sectors of the core. I would expect the corollary to occur in the peripheral sector. Below, I present data on employment share for industries in the core and periphery analyzed between growth and decline and speculate on the two competition (displacement or complementarity) patterns.

[53]The "Displaced" row category has been aggregated to include the three displacement patterns (numbers 1-3) discussed earlier. Likewise, the "Complementarity" row category has been aggregated to include the two complement patterns (numbers 4 & 5) also discussed earlier.

Table 4.9
Likely Number of Jobs Affected by Competition Effects According to Industrial Dualism and Change
LOS ANGELES

	Whites			Blacks			Mexicans		
	No. of Jobs Affected	Percent of* Ind. Change	Percent of** Sector	No. of Jobs Affected	Percent of* Ind. Change	Percent of** Sector	No. of Jobs Affected	Percent of* Ind. Change	ercent of** Sector
CORE INDUSTRIES									
DISPLACEMENT									
Growth	1,422,860	64.00	54.06	1,066,000	48.00	40.50	852,420	38.40	32.38
Decline	127,260	30.90	4.83	124,100	30.10	4.71	165,220	40.10	6.28
COMPLEMENTARY									
Growth	797,220	35.90	30.29	1,154,080	52.00	43.85	1,367,660	61.60	51.96
Decline	284,840	69.20	10.82	288,000	69.80	10.94	246,880	59.90	9.38
Total			100.00			100.00			100.00
PERIPHERY INDUSTRIES									
DISPLACEMENT									
Growth	791,680	87.40	47.50	205,560	22.70	12.33	226,280	25.00	13.58
Decline	112,220	14.70	6.73	216,620	28.50	13.00	216,620	28.50	13.00
COMPLEMENTARY									
Growth	116,640	12.90	7.00	699,680	77.30	41.98	678,960	75.00	40.74
Decline	649,220	85.30	38.95	544,820	71.60	32.69	544,820	71.60	32.69
Total			100.18			100.00			100.00

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS (1%) and 1980 PUMS (5%) files.
NOTE: *Percent of Ind. Change refers to the total number of jobs "afflected" for a specific category divided by the corresponding total number of jobs for either the growth or decline industries.
**Percent of Sector refers to the total number of jobs "affected" divided by the total number of jobs for either the core or periphery sector.

Los Angeles did not follow job competition patterns corresponding to my initial hypothesis that they would be stratified among the growing and declining industries depending on whether the pattern was complementary or displacement. That is, for Los Angeles, complementarity was more likely to occur in those industries that grew as in those that declined. However, no clear patterns emerged showing job displacement to be more prevalent in the declining industries and complement to be concentrated in the growth industries. This finding suggests that both instances of immigrant displacement and complementarity occur regardless of whether an industry is declining or growing. Industrial change makes no difference in stratifying complementary or negative (displacement) effects of increased immigration.

Thus far, this analysis has focused on industries that give an adequate but broad picture of where immigrant employment may be displacing or complementing native labor. These industries comprise thousands of jobs. To better interpret the shift share results and job competition trends, I have calculated the number of actual jobs as well as a total percentage (per growth or decline and sector) of the jobs affected in those industries

where displacement or complementarity is likely (see table 4.9 for these results) per each native group.

Whites in Los Angeles's core sector showed a larger percentage of industries with displaced jobs than with complemented ones. However, among blacks and Mexicans, the number of complementary jobs is higher than jobs that were displaced. Similarly, the peripheral sector shows that Mexicans (75% or 1.2 million) had larger numbers of jobs that were complementary than those that were "displaced" (25% or over 400,000 jobs for blacks and Mexicans). Thus, with the exception of white displacement in Los Angeles' core and periphery it is not nearly as prevalent as complementarity, and industrial growth or decline is not a factor in this pattern.

To further identify those industries most affected by the presence of immigrants, I compared the fifteen[54] industries with the largest number of immigrants with the fifteen industries with the largest number of native-born workers. This typology reveals whether those industries with the largest concentration of immigrants are having an inordinate effect on native employment. Likewise, analyzing those industries with the largest concentration of native labor indicates whether immigrant employment is having a positive (complement) or negative (displacement) effect on native employment.

Table 4.10 first lists for each region the top fifteen industries with the largest concentration of immigrant workers. Columns 2 and 3 identify whether these industries are in the core or periphery and whether they grew or declined between 1970 and 1980. The last three columns show the job competition patterns that emerged for native-born whites, blacks, and Mexicans. At the bottom of each region I provide a summary of the data for columns' 2-6.

[54]This number is arbitrary.

TABLE 4.10
Summary of Job Competition Effects for the Top 15 Industries With Largest Number of Immigrants and Native-Born, Los Angeles

Top 15 Industries w/ Largest Number of Immigrants	Core or Periph.	Growth or Decline	*EFFECTS OF JOB COMPETITION* Whites	Blacks	Mex
Apparel Mfg.	P	G	D*	D*	D*
Eat/Drinking Estab.	P	G	PD	NC	NC
Health Services	C	G	CD	CD	CC
FIRE	C	G	NC	NC	D*
Metal Ind. Prod.	C	G	D*	D*	D*
Construction	C	G	NC	PD	D*
Specialty Retail	P	D	NC	NC	NC
Misc. Mfg.	P	D	PD	PD	PD
Education	C	G	PD	NC	NC
Personal Services	P	D	NC	PD	PD
Furniture Mfg.	P	G	PD	NC	PD
Elect. Mach. Mfg.	C	D	CD	CD	CD
High Tech. Mfg.	C	G	PD	NC	NC
Food Mfg.	C	G	D*	D*	NC
Repair Services	P	G	PD	PD	NC
Total Core	8				
Total Periphery	7				
Total Growth		11			
Total Decline		4			
Total Displacement			7	8	4
Total Complement			8	7	7

Top 15 Industries w/ Largest Number of Native-born	Core or Periph.	Growth or Decline	*EFFECTS OF JOB COMPETITION* Whites	Blacks	Mex
Education	C	G	PD	NC	NC
Health Services	C	G	CD	CD	CC
FIRE	C	G	NC	NC	D*
Professional Serv.	C	G	NC	PD	NC
Specialty Retail	P	D	NC	NC	NC
Business Services	P	G	CD	CC	CC
Construction	C	G	NC	PD	D*
Air Ordnance	C	D	NC	NC	NC
Eat/Drinking Estab.	P	G	PD	NC	NC
Public Admn.	C	G	PD	NC	NC
Bld/Hd/Dept. Stores	P	D	NC	NC	NC
Entertain & Rec.	P	G	CC	CC	CC
Wholsale-Dur.	P	D	NC	NC	NC
Trk/Ware/Post	C	G	NC	PD	NC
Food Stores	P	G	CD	CC	CC
Total Core	8				
Total Periphery	7				
Total Growth		10			
Total Decline		5			
Total Displacement			5	4	2
Total Complement			10	11	13

"CD" refers to complete displacement, "D" refers to displacement due to factors other than immigration, and "PD" refers to native displacement due to one or two immigrant group's job gain.*
"CC" refers to complete complementarity, while "NC" conveys native job gain the result of immigrant job loss.

The immigrant concentrated industries show no clear job competition pattern as a result of immigrant employment in Los Angeles. Whites, blacks, and Mexicans experienced displacement in as many industries as they did complementarity. Mexicans, however, had four industries in which they were "Displaced Due to Factors Other Than Immigration," and four "Partial Displacement" patterns. This particular finding suggests that immigrant employment in those industries with the largest concentration of immigrants is not leading to the wholesale displacement of Mexican natives. In addition, the top fifteen immigrant concentrated industries were spread almost evenly among the core and peripheral categories. Because Los Angeles had more industries that grew than declined during the 1970s, I expected that these top fifteen industries would generally be growing. Indeed, eleven of the fifteen immigrant-concentrated industries were expanding.

When compared to the immigrant concentrated industries, the top fifteen native concentrated industries yield disparate patterns. The top fifteen native-concentrated

patterns are similar to the immigrant concentrated industries only in that they were growing at about the same rate. For this region, most of the native-concentrated industries are in the core and the three native born groups show more instances (in most cases more than double) of complementarity than displacement due to immigrant employment. In industries with a large concentration of natives, immigrants have few, if any, displacement effects.

III OCCUPATIONAL REPOSITIONING

The previous data indicate the extent of immigrant and native-born labor access to different sectors of the economy. However, they say little about the levels at which these workers are employed. Here, I look at occupational repositioning for the same ethnic groups selected for this paper.

Between 1970 and 1980, the Los Angeles economy, like the national economy, shifted from goods producing to services. This phenomenon resulted in expanded white-collar and service occupations. Los Angeles showed a net growth of 350,000 jobs concentrated in the managerial, sales, goods producing, and service occupations.

Table 4.11 provides data for Los Angeles on the number of jobs per occupation for the total populations and by nativity. Immigrants gained in their employment share in every occupation between 1970 and 1980. Their largest gains were concentrated in the semi-skilled, craft, and clerical occupations that coincidentally also had the largest employment losses for the native-born population. Almost half a million immigrants gained in occupational employment while natives lost over 145,000 jobs.

Table 4.11

Occupational Change in Los Angeles, 1970 - 1980 by Total Employment, Nativity, Race and Ethnicity

	Total Employment				*Nativity*					
					Immigrants			*U.S. Born*		
	1970	1980	Diff.	% Diff.	1970	1980	Diff.	1970	1980	Diff.
MGRL & ADMIN	308,800	460,020	151,220	0.49	37,600	79,120	41,520	271200	380,900	109,700
PROFESSIONAL	604,500	646,440	41,940	0.07	66,600	106,980	40,380	537,900	539,460	1,560
SALES	322,000	449,280	127,280	0.40	37,700	78,300	40,600	284,300	370,980	86,680
CLERICAL	883,100	850,300	-32,800	-0.04	86,500	136,780	50,280	796,600	713,520	-83,080
CRAFT	456,800	502,240	45,440	0.10	68,600	143,180	74,580	388,200	359,060	-29,140
SEMI-SKILLED	557,300	437,340	-119,960	-0.22	128,900	216,840	87,940	428,400	220,500	-207,900
TRANSPORT	108,100	120,680	12,580	0.12	9,900	20,900	11,000	98200	99,780	1,580
LABORERS	162,300	221,080	58,780	0.36	24,500	71,220	46,720	137,800	149,860	12,060
PRVT HSHID SRV	59,200	36,760	-22,440	-0.38	10,300	19,040	8,740	48900	17,720	-31,180
PROTECTIVE SRV	39,600	55,120	15,520	0.39	1,800	4,920	3,120	37800	50,200	12,400
FOOD & FD PREP SR	175,400	195,300	19,900	0.11	28,000	63,780	35,780	147,400	131,520	-15,880
HEALTH SRV	55,300	71,920	16,620	0.30	5,900	16,000	10,100	49400	55,920	6,520
JANITORIAL SRV	85,100	109,860	24,760	0.29	12,200	36,860	24,660	72900	73,000	100
PERSONAL SRV	114,200	89,260	-24,940	-0.22	11,900	18,100	6,200	102300	71,160	-31,140
FARM FOREST FISH	17,200	53,260	36,060	2.10	5,100	20,600	15,500	12100	32,660	20,560
Total	3,948,900	4,298,860	349,960	0.09	535,500	1,032,620	497,120	3,413,400	3,266,240	-147,160

	WHITES			*LATINOS*			*BLACKS*			*ASIANS*		
	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.
MGRL & ADMIN	278,100	352,180	74,080	12,500	39,880	27,380	10,800	32,680	21,880	6,300	30,900	24,600
PROFESSIONAL	516,000	480,440	-35,560	29,000	48,560	19,560	34,600	57,780	23,180	23,200	53,460	30,260
SALES	279,200	323,960	44,760	21,100	57,900	36,800	14,100	36,080	21,980	6,400	25,440	19,040
CLERICAL	705,600	531,220	-174,380	79,800	134,340	54,540	73,300	117,200	43,900	21,300	55,460	34,160
CRAFT	347,400	291,480	-55,920	70,200	135,840	65,640	30,500	42,540	12,040	6,400	22,860	16,460
SEMI-SKILLED	308,500	141,040	-167,460	163,500	221,520	58,020	67,600	39,500	-28,100	13,100	24,180	11,080
TRANSPORT	73,500	65,900	-7,600	19,600	28,160	8,560	13,000	21,720	8,720	1,300	2,720	1,420
LABORERS	96,400	89,860	-6,540	35,700	88,560	52,860	22,000	28,300	6,300	6,600	9,580	2,980
PRVT HSHID SRV	25,800	9,980	-15,820	6,900	16,580	9,680	24,000	7,460	-16,540	2,000	1,560	-440
PROTECTIVE SRV	34,500	35,800	1,300	1,300	5,880	4,580	3,400	11,020	7,620	200	1,420	1,220
FOOD & FD PREP SR	130,800	104,880	-25,920	22,000	54,320	32,320	12,700	17,580	4,880	8,700	14,460	5,760
HEALTH SRV	34,500	33,620	-880	5,200	14,360	9,160	14,300	17,740	3,440	1,100	4,840	3,740
JANITORIAL SRV	40,400	35,420	-4,980	14,800	37,700	22,900	28,200	29,960	1,760	1,300	4,300	3,000
PERSONAL SRV	80,000	50,480	-29,520	13,800	19,560	5,760	16,700	13,320	-3,380	3,000	4,260	1,260
FARM FOREST FISH	9,000	20,300	11,300	5,800	19,280	13,480	1,000	5,180	4,180	1,300	6,340	5,040
Total	2,959,700	2,566,560	-393,140	501,200	922,440	421,240	366,200	478,060	111,860	102,200	261,780	159,580

Occupational Segments	*Total Employment*				*Immigrants*			*U.S. Born*		
	1970	1980	Diff.	% Diff.	1970	1980	Diff.	1970	1980	Diff.
I. Primary	858,900	1,132,280	273,380	0.32	93,500	193,920	100,420	765,400	938,360	172,960
Craft	356,700	393,420	36,720	0.10	54,900	107,500	52,600	301,800	285,920	-15,880
S. Primary	1,688,800	1,658,970	-29,830	-0.02	211,600	354,570	142,970	1,477,200	1,304,400	-172,800
Secondary	1,044,500	1,114,190	69,690	0.07	175,500	376,630	201,130	869,000	737,560	-131,440
Total	3,948,900	4,298,860	349,960	0.09	535,500	1,032,620	497,120	3,413,400	3,266,240	-147,160

	WHITES			*LATINOS*			*BLACKS*			*ASIANS*		
	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.	1970	1980	Diff.
I. Primary	747,200	845,600	98,400	44,700	112,240	67,540	40,100	88,100	48,000	24,700	75,280	50,580
Craft	271,000	233,440	-37,560	48,700	96,100	47,400	27,000	34,900	7,900	7,900	21,840	13,940
S. Primary	1,294,600	1,004,800	-289,800	196,800	320,140	123,340	147,850	202,400	54,550	42,500	105,530	63,030
Secondary	646,900	482,720	-164,180	211,000	393,960	182,960	151,250	152,660	1,410	27,100	59,130	32,030
Total	2,959,700	2,566,560	-393,140	501,200	922,440	421,240	366,200	478,060	111,860	102,200	261,780	159,580

SOURCE: 1970 Figures from U.S. Bureau of the Census, Public Use Sample (1/100)
1980 Figures from U.S. Bureau of the Census, Public Use Microdata Samples, (5%, "A" Sample)

An alternative way to classify occupations are by way of segments derived from "segmentation" analysis (Gordon, Edwards and Reich, 1982). The bottom half of table 4.11 shows data on the number of jobs per occupational segment for the total population and by nativity.[55] As the data for the four occupational segments show, the largest employer in Los Angeles in 1970 is the subordinate primary, followed by the secondary,

[55]Appendix B describes how I delineate and classify all Census defined categories into these four segments.

independent primary, and craft. This order changes in 1980 when the independent primary becomes the second largest employer. During the 1970s, occupations that were characterized in the subordinate primary declined by 2 percent. When disaggregated by nativity, the data show that native workers experienced the largest loss of jobs in the subordinate primary, secondary and craft occupations. However, these losses were offset by the large growth of immigrant employment in each of the four segments.

Similar to industries in Los Angeles, occupational growth was concentrated among the immigrant and minority populations (see Table 4.11) while whites and the native-born lost in their concentration. What can shift share tell us about the occupational employment change for these population groups? Is competition a factor in white and native occupational job loss? In the following section, I analyze data from the shift share model results implemented on two occupational typologies; 1) fifteen broadly defined categories, and 2) four segments following "segmentation" theory.

1. Shift Share Model Results on 15 Occupational Categories

Table 4.12 shows the changes in occupational employment for the total population in Los Angeles and each ethnic group. As the Actual (job change) column shows, U.S.-born whites suffered significant job loss in Los Angeles with the other racial and ethnic groups offsetting that loss by phenomenal growth. These later groups exceeded the Expected job growth rate[56], in some cases by over 2000 percent! These data reveal a different set of dynamics affecting the process of job change and concentration in Los Angeles. As the Los Angeles economy grew, it absorbed large numbers of immigrants mostly in the services and in some white-collar jobs. White employment declined for the same reasons cited in an earlier study of New York City by Waldinger (1987). He

[56]"Expected" growth rate calculates the number of jobs each group would have gained had its gains been proportional to the growth experienced by the overall economy (region) during this period, when employment grew by 9 percent in Los Angeles from 3,948,900 jobs in 1970 to 4,298,860 in 1980.

attributes the decline in white employment in New York to their older age, higher death rate, lower birthrate, and out-migration to the suburbs or to other regions of the United States as compared to non-whites. In addition, Waldinger notes that a large cohort of European immigrants who arrived between 1900 and 1915 reached retirement age during the 1970s. These factors likewise, can also be attributed to white employment loss in Los Angeles. In the following section, similar to the previous (industries) one, I address the extent of and type of occupational job competition.

TABLE 4.12
CHANGES IN OCCUPATIONAL EMPLOYMENT FOR SELECTED ETHNIC GROUPS
LOS ANGELES, 1970 - 1980

	EMPLOYMENT		JOB CHANGE			
Groups in Los Angeles	1970	1980	Expected	Actual	Actual - Expected	A - E/ 1970 Emp.
TOTAL EMPLOYMENT	3,948,900	4,298,860	355,401	349,960	-5,441	-0.14%
NATIVE-BORN Whites	2,675,700	2,292,440	240,813	-383,260	-624,073	-23.32%
NATIVE-BORN Blacks	362,000	464,040	32,580	102,040	69,460	19.19%
NATIVE-BORN Mexicans	241,000	314,980	21,690	73,980	52,290	21.70%
FOREIGN-BORN Mexicans	138,900	399,260	12,501	260,360	247,859	178.44%
FOREIGN-BORN Latinos	62,600	145,740	5,634	83,140	77,506	123.81%
FOREIGN-BORN Asians	41,700	174,300	3,753	132,600	128,847	308.99%

SOURCE: Author's estimates based on data taken from U.S. Census Bureaus 1970 PUS (1%) and 1980 PUMS (5%, "A" Sample) files.

Table 4.13 provides data on racial and ethnic groups according to their nativity status and the results of "share" from the shift share model (presented in both absolute and percentage figures in bold) in fifteen occupations. In addition, I have included the total employment in each occupation during 1980.

Table 4.13
OCCUPATIONAL SHIFT SHARE MODEL RESULTS FOR "SHARE" 1970-1980 (Absolute & Percent*)
LOS ANGELES

		Change due to SHARE			*Change due to SHARE*		
	Total	**U.S. Born**			**Immigrant**		
	1980 Emp.	**Whites**	**Blacks**	**Mexicans**	**Mexicans**	**Latinos**	**Asians**
MGRL & ADMIN	460,020	4,650	13,863	7,340	3,252	2,763	12,523
		1.01	**3.01**	**1.60**	**0.71**	**0.60**	**2.72**
PROFESSIONAL	646,440	39,746	12,690	2,564	2,616	-2,751	-3,645
		6.15	**1.96**	**0.40**	**0.40**	**-0.43**	**-0.56**
SALES	449,280	-1,546	12,978	7,265	2,681	1,293	7,998
		-0.34	**2.89**	**1.62**	**0.60**	**0.29**	**1.78**
CLERICAL	850,300	10,126	31,011	15,787	-590	-389	2,899
		1.19	**3.65**	**1.86**	**-0.07**	**-0.05**	**0.34**
CRAFT	502,240	-15,239	2,179	-2,548	10,873	-1,601	8,856
		-3.03	**0.43**	**-0.51**	**2.16**	**-0.32**	**1.76**
SEMI-SKILLED	437,340	-29,710	-26,878	-20,897	-20,263	-13,285	-6,280
		-6.79	**-6.15**	**-4.78**	**-4.63**	**-3.04**	**-1.44**
TRANSPORT	120,680	-1,102	4,212	-1,034	-3,804	339	-203
		-0.91	**3.49**	**-0.86**	**-3.15**	**0.28**	**-0.17**
LABORERS	221,080	-19,803	-6,234	-562	5,455	4,540	-7,166
		-8.96	**-2.82**	**-0.25**	**2.47**	**2.05**	**-3.24**
PRVT HSHID SRV	36,760	-638	-12,327	315	-977	5,331	-3,473
		-1.73	**-33.53**	**0.86**	**-2.66**	**14.50**	**-9.45**
PROTECTIVE SRV	55,120	-3,830	5,295	1,771	960	840	940
		-6.95	**9.61**	**3.21**	**1.74**	**1.52**	**1.71**
FOOD & FD PREP SRV	195,300	-10,710	683	320	6,698	4,813	-12,179
		-5.48	**0.35**	**0.16**	**3.43**	**2.46**	**-6.24**
HEALTH SRV	71,920	-2,768	-3,945	1,910	2,061	80	3,820
		-3.85	**-5.49**	**2.66**	**2.87**	**0.11**	**5.31**
JANITORIAL SRV	109,860	-7,028	-12,500	-572	4,553	2,536	1,170
		-6.40	**-11.38**	**-0.52**	**4.14**	**2.31**	**1.06**
PERSONAL SRV	89,260	3,701	-3,118	2,051	-602	294	-3,267
		4.15	**-3.49**	**2.30**	**-0.67**	**0.33**	**-3.66**
FARM FOREST FISH	53,260	-5,725	1,852	-1,233	-4,891	1,267	-1,610
		-10.75	**3.48**	**-2.32**	**-9.18**	**2.38**	**-3.02**
Total	4,298,860	3,587	491	325	197	87	56
		0.08	**0.01**	**0.01**	**0.00459**	**0.00203**	**0.00129**

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS and 1980 PUMS files.
* Percent of total employment in 1980 in bold.

This table shows several combinations of both native and immigrant occupational gain and loss. For example, both natives and immigrants gained in their employment share in the managerial and administration occupations but showed losses in the semi-skilled occupations. Similar to the previous "industrial repositioning" section, these gains and losses reflect different instances of native displacement and complement that, in part, are attributed to immigrant employment share gain. Other factors such as occupational

change, the general economic climate of each region, and other variables not tested in this model can also be factors when both native and immigrant groups lose jobs in an occupation.

The data in table 4.13 show that, in Los Angeles, those occupations that suffered the severest decline in their employment also produced the largest job losses for immigrants and the native-born. For example, the occupation in Los Angeles with the largest job loss was semi-skilled were close to 120,000 jobs were lost. Both immigrant and native employment share in this occupation were negative and large suggesting that some factor other than job competition is responsible for the decline in jobs.

The data in Table 4.14 assist in identifying occupations in which job competition (displacement or complementarity) is possible as a result of each group's employment share. The first column of this table lists the 15 occupational categories for both regions while the following three columns presents the codes for each pattern for these occupations and for the three native born groups. The codes of "CC" and "NC" refer to complete complementarity and native complementarity as a result of immigrant job loss, respectively. The three other codes are in reference to some form of displacement with "CD" and "PD" referring to complete displacement and partial displacement, respectively.

Table 4.14
Effects of Job Competition on Native Workers by Immigrants in Occupations for Los Angeles

	EFFECTS OF JOB COMPETITION ON NATIVE WORKERS		
	Whites	**Blacks**	**Mexicans**
MGRL & ADMIN	CC	CC	CC
PROFESSIONAL	NC	NC	NC
SALES	PD	CC	CC
CLERICAL	NC	NC	NC
CRAFT	PD	NC	PD
SEMI-SKILLED	D*	D*	D*
TRANSPORT	D*	NC	D*
LABORERS	PD	PD	PD
PRVT HSHID SRV	PD	PD	NC
PROTECTIVE SRV	PD	CC	CC
FOOD & FD PREP SRV	PD	CC	CC
HEALTH SRV	CD	CD	CC
JANITORIAL SRV	CD	CD	CD
PERSONAL SRV	NC	PD	NC
FARM FOREST FISH	PD	NC	NC
Total			

+ Industrial classification by Core and Periphery adapted from Tolbert, Horan and Beck (1980).
"CD" refers to complete displacement, "D" refers to displacement due to factors other than immigration, and "PD" refers to native displacement due to one or two immigrant group's job gain.*
"CC" refers to complete complementarity, while "NC" conveys native job gain the result of immigrant job loss.*

As table 4.15 shows for Los Angeles, the white population experienced partial displacement in more occupations than did the black or Mexican population. This table then aggregates these patterns enabling us to identify trends into two simple categories of either "displacement" or "complementary."

Table 4.15
Summary of Immigrant Job Competition Patterns on Native Workers (Occupations)
LOS ANGELES

JOB COMPETITION PATTERNS	Whites No. Occup.	Whites % of Total	Blacks No. Occup.	Blacks % of Total	Mexicans No. Occup.	Mexicans % of Total
1. Complete Displacement	2	0.04	2	0.04	1	0.02
2. Partial Displacement	7	0.15	3	0.07	2	0.04
"Overall" Displacement	***9***	***0.60***	***5***	***0.33***	***3***	***0.20***
3. Displ. Due to Other Factors	2	0.04	1	0.02	2	0.04
4. Complete Complement.	1	0.02	4	0.09	5	0.11
5. Complement. Due to Immig.	3	0.07	5	0.11	5	0.11
"Overall" Complement	***4***	***0.27***	***9***	***0.60***	***10***	***0.67***
TOTAL*	15	0.87	15	0.93	15	0.87

SOURCE: Author's estimates based on data taken from U.S. Census Bureau 1970 PUS (1%) and 1980 PUMS (5%) files.
NOTE: "Overall" Displacement is the sum of numbers1&2, while "overall" Complement is the sum of numbers 4 & 5.
TOTAL* is the sum of "Overall" Displacement and Complement.

The first column of table 4.15 provides a listing of the five possible job competition scenarios that I have identified (complete displacement, partial displacement, displacement due to other factors, complete complement, and complement due to immigration). After the first two scenarios, I have included a sub category ("Overall Displacement") which aggregates complete and partial displacement into one "displacement" category. Likewise, I have aggregated the last two categories into a sub category ("Overall Complement") to also give me one "complement" category. While it is important to individually analyze all five categories because each one tells a different story of job competition,[57] for simplicity sake, I have created an "either/or" category that describes either displacement or

[57]Individually analyzing each of the five job competition categories is important because they describe different types of displacements and complements. For example, the partial displacement category under-emphasizes the "Overall Displacement" sub category because it describes a situation were only one or two native groups have lost in their employment share while one or two or three immigrant groups have gained. Likewise, "Complete Complement" describes a situation in which both the native and immigrant population gains in their employment share while the "Complement Due to Immigration" describes a situation in which natives gain in their employment share while immigrants lose. It is important to distinguish between these two complement scenarios because the latter one shows that immigrants are also displaced in the job competition debate.

complementarity as a result of immigrant employment share gain or loss.

Los Angeles showed more instances of complementarity than displacement for its black and Mexican populations; its white population, however, experienced more displacement than complementarity. However, for whites, most were partially, not completely displaced suggesting that the aggregated "overall displacement" sub category is not as fraught with native displacement as the title implies. In general, most occupations in Los Angeles that experienced displacement did so partially and not completely suggesting that for Los Angeles, immigrants complement natives in occupations more than they displace them and that when displacement occurs, it is typically partial.

2. Shift Share Model Results on Four Occupational "Segments"

The third and final test of this research are to asses the shift share model results for occupations divided among four segments derived from segmentation theory. Table 4.16 shows data on changes in occupational segment employment for selected racial and ethnic groups. The first column lists the five groups by nativity per segment. Columns 2 and 3 provides data on their total employment (per segment) for 1970 and 1980. The Expected column shows the number of jobs each group (per segment) would have gained or lost had their gains or losses been identical to that segment's overall growth or loss rate. The Actual column provides data on job change per each group and segment between 1970 and 1980. This table (4.16) provides us with a glimpse of the changing employment composition for each group.

TABLE 4.16
CHANGES IN OCCUPATIONAL SEGMENT EMPLOYMENT FOR SELECTED ETHNIC GROUPS
LOS ANGELES, 1970 - 1980

	EMPLOYMENT		JOB CHANGE			
Groups in Independet Primary	1970	1980	Expected	Actual	Actual - Expected	A - E/ 1970 Emp.
NATIVE-BORN White	675,900	756,940	216,288	81,040	-135,248	-20.01%
NATIVE-BORN Blacks	39,500	85,220	12,640	45,720	33,080	83.75%
NATIVE-BORN Mexicans	24,300	49,180	7,776	24,880	17,104	70.39%
FOREIGN-BORN Mexicans	6,200	30,140	1,984	23,940	21,956	354.13%
FOREIGN-BORN Latinos	6,200	20,000	1,984	13,800	11,816	190.58%
FOREIGN-BORN Asians	8,600	49,180	2,752	40,580	37,828	439.86%
Groups in Craft						
NATIVE-BORN White	241,600	204,260	24,160	-37,340	-61,500	-25.46%
NATIVE-BORN Blacks	26,600	33,580	2,660	6,980	4,320	16.24%
NATIVE-BORN Mexicans	21,700	30,480	2,170	8,780	6,610	30.46%
FOREIGN-BORN Mexicans	12,900	43,920	1,290	31,020	29,730	230.47%
FOREIGN-BORN Latinos	7,800	15,600	780	7,800	7,020	90.00%
FOREIGN-BORN Asians	3,700	15,020	370	11,320	10,950	295.95%
Groups in Subordinate Primary						
NATIVE-BORN White	1,173,400	900,700	-23,468	-272,700	-249,232	-21.24%
NATIVE-BORN Blacks	145,950	196,790	-2,919	50,840	53,759	36.83%
NATIVE-BORN Mexicans	101,100	125,920	-2,022	24,820	26,842	26.55%
FOREIGN-BORN Mexicans	45,900	118,830	-918	72,930	73,848	160.89%
FOREIGN-BORN Latinos	25,150	48,440	-503	23,290	23,793	94.60%
FOREIGN-BORN Asians	16,200	69,510	-324	53,310	53,634	331.07%
Groups in Secondary						
NATIVE-BORN White	584,800	430,540	40,936	-154,260	-195,196	-33.38%
NATIVE-BORN Blacks	149,950	148,450	10,497	-1,500	-11,997	-8.00%
NATIVE-BORN Mexicans	93,900	109,400	6,573	15,500	8,927	9.51%
FOREIGN-BORN Mexicans	73,900	206,370	5,173	132,470	127,297	172.26%
FOREIGN-BORN Latinos	23,450	61,700	1,642	38,250	36,609	156.11%
FOREIGN-BORN Asians	13,200	40,590	924	27,390	26,466	200.50%

SOURCE: Author's estimates based on data taken from U.S. Census Bureaus 1970 PUS (1/100) and 1980 PUMS (5%, "A" Sample) files.

The data in this table shows that whites were the primary losers of jobs in the craft, subordinate primary, and secondary segments. They, however, gained by more than 81,000 jobs in the independent primary segment suggesting that some of their losses in the other segments may have been the result of their upward mobility into this segment.

Table 4.17 presents the shift share model results for each racial and ethnic group per occupational segment. These data allow us to measure the employment share gain or loss and speculate on the different job competition patterns described earlier. On the basis of the shift share results on the occupational segments, whites were the only group that had instances of displacement (partial) as a result of increased immigrant employment share. Both native-born blacks and Mexicans complemented from the presence of

immigrant employment in each of the four segments, with the only exception being Mexicans in the subordinate primary. The subordinate primary was the only segment in Los Angeles that experienced a loss of jobs between 1970 and 1980 making it more vulnerable than the other segments to instances of job competition.

TABLE 4.17
OCCUPATIONAL SEGMENT SHIFT SHARE MODEL RESULTS FOR SELECTED ETHNIC GROUPS
LOS ANGELES, 1970 - 1980

	EMPLOYMENT				*Change due to*				
Groups in Ind. Primary	1970	1980	Change	LA I.E.% C.	Industry Change	Interactive Effect	Group Size	Share	Job Comp. Pattern
NATIVE-BORN White	675,900	756,940	81,040	0.32	216,288	81,108	-135,180	-68	PD
NATIVE-BORN Blacks	39,500	85,220	45,720	0.32	12,640	45,425	32,785	295	CC
NATIVE-BORN Mexicans	24,300	49,180	24,880	0.32	7,776	24,786	17,010	94	CC
FOREIGN-BORN Mexicans	6,200	30,140	23,940	0.32	1,984	23,932	21,948	8	
FOREIGN-BORN Latinos	6,200	20,000	13,800	0.32	1,984	13,764	11,780	36	
FOREIGN-BORN Asians	8,600	49,180	40,580	0.32	2,752	40,506	37,754	74	
Groups in Craft									
NATIVE-BORN White	241,600	204,260	-37,340	0.10	24,160	-24,160	-48,320	-13,180	PD
NATIVE-BORN Blacks	26,600	33,580	6,980	0.10	2,660	6,916	4,256	64	CC
NATIVE-BORN Mexicans	21,700	30,480	8,780	0.10	2,170	8,680	6,510	100	CC
FOREIGN-BORN Mexicans	12,900	43,920	31,020	0.10	1,290	30,960	29,670	60	
FOREIGN-BORN Latinos	7,800	15,600	7,800	0.10	780	7,800	7,020	0	
FOREIGN-BORN Asians	3,700	15,020	11,320	0.10	370	11,285	10,915	35	
Groups in Subordinate Primary									
NATIVE-BORN White	1,173,400	900,700	-272,700	-0.02	-23,468	-269,882	-246,414	-2,818	PD
NATIVE-BORN Blacks	145,950	196,790	50,840	-0.02	-2,919	49,623	52,542	1,217	CC
NATIVE-BORN Mexicans	101,100	125,920	24,820	-0.02	-2,022	25,275	27,297	-455	CD
FOREIGN-BORN Mexicans	45,900	118,830	72,930	-0.02	-918	72,522	73,440	408	
FOREIGN-BORN Latinos	25,150	48,440	23,290	-0.02	-503	23,138	23,641	152	
FOREIGN-BORN Asians	16,200	69,510	53,310	-0.02	-324	53,298	53,622	12	
Groups in Secondary									
NATIVE-BORN White	584,800	430,540	-154,260	0.07	40,936	-152,048	-192,984	-2,212	PD
NATIVE-BORN Blacks	149,950	148,450	-1,500	0.07	10,497	-1,500	-11,996	-1	CC
NATIVE-BORN Mexicans	93,900	109,400	15,500	0.07	6,573	15,024	8,451	476	CC
FOREIGN-BORN Mexicans	73,900	206,370	132,470	0.07	5,173	130,803	125,630	1,667	
FOREIGN-BORN Latinos	23,450	61,700	38,250	0.07	1,642	38,224	36,582	27	
FOREIGN-BORN Asians	13,200	40,590	27,390	0.07	924	27,324	26,400	66	

SOURCE: Author's estimates based on data taken from U.S. Census Bureaus 1970 PUS (1/100) and 1980 PUMS (5%, "A" Sample) files.
NOTE: The "Job Competition Pattern" column only provides data for the native born group per each segment to maintain consistency with this study's emphasis on the native-born labor force.

The job competition patterns for the occupational segments in Los Angeles overwhelmingly show that immigrants played a minimal role in the displacement of native-

born groups in each of the four segments. While whites did lose in each segment, these losses could very well be the result of their upward mobility into the independent primary segment -- a situation that is suggested by the data results of the shift share model. The non-white native-born groups gained in their employment share suggesting that immigrants are not displacing them but rather serve as complements to their employment.

CHAPTER 5
INDUSTRIAL AND OCCUPATIONAL JOB COMPETITION AND THE URBAN UNDERCLASS

I INTRODUCTION

The objectives of this chapter are three-fold. First, I explain the industrial and occupational shift share findings for New York and Los Angeles and their implications to job competition. To do this, I review how the major findings for each of the three tests for New York and Los Angeles differ or are similar and whether the comparative analyses reject or support the hypotheses of this study. In addition, I discuss how the major findings for each test corroborate or refute existing theories and empirical evidence on this subject. In the second part of this chapter I go back to the initial concern that prompted this study -- that of the underclass and how job competition may or may not be contributing to its formation and/or permanence. I close by briefly discussing the limitations of this study, suggesting areas for future research, and commenting on public policy.

II IMMIGRANTS: COMPETITORS OR COMPATRIOTS?

Throughout this study, I hypothesized that job competition between immigrant and domestic workers were mediated on the growth or decline of a particular industry or occupation and whether immigrants and domestic workers belong to protected (primary occupations and core industries) or un-protected (secondary occupations and periphery industries) labor markets. Below, I discuss the two major findings that have emerged from this study.

The first is that there are more instances of complementary than displacement. This scenario holds true for each of the three native groups in industries (test 1) but not for occupations (test 2). Occupations experienced an equal number (3) of groups (whites and blacks in New York and whites in Los Angeles) that showed more instances of

displacement than complementary as did complementarity than displacement (Puerto Ricans in New York and blacks and Mexicans in Los Angeles). In other words, there were three out of six groups that showed more instances of complementary patterns than displacement patterns. And, likewise, there were three out of six groups that showed more instances of displacement patterns than complementary ones. These findings alone suggest a pattern of upward mobility for those groups that experienced more instances of displacement than complementary.

Second, I have found strong evidence in favor of rejecting my main hypothesis that U.S.-born workers are, in general, insulated from job competition with immigrants due to their concentration in labor markets where immigrants are employed in fewer numbers. Overall, immigrant location in either the core or periphery made little difference in the number of industries that experienced patterns of displacement or complement. Occupations categorized according to fifteen broad groups and analyzed by growth and decline experienced somewhat mixed patterns of job competition (displacement or complementary) but more closely followed my predicted hypotheses for the second test than did industries in the first test. In fact, the data suggest that in those instances were "displacement" occurred, a more appropriate description of "replacement" is better suited. In other words, for several occupations, the data indirectly suggest a process of upward mobility for whites, blacks, Puerto Ricans, and Mexicans, thereby allowing for their "replacement" by immigrant labor. Unlike industries (test 1) or occupations categorized according to 15 definitions (test 2), occupational growth and structure did make a significant difference in displacement or complementary patterns for native born labor. That is, the results of this study show that in the primary occupations native born labor was protected from displacement as a result of increased immigrant workers while in the secondary they were not. Two situations that I predicted in my hypotheses for this test.

In the following, I summarize the major findings of this research by first explicitly showing how each test (numbers 1, 2 & 3 for industries and occupations) is either rejected

or accepted based on the hypothesis of each test. I then aggregate for each group the number of industries and occupations that fall under "rejection" or "acceptance" or conclude on the inconclusiveness[58] of the data and test. For each test I also provide a summary of the major findings and discuss how they contribute to what we already know or don't about this important subject.

Test No. 1: Industries

Immigrant Complementarity (job creators) in Industries

The first major finding in this test is that all three native-born groups for New York with the exception of whites in Los Angeles, experienced greater instances of complementary than displacement. That is, across forty-six industrial categories, immigrants are more likely to contribute or create jobs (complement) for the white, black, Mexican, and Puerto Rican native born groups than they are to displace them.

Industrial Structure Makes a Difference in Immigrant Impacts

The second major finding in this test is that industrial structure (core or periphery) and change (growth or decline) does make a difference in whether an immigrant complements or displaces native-born labor. This holds true for all three native-born groups in New York and for whites in Los Angeles. Blacks and Mexicans in Los Angeles did not correspond to any pattern of industrial growth or structure in their job competition with immigrants.

Summary of Findings

Table 5.1 provides a summary of industries for Los Angeles and New York that accept or reject the criteria of the hypotheses. I also include a schematic diagram of the hypotheses at the top of the table. The first column provides a list of all 46 industries for

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[58]When a similar number of industries for a group fall under "rejection" and "acceptance," I conclude that this test is "inconclusive" in determining, for example, whether industrial dualism and change make a difference.

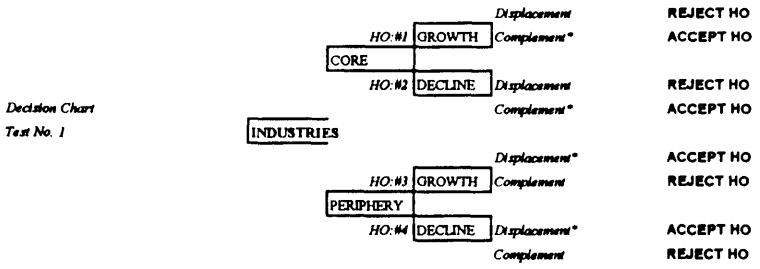
Los Angeles delineated by core and periphery, and growth and decline. The next three columns provide the "research decision" for each native group and industry. If "reject" is placed before an industry for a particular group, then that industry for that group **did not** experience the predicted result of the hypothesis. Alternatively, if "accept" is placed before an industry for a particular group, then that industry for that group experienced the predicted result of the hypothesis. The predicted results (either displacement or complement) of the hypothesis for this test are found at the top of Table 5.1 (test schema) marked by italics and asterisk.

We can see that Table 5.1 show a mixture of "accept" and "reject" decisions. To better discern these decisions into patterns, I have aggregated for each group (Table 5.2) all the "accept" and then all the "reject" decisions according to each hypothesis. For the remaining two tests (numbers 2 & 3), I summarize the findings in a fashion similar to the one I just described.

Table 5.2 lists the four hypotheses for each region and the number of industries that fall under "rejected" or "accepted" for each native-born group. In general, *Test No. 1* shows data to be inconclusive for blacks and Mexicans in Los Angeles and for blacks in New York. That is, I cannot conclude one way or the other (accept or reject), on how immigrants' impact (displacement or complementary) black (Los Angeles and New York) and Mexican (only in Los Angeles) workers. However, for whites in Los Angeles and New York, I can reject the hypothesis that core industries that experienced growth complemented whites during increases in immigration. In fact, six more instances (industries) of displacement occurred for whites in Los Angeles during the 1970s than did complement. In addition, for whites in Los Angeles, those industries in the periphery that grew did not provide a buffer from displacement as a result of increased immigration. However, for those industries in the periphery that declined, whites did not suffer displacement as a result of increased immigration in Los Angeles and New York.

Table 5.1

Summary of Industries Which Accept or Reject Criteria of Hypothesis for Test No.1, Los Angeles and New York



LOS ANGELES				*NEW YORK*			
CORE: Growth	**Whites**	**Blacks**	**Mexicans**	**CORE: Growth Industries**	**Whites**	**Blacks**	**P. Ricans**
CONSTRUCTION	Accept	Reject	Reject	TOBACCO MFG	Reject	Accept	Accept
FOOD MFG	Reject	Reject	Accept	TRANSP EQ MFG	Reject	Reject	Accept
PAPER MFG	Reject	Reject	Reject	WHOL NONDURABLE	Reject	Accept	Reject
PRINTING & PUB	Reject	Accept	Accept	HEALTH SRV	Reject	Reject	Accept
PETRO/COAL MFG	Accept	Accept	Reject	PUBLIC ADMIN	Reject	Accept	Accept
METAL INDUST	Reject	Reject	Reject	**CORE: Decline Industries**			
GEN MACH MFG	Reject	Accept	Accept	MINING	Accept	Reject	Accept
TRANSP EQ MFG	Reject	Accept	Reject	CONSTRUCTION	Accept	Reject	Accept
PHT/TIME EQ MF	Accept	Accept	Reject	FOOD MFG	Reject	Accept	Accept
HIGH TECH MFG	Reject	Accept	Accept	PAPER MFG	Accept	Reject	Reject
TRK/WARE/POST	Accept	Reject	Accept	PRINTING & PUB	Accept	Accept	Reject
TRANSPORTATION	Reject	Accept	Reject	CHEMICAL MFG	Accept	Reject	Reject
WHl NONDUR	Reject	Reject	Reject	PETRO/COAL MFG	Accept	Accept	Accept
FIRE	Accept	Accept	Reject	RUBB & MISC MFG	Reject	Accept	Accept
HEALTH SRV	Reject	Reject	Accept	ST/CLY/GLS MFG	Reject	Accept	Accept
EDUCATION	Reject	Accept	Accept	METAL INDUST	Reject	Accept	Reject
PROF SRVC	Accept	Reject	Accept	GEN MACH MFG	Reject	Accept	Accept
PUBLIC ADMIN	Reject	Accept	Accept	ELECT MACH MFG	Accept	Reject	Accept
CORE: Decline				PHT/TIME EQ MF	Reject	Reject	Accept
MINING	Accept	Reject	Reject	HIGH TECH MFG	Reject	Accept	Accept
TOBACCO MFG	Reject	Reject	Accept	AIR ORDINANCE	Accept	Accept	Accept
CHEMICAL MFG	Reject	Accept	Reject	RAIL SRVC	Accept	Reject	Accept
RUBB & MISC MFG	Accept	Reject	Reject	TRK/WARE/POST	Accept	Reject	Reject
ST/CLY/GLS MFG	Reject	Accept	Reject	TRANSPORTATION	Accept	Accept	Reject
ELECT MACH MFG	Reject	Reject	Reject	COMMUNICATIONS	Accept	Reject	Reject
AIR ORDINANCE	Accept	Accept	Accept	FIRE	Accept	Accept	Accept
RAIL SRVC	Accept	Reject	Accept	EDUCATION	Accept	Reject	Reject
COMMUNICATIONS	Accept	Accept	Accept	PROF SRVC	Accept	Accept	Reject
PERIPHERY: Growth				**PERIPHERY: Growth Industries**			
AG FOR & FISH	Accept	Reject	Accept	EAT/DRINK ESTAB	Reject	Reject	Accept
TEXTILE MFG	Accept	Accept	Accept	BUSINESS SERV	Accept	Reject	Reject
APPAREL MFG	Accept	Accept	Accept	ENTER & REC	Reject	Accept	Reject
LEATHER MFG	Accept	Accept	Accept	**PERIPHERY: Decline Industries**			
LOG/LUM. PROD	Accept	Accept	Accept	AG FOR & FISH	Reject	Accept	Reject
FURN MFG	Accept	Reject	Accept	TEXTILE MFG	Accept	Reject	Accept
FOOD STORE	Accept	Reject	Reject	APPAREL MFG	Accept	Reject	Reject
EAT/DRINK ESTAB	Accept	Reject	Reject	LEATHER MFG	Accept	Reject	Reject
BUSINESS SERV	Accept	Reject	Reject	LOG/LUMBER PROD	Reject	Accept	Reject
REPAIR SERV	Accept	Accept	Reject	FURN MFG	Accept	Reject	Reject
ENTER & REC	Reject	Reject	Reject	MISC MFG	Accept	Accept	Accept
PERIPHERY: Decline				UTIL & SANIT	Reject	Accept	Accept
MISC MFG	Accept	Accept	Accept	WHOLE & DURABLE	Reject	Accept	Reject
UTIL & SANIT	Reject	Reject	Reject	BLD/HD/DEPT ST	Accept	Reject	Accept
WHOLE & DUR.	Reject	Reject	Reject	FOOD STORE	Accept	Reject	Reject
BLD/HD/DEPT ST	Reject	Reject	Reject	MV ST/SERV STA	Reject	Reject	Reject
MV ST/SERV STA	Reject	Reject	Reject	SPEC RETAIL	Reject	Accept	Accept
SPEC RETAIL	Reject	Reject	Reject	REPAIR SERV	Accept	Accept	Reject
DOMEST SERV	Accept	Accept	Accept	DOMEST SERV	Reject	Accept	Reject
PERSONAL SERV	Reject	Accept	Accept	PERSONAL SERV	Reject	Accept	Accept

*Refers to the predicted results (either displacement or complement) of the hypothesis.

Table 5.2

Industries (aggregate) Which Accept or Reject Criteria of Hypotheses for Test No.1

LOS ANGELES

Hypotheses:	WHITES Reject	WHITES Accept	BLACKS Reject	BLACKS Accept	MEXICANS Reject	MEXICANS Accept
1. Core industries that grew complements native labor during increases of immigration.	12	6	[8]	[10]	[9]	[9]
2. Core industries that declined complements native labor during increases of immigration.	[4]	[5]	[5]	[4]	[5]	[4]
3. Peripheral industries that grew displaces native labor during increases of immigration.	1	10	[6]	[5]	5	6
4. Peripheral industries that declined displaces native labor during increases of immigration.	6	2	5	3	5	3

NEW YORK

Hypotheses:	WHITES Reject	WHITES Accept	BLACKS Reject	BLACKS Accept	PUERTO RICANS Reject	PUERTO RICANS Accept
1. Core industries that grew complements native labor during increases of immigration.	5	0	[2]	[3]	1	4
2. Core industries that declined complements native labor during increases of immigration.	7	15	10	12	9	13
3. Peripheral industries that grew displaces native labor during increases of immigration.	[2]	[1]	[2]	[1]	[2]	[1]
4. Peripheral industries that declined displaces native labor during increases of immigration.	[8]	[8]	7	9	10	6

Note: Boxed figures indicates inconclusive findings.

In New York, the data on job competition for blacks was negligible. However, for mainland-born Puerto Ricans, an increase in immigration in growing and declining industries in the core, meant more employment opportunities for them. Likewise, immigrant employment in declining peripheral industries did not displace mainland-born Puerto Ricans who complemented from the presence of immigrants.

Test No. 1 does not signify that increases in immigration leads to the overall displacement of native-born labor. The only group, according to my research, that experienced more instances of displacement than complements was the white population in Los Angeles's core industries. Insofar as competition is occurring in the core between immigrant and white (native-born) laborers, it may be because both groups are close substitutes or the more likely scenario, that whites are vacating jobs to take better ones outside of the area. This finding that immigrants in Los Angeles's core are less likely to complement or create jobs for whites is important because it suggests that 1) "replacement" as opposed to displacement may be occurring in high-skilled industries, and 2) immigrants may either be preferred over whites or may be close substitutes for whites in higher-skilled industries. This finding is also interesting because immigrants, particularly Latino immigrants, do not posses the necessary skills to be close substitutes with the native-born white population in both regions. It may be that Asian and older (those who immigrated in the decades before 1980 but were none-the-less included in this study) immigrants (known to be higher-skilled than Latinos) are skewing the data in this direction. In either case, negative job competition (i.e., displacement) in industries is not occurring overall between immigrant and minority workers in either of the two largest cities in the United States. In addition, the following findings also point to a higher incidence (number of industries) of complementarity to the native-born as a result of increased industrial employment of immigrants:

New York

- All three native born groups analyzed in New York (whites, blacks, and Puerto Ricans) had more industries (54, 52, and 63 percent, and 41, 43, and 35 percent, respectively) with instances of complementarity than displacement.

- In several industries, whites (21), blacks (22) and Puerto Ricans (18) gained in their employment share while immigrants lost in those industries suggesting a form of "reverse" job displacement. In other words, immigrants may be losing in their industrial employment share as a result of native employment share gain.

- After analyzing the job competition patterns for each sector, two important patterns surfaced:

  1) White and black job loss (displacement) in several core industries is the result of factors other than immigrant employment share increase, and

  2) immigrants experienced many instances of employment share loss simultaneously with native gain suggesting that immigrants are being displaced by native-born whites.

- Instances of immigrant displacement and complementarity occur regardless of whether an industry is declining or growing. Industrial change makes no difference in stratifying complementary or negative (displacement) effects of increased immigration.

- For 15 immigrant and 15 native-born concentrated industries, immigrants do not show major displacement effects on U.S.-born labor in these labor markets.

Los Angeles

- Blacks and Mexicans had more industries (54 percent and 50 percent, respectively) with instances of complementarity than displacement than did whites (39 percent).

- Whites, blacks, and Mexicans gained in their employment share in several industries while immigrants lost in those industries suggesting that immigrants may be losing in their industrial employment share as a result of native gain.

- When analyzing the five job competition patterns for each sector, three important patterns surfaced:

  1) immigrants show similar job displacement and complement patterns in the core as in the periphery,

  2) native labor displacement in several industries in both sectors is the result of factors other than immigrant employment share increase, and

  3) immigrants show many instances of employment share loss simultaneously with native gain.

- Instances of immigrant displacement and complementarity occur regardless of whether an industry is declining or growing. Industrial change makes no difference in stratifying complementary or negative (displacement) effects of increased

immigration.

- With the exception of whites, displacement in Los Angeles's core and periphery sectors is not nearly as prevalent as complementarity and industrial change is not a factor in their stratification.

- For 15 immigrant and 15 native-born concentrated industries, immigrants do not show major displacement effects on U.S.-born labor in these labor markets.

Test No. 2: Occupations Classified by Growth and Decline

Immigrants as Complements or Displacers: Mixed Findings

Displacement was more frequent then complement for whites and blacks in New York as a result of increased immigration. On the other hand, in Los Angeles, complement was more often found than displacement in occupations that employed blacks and Mexicans. These mixed findings, when analyzed in the context of the industrial findings above, suggest that whites in both regions and blacks in New York may be vacating jobs that are then being replaced by immigrant and other minority groups -- a finding that is verified in an earlier study on New York (Waldinger, 1987).

Occupational Change (growth or Decline) Made no Difference in Job Competition

Depending on whether an immigrant or a native-born group belonged to a growing or a declining industry, made no difference in whether each of these groups displaced or complemented on another. An immigrant was just as likely to complement a native-born worker in a growth as in a decline occupation.

Table 5.3 provides a summary of occupations for Los Angeles and New York that accept or reject the criteria of the hypotheses. I also provide a schematic diagram of the hypotheses at the top of the table. The first column provides a list of all 15 occupations for Los Angeles and New York delineated by growth and decline (-). The next three columns provide the "research decision" for each native group and occupation. If I place "reject" before an occupation for a particular group, then that occupation for that group

did not experience the predicted result of the hypothesis. Alternatively, if "accept" is placed before an occupation for a particular group, then that occupation for that group experienced the predicted result of the hypothesis.

Table 5.3
Summary of Occupations Which Accept or Reject Criteria of Hypothesis for Test No 2

		Displacement	**REJECT HO**
	HO:#1 GROWTH		
		*Complement**	**ACCEPT HO**
Decision Chart			
Test No. 2	OCCUPATIONS		
		*Displacement**	**ACCEPT HO**
	HO:#2 DECLINE		
		Complement	**REJECT HO**

LOS ANGELES	Whites	Blacks	Mexicans
MGRL & ADMIN	Accept	Accept	Accept
PROFESSIONAL	Accept	Accept	Accept
SALES	Reject	Accept	Accept
CLERICAL (-)	Reject	Reject	Reject
CRAFT	Reject	Accept	Reject
SEMI-SKILLED (-)	Accept	Accept	Accept
TRANSPORT	Reject	Accept	Reject
LABORERS	Reject	Reject	Reject
PRVT HSHID SRV (-)	Accept	Accept	Reject
PROTECTIVE SRV	Reject	Accept	Accept
FOOD & FD PREP SRV	Reject	Accept	Accept
HEALTH SRV	Reject	Reject	Accept
JANITORIAL SRV	Reject	Reject	Reject
PERSONAL SRV (-)	Reject	Accept	Reject
FARM FOREST FISH	Reject	Accept	Accept

NEW YORK	Whites	Blacks	Puerto Ricans
MGRL & ADMIN	Accept	Accept	Reject
PROFESSIONAL (-)	Reject	Reject	Reject
SALES	Reject	Accept	Accept
CLERICAL (-)	Accept	Reject	Reject
CRAFT (-)	Accept	Accept	Reject
SEMI-SKILLED (-)	Accept	Accept	Reject
TRANSPORT (-)	Reject	Accept	Reject
LABORERS	Reject	Reject	Reject
PRVT HSHID SRV (-)	Reject	Accept	Reject
PROTECTIVE SRV	Reject	Accept	Reject
FOOD & FD PREP SRV	Accept	Reject	Reject
HEALTH SRV	Reject	Reject	Reject
JANITORIAL SRV	Accept	Reject	Reject
PERSONAL SRV (-)	Accept	Accept	Reject
FARM FOREST FISH	Accept	Accept	Reject

NOTE: (-) denotes that industry as experiencing a negative change in employment between 1970 and 1980.

Table 5.4 lists the two hypotheses for each region and the number of occupations that I either "rejected" or "accepted" for each native-born group. In general, *Test No. 2* shows data to be inconclusive for whites in New York. However, the results of *Test No. 2* shows that blacks and Mexicans in Los Angeles were complemented by increases in

immigration in growing occupations. No discernible results were concluded for whites, blacks, and Mexicans in those occupations in Los Angeles that declined in their employment between 1970 and 1980. In other words, even in a tight labor market, immigrants in Los Angeles were not a cause for concern in black, white, and Mexican job loss. This, however, was not the case for Puerto Ricans in New York where even in growing occupations, mainland-born Puerto Ricans were displaced partly due to increases in Latino (including island-born Puerto Ricans) and Asian immigration. Blacks and Puerto Ricans (mainland-born) though, did experience different job competition patterns in those occupations that declined; Puerto Ricans were complemented while blacks were displaced.

Table 5.4
Number of Occupations Which Accept or Reject Criteria of Hypotheses for Test No.2

LOS ANGELES *Hypotheses:*	WHITES Reject	WHITES Accept	BLACKS Reject	BLACKS Accept	MEXICANS Reject	MEXICANS Accept
1. Occupations that grow complement native labor during increases of immigration.	9	2	3	8	4	7
2. Occupations that decline displace native labor during increases of immigration.	2	2	1	3	3	1
NEW YORK *Hypotheses:*	**WHITES** Reject	**WHITES** Accept	**BLACKS** Reject	**BLACKS** Accept	**PUERTO RICANS** Reject	**PUERTO RICANS** Accept
1. Occupations that grow complement native labor during increases of immigration.	4	4	5	3	7	1
2. Occupations that decline displace native labor during increases of immigration.	3	4	2	5	7	0

Note: Boxed figures refer to inconclusive findings.

Thus, *Test No. 2* does not overwhelmingly show that increases in the occupational employment of immigrants displaces native-born labor. In fact, this situation only occurred for whites in the growth occupations in Los Angeles. In New York, displacement only occurred for blacks in the declining occupations and in the growing ones for Puerto Ricans (mainland-born). In addition, the following findings also support

the notion that little displacement effects occurred to the native-born in occupations in Los Angeles and New York as a result of increased immigration:

New York

- Occupational growth is concentrated among the immigrant and minority populations while whites and the native-born lost.
- Shift share shows that partial as opposed to complete displacement was more prevalent for the racial and ethnic groups and occupations in Los Angeles.
- Aggregated, complete complementarity and partial displacement were predominate for the native white, black, and Puerto Rican populations.

Los Angeles

- Among the immigrant and minority populations, occupational growth is concentrated while whites and the native-born lost.
- Shift share shows that partial as opposed to complete displacement was more prevalent for the racial and ethnic groups and occupations in Los Angeles.
- Aggregated, complete complementarity was predominate for the native black and Mexican population while the opposite was the case for whites.

Test No. 3: Four Occupational Segments

Immigrants: Compatriots in the Core, Competitors in the Periphery

Of the three tests conducted in this study, the results of this test most closely followed the predicted hypotheses. I argued that immigrants were more likely to displace native-born labor in the secondary than in the primary segments because immigrants who are less skilled would be concentrated in labor markets (secondary) filled with other less-skilled minority groups than in higher-skilled labor markets (primary) filled with skilled native-born workers. Indeed, as I describe below, the findings for this test follow patterns similar to the hypothesis I outlined above.

The last test of this study focused on all the Census defined occupations classified into four segments derived from "segmentation" theory (Edwards, Gordon, and Reich,

1986). Table 5.5 provides a summary of the occupational segments for Los Angeles and New York that accept or reject the criteria of the hypotheses that are also provided schematically at the top of the table. The first column provides a list of the four segments along with the three native-born groups analyzed in this study. Column 2 lists the job competition pattern identified for each group for each segment while column 3 shows the research decision made for each group in each segment according to the criteria for *Test No. 3*. If "reject" is chosen for a group in a particular segment, then that occupational segment for that group **did not** experience the predicted result of the hypothesis. Alternatively, if "accept" is placed before a segment for a particular group, then that occupational segment for that group experienced the predicted result of the hypothesis.

TABLE 5. 5
Occupational Segments Which Accept or Reject Criteria of Hypotheses for Test No.3, Los Angeles and New York

Decision Chart
Test No. 3

OCCUPATIONS

HO:#1	I. PRIMARY	*Displacement*	**REJECT HO**
		*Complement**	**ACCEPT HO**
HO:#2	CRAFT	*Displacement*	**REJECT HO**
		*Complement**	**ACCEPT HO**
HO:#3	S. PRIMARY	*Displacement*	**REJECT HO**
		*Complement**	**ACCEPT HO**
HO:#4	SECONDARY	*Displacement**	**ACCEPT HO**
		Complement	**REJECT HO**

LOS ANGELES	Job Comp. Pattern	Hypothesis Decision
Groups in Ind. Primary		
NATIVE-BORN White	PD	Reject
NATIVE-BORN Blacks	CC	Accept
NATIVE-BORN Mexicans	CC	Accept
Groups in Craft		
NATIVE-BORN White	PD	Reject
NATIVE-BORN Blacks	CC	Accept
NATIVE-BORN Mexicans	CC	Accept
Groups in Subordinate Primary		
NATIVE-BORN White	PD	Reject
NATIVE-BORN Blacks	CC	Accept
NATIVE-BORN Mexicans	CD	Reject
Groups in Secondary		
NATIVE-BORN White	PD	Accept
NATIVE-BORN Blacks	CC	Reject
NATIVE-BORN Mexicans	CC	Reject

NEW YORK	Job Comp. Pattern	Hypothesis Decision
Groups in Ind. Primary		
NATIVE-BORN White	PD	Reject
NATIVE-BORN Blacks	CC	Accept
NATIVE-BORN P. Ricans	PD	Reject
Groups in Craft		
NATIVE-BORN White	CC	Accept
NATIVE-BORN Blacks	CC	Accept
NATIVE-BORN P. Ricans	PD	Reject
Groups in Subordinate Primary		
NATIVE-BORN White	CC	Accept
NATIVE-BORN Blacks	CC	Accept
NATIVE-BORN P. Ricans	CC	Accept
Groups in Secondary		
NATIVE-BORN White	PD	Accept
NATIVE-BORN Blacks	CC*	Reject
NATIVE-BORN P. Ricans	PD	Accept

SOURCE: Author's estimates based on data taken from U.S. Census Bureaus 1970 PUS (1/100) and 1980 PUMS (5% Sample) files.
NOTE: The "Job Competition Pattern" column only provides data for the native born group per each segment to maintain consistency with this study's emphasis on the native-born labor force.

Table 5.5 tells us for Los Angeles that blacks and native-born Mexicans in the three primary and in the single secondary segment were complemented by the presence of immigrants. That is, minority workers, with the exception of Mexicans in the subordinate primary, did not lose jobs in the four labor market segments as a result of increased immigrant employment in all four segments. In addition, the data shows that whites were

displaced (partially) in every segment. Insofar as displacement between immigrants and natives is occurring in Los Angeles, it is primarily relegated to the employment of native-born whites and to a lesser extent with Mexicans (only in the subordinate primary). This finding is consistent with earlier data in this study that showed whites to be the primary beneficiaries of occupational segment job loss between 1970 and 1980. New York, however, showed different patterns of displacement according to occupational segments. In addition, the following points summarized from chapter 4 point to similar trends.

- Whites were the primary losers of jobs in the craft, subordinate primary, and secondary segments. Their substantial employment gain into the independent primary may be offsetting these losses implying upward mobility.
- The remaining non-white groups, with the exception of black workers in the secondary, all gained in their employment for each segment.
- Whites in every segment, and Mexicans in the subordinate primary experienced displacement (partial for whites, complete for Mexicans) while immigrants and the remaining native-born groups showed complementary patterns of employment share.
- Immigrants played a minimal role in the job loss of whites in the craft, subordinate primary, and secondary segments because these losses may have been due to their gains in the independent primary. However, native-born Mexicans in the subordinate primary would have gained more jobs had it not been for the positive share gain experienced by immigrants.

Whites were displaced in the independent primary and secondary segments and complemented in the craft and subordinate primary. Likewise, Puerto Ricans were displaced in the independent primary, craft and secondary occupations, while blacks were complemented in every occupational segment. These disparate results are also consistent with the data findings in the previous chapters (3 & 4) which shows whites to be the largest loser of jobs in the craft, subordinate primary, and secondary segments. Their large exodus from these three labor markets may very well have paved the way for increased employment of blacks and Puerto Ricans in the subordinate primary. In

addition, the following points summarized from chapter 3 (New York) support these findings.

- Whites and mainland-born Puerto Ricans were the primary losers of jobs in the craft, subordinate primary, and secondary segments. White employment gain into the independent primary may be offsetting these losses implying some upward mobility.

- Whites in every segment except the independent primary, and Puerto Ricans in the subordinate primary experienced displacement while immigrants and the remaining native-born groups showed complementary patterns of employment share.

- Immigrants played a minimal role in the job loss of whites in the craft, subordinate primary, and secondary segments because these losses may have been due to their gains in the independent primary or occupational restructuring. However, native-born Puerto Ricans in the subordinate primary would have gained more jobs had it not been for the positive share gain experienced by island-born Puerto Ricans and other immigrants.

Significance of Findings to Existing Literature

The findings for this study support earlier studies on the impacts of increased immigration on the U.S. labor market. Three categories of empirical evidence are currently used to test the validity of the impact hypotheses: 1) production function models that estimate across national samples of individuals; 2) industrial and occupational sectoral studies in fields that employ large numbers of immigrants; and 3) analysis of labor market outcomes across regions or SMSAs that contain a large number of immigrants. Despite popular perceptions to the contrary, a careful review (see chapter 1) of the empirical evidence on immigrants' impact on the U.S. labor market demonstrates:

1) Immigrants' displacement of native labor is negligible according to the findings of national and regional studies; however, the evidence is mixed at the local and industry-specific level;

2) Overall, immigrants complement native labor according to research on local labor markets;

3) Immigrants create jobs for native workers according to the majority of studies, yet, in a few isolated cases native workers are displaced; and

4) Immigrants do not have an adverse effect on the wages of native workers according to national and regional studies.

That industries experienced more instances of complementarity than displacement for both regions and that occupations had as many instances of complement than displacement for both regions as well corroborate the "segmentation" and the "job ladder" hypotheses because job losses are minimal at the regional level, and in most cases, immigrants are complements to and job creators for native workers. Even though this study applied shift share method, other statistical techniques and studies support the findings of this research. Borjas (1990) summarizes the litany of research on this topic by definitively stating,

> "The empirical evidence is likely to be controversial: the methodological arsenal of modern econometrics cannot detect a single shred of evidence that immigrants have a sizable adverse impact on the earnings and employment opportunities of natives in the United States."

However, as the above summary of past studies on this topic state, there is a fair amount of regional and local-level research supporting the notion that immigrants have a minimal, but nevertheless an impact on the U.S. labor market. And, as I show in this study, regional impacts of immigrants on native-born labor in industries and occupations do support some level of displacement, though complementarity is by far the more frequent scenario. This finding alone, allows me to 1) refute the findings of studies at the metropolitan and regional level that show no effect on natives' employment, and 2) to corroborate past research on industrial/sectoral settings that show mixed findings on the impact of immigration to native-born labor. Below, I elaborate on how the findings of this study reflect past research on these two bodies of empirical evidence on this topic.

Metropolitan and Regional Studies: No Effect on Natives' Employment

Studies (Card, 1989; Simon and Moore, 1984; Muller and Espenshade, 1985; and Reishauer, 1989) in this paradigm focus on the local distribution of immigrants and their aggregate effects on local employment patterns, regional labor forces, and on "immigrant cities" such as Los Angeles and New York. These studies strongly refute the displacement argument.

Probably the most well known study in this area is Muller and Espanshade's Los Angeles area study (1985). This study is especially important because it added to the discussion of immigrant impact by elaborating on how black men, women, and teens are affected -- a particularly poignant question in the underclass literature and in my research.[59] The two authors discovered that blacks in general, and teens in particular, did not appear harmed by immigration in the period between 1970 and 1982. The authors emphasized that as immigrants' labor force participation rates continued to grow in California, especially in Los Angeles, blacks' unemployment rate rose less rapidly than the national average. Women too showed gains in their labor force participation rates compared to the national average. The authors found that: "In sum, trends in unemployment rates do not provide evidence of strong job competition (displacement) between immigrants and blacks."

Somewhat similar to Muller and Espanshade, this study analyzed the 1970's period and showed a negligible immigrant employment impact to black laborers in Los Angeles and in New York. However, unlike Muller and Espanshade's study, white laborers in both regions suffered more instances of displacement effects than did any other group though evidence in this study also suggests that whites were being "replaced" as they vacated industries and occupations for better paying jobs or relocated outside of the area. In addition, New York's regional economy experienced unprecedented bouts of decline

[59]Most studies in this area do not differentiate the native labor by race, ethncity, gender or age.

during the 1970s, thereby making it very difficult to compare with the robust regional economy of Los Angeles during the same period. As a result more industries and occupations experienced instances of displacement in New York for its native-born white, black, and Puerto Rican population than similar groups in Los Angeles.

Reishauer (1989) in an important study that built upon Muller and Espenshade's research by comparing black unemployment, labor force participation, net migration rate, and earnings in metropolitan areas concluded that areas with the largest growth (population and economic), compared to those with little new immigration, revealed no striking evidence that immigrants have a substantial impact on black unemployment or labor participation. Likewise, Card (1989) and Simon and Moore (1984) found that immigrants do not affect native-born labor participation, and that immigrants had no impacts on their unemployment rate. Their analysis concluded that there was no observable increase in unemployment due to total immigration to the United States.

These three studies suggest, unequivocally, that immigrants do not negatively affect the employment status of U.S.-born labor. In other words, at the regional level, immigrant labor is not displacing native labor. While my research shows that complementarity is more frequent than displacement at the regional level, my research also shows that at the sectoral or industrial/occupational level this is not occurring and that indeed, in Los Angeles and New York mixed findings of both displacement and complement is found.

Industrial/Sectoral Studies: Mixed Findings

Studies (DeFreitas, 1986; Mines and Martin, 1984; Waldinger, 1986 & 1987; Bailey, 1987; and Maram and King, 1983) in this paradigm examine the relationship between immigrant and native workers in particular labor markets, and have reported mixed results. Like the present research, studies in this area address the impact of immigrants on natives' employment by relying on (aggregate) census data or are based on

specific case studies -- a method that I suggest for future research.

Immigrants as Job Creators

In an in-depth study by DeFreitas (1986), he determined that undocumented[60] immigrants have no discernible effect on the amount of unemployment or weeks worked by natives. DeFreitas' examination of U.S. Census data from 1980 also concluded that there may be a slight complementary effect associated with increased immigration as well. Like the previous section, DeFreitas' conclusions undermine the displacement hypothesis and support the notion of a more positive or complementary immigrant-native labor interaction in the job market. Like his study, this research also supports the notion of a more positive or complementary immigrant-native labor interaction in the job market for both New York and Los Angeles.

Mines and Martin (1984), while less conclusive than DeFreitas, found little job displacement because of the lack of native labor willing to perform agricultural labor at current wages. This finding suggests that native laborers have priced themselves out of this labor market and may be generational participants in what is described as a "job ladder." Indeed, Waldinger (1986) in his study of the garment industry in New York City may provide a clue as too how the "job ladder" is constructed. He argues that, "To some extent immigrants may have displaced workers, but [only] to the extent that complementary jobs were available elsewhere." In other words, native-born garment workers ascended a "job-ladder," rather than succumb to job displacement. In a subsequent study, using shift-share in New York, Waldinger (1987) found that the

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[60]Researchers (U.S. Department of Labor, 1989; Chiswick, 1988; Papademetriou and DiMarzio, 1986; and Massey, 1987) have concluded that when data on undocumented immigrants is unavailable, information on recent legal immigrants is an acceptable proxy. It is generally acknowledged that field research on undocumented immigrants from Latin America indicates that their economic, demographic and human capital characteristics are quite similar to those of legal immigrants from the same country.

composition of the workforce is a crucial factor in the occupational position of non-white and that changes in the size of the white population set the stage for an upward realignment of nonwhite workers. Last, Bailey's (1987) analysis of New York City's restaurant industry provides more conclusive evidence that native labor markets remain intact in the face of immigration. Specifically, he reports that there is convincing evidence that immigrants do not compete with black workers, but may compete with other immigrants. These findings suggest that if native laborers choose not to climb another "rung" in the job ladder, they can do so without fear of displacement.

The above studies point mostly to instances of job complementarity and insofar as displacement may be occurring it is only in the form of "replacement" where immigrants are replacing native-born labor as they move upwards into better jobs. I conclude, similar to these studies, that the segmentation/queuing theory best describes what is occurring in Los Angeles and New York's labor markets. Overall, the data in this study show that immigrants are not displacing native born labor in disproportionate numbers especially in industries. We do, however, find instances of isolated job displacement between immigrants and native born whites and/or Mexicans and Puerto Ricans in occupations. The data show that complementarity is more frequent than displacement and that white labor has decreased significantly. These two findings taken together suggest a process of queuing whereby whites vacate jobs that are then replaced by immigrant and/or minority labor.

Although popular perceptions about immigrants name them as the cause of wholesale native job displacement, the empirical evidence (national, regional, and metropolitan) overwhelmingly concludes that immigrants affect natives' employment opportunities. The "displacement" hypothesis is a poor model for explaining the native-immigrant employment relationship. Most studies determine that there is some complementary effect of immigrants on natives' employment, suggesting that the U.S. labor market is either crudely "segmented" or provides a "job ladder" for natives and

immigrants alike. The results of this study certainly suggest this to be the case.

In the following section, I go back to the original inquiry of this research; job competition and its relationship to the urban underclass and black and Latino unemployment.

III THE URBAN UNDERCLASS?

The results of this study suggest that job competition between immigrants and U.S.-born workers, particularly African Americans, may be a factor, albeit a small one, in their displacement in several industries and occupations for both regions. However, the data suggest that if competition is occurring, it is mostly confined among groups with similar backgrounds. For example, Puerto Rican's labor market opportunities in New York may be curtailed as the result of increased Latino and Asian immigration. Likewise, the same is true for Mexicans and immigrant Mexicans and other Latinos in Los Angeles. This situation may result in larger numbers of unemployed Puerto Ricans and Mexicans, contributing to their already impoverished condition.

Understanding these findings and their implications to the underclass requires that I discuss the relationship between the two. The underclass and immigration, as I discussed in chapter one of this study, are widely researched as two separate topic areas. However, as a combined topic (e.g., Does one cause the other or are they related to each other?), very little empirical research exists.

Any analysis of immigration and the underclass needs to consider two points. First, generally speaking, the "underclass," as used by academics and most journalists, refers to persistently poor and isolated urban black residents, and to a somewhat lesser extent Latinos. Thus, when academics refer to immigration as a factor in the emergence or maintenance of an underclass they are referring to the effects that immigration may cause to urban black or Hispanic (U.S.-born) poor people. And, not usually, to the effects that immigration may cause to all poor or underclass people, or to poor women, or for

that matter to poor rural Hispanics. Thus, it is important to specify what "underclass" group immigration may be affecting. This study analyzes the effects of immigration not only on blacks but also on Mexicans, Puerto Ricans and whites in an urban and regional context. In so far as these groups belong to an underclass, immigration may be affecting them if they are directly displacing them from jobs.

Second, the underclass theory, as we currently understand it (summarized in Chapter one), does not adequately explain the impoverished condition of the United State's Latino population today (Melendez, 1992; Moore, 1989; Cuciti and James, 1990). So, if we are to analyze immigration (which during 1970 and 1980 is predominantly from Latin American and Asia) and its effect on the underclass, we need to differentiate the model's assumptions about blacks and Hispanics and how immigration may be affecting each group separately, if at all.

The paucity of literature on the relationship between immigration and poverty (not underclass) in general has nonetheless resulted in two perspectives on how immigration may cause or influence the poverty status of U.S.-born disadvantaged (minority) and other workers. The first framework analyzes the labor force attachment and characteristics of immigrants. In this perspective, immigrants may influence poverty indicators in several ways. One of these ways is that immigrants, due to their lower human capital characteristics, might contribute to lower earnings, lower labor force participation, and higher unemployment. A second way in which immigrants may contribute to urban poverty is their residential concentration in already impoverished neighborhoods, ethnic enclaves, and in the worst-paying labor markets. Last, the slow rate of assimilation and labor market integration of immigrants may also contribute to the increase and persistence of Latino poverty.

A different framework on the impacts of immigration analyzes how immigrants may displace U.S.-born workers, particularly African Americans, from employment opportunities and decrease their wages. These and other notions, both supply and demand

-side, has sparked a fierce debate about the declining labor market status of black men and is the cornerstone of Wilson's underclass theory.[61] Thus, it is this notion -- job displacement -- that has garnered the most attention from underclass theorists attempting to conceptually link increased immigration to the inner city and increases in the underclass.

The proposition that particular immigrants and U.S.-born workers are close or perfect substitutes, at least in terms of their human capital, and can replace the other in production thus leading to job displacement is not supported by past research (Reischauer, 1989) and in general, in this study. Immigrants, initially, do not have the same access to jobs, services, and other tangibles that U.S.-born workers have. Over time, immigrants become proficient in the English language, learn about alternative job opportunities, and acquire skills that are valued by U.S. employers. Economic studies show that immigrants reach par, in terms of wages, with their U.S.-born counterpart after 10-15 years of residence in the United States (Chiswick, 1978; Blau, 1980; DeFreitas, 1980; Long, 1980). Other studies show that immigrants, in particular Mexican and Puerto Ricans (island-born) have never reached par with the dominant white population (Tienda and Jenson, 1988; Hirschmann, 1988; Melendez, Rodriguez, and Barry-Figueroa, 1991).

The concern over the effects that immigration may have on the employment and earnings of natives, particularly on other Latinos and black, is especially evident and volatile in states such as California, New York and Florida where black and Latino unemployment is high, the economy is sluggish, and poverty is on the rise. Job displacement as argued in the underclass debate postulates that low-skilled Latino immigrants may be a closer substitute for low-skilled U.S.-born Latinos and blacks than for other U.S.-born groups such as women and teenagers and whites. As a result of this situation, competition in particular labor markets may result in the displacement of low-skilled U.S.-born Latinos and blacks thus contributing to their already higher than average

[61]This topic has generated a large literature, mostly economic, that is summarized in an excellent review by Moss and Tilly (1991).

rates of unemployment. This formulation, however, fails to capture the structural attributes and changes that have occurred in the secondary and primary labor markets, not to mention the international and national labor markets during the 1970s.

During economic boom periods, immigration is often perceived as a positive economic stimulus. Increased inflows of immigrants can be complementary units of production to other non-immigrant groups. As immigration increases, the employment opportunities of U.S.-born workers also improve because of the rising demand for complementary workers and for the increased demand induced during good economic opportunities (employment, goods' production, services). In addition, Latino immigrants may serve as both substitutes for some low-skilled groups and as a complement to other workers. This scenario was especially evident for both groups in both regions in this study.

As discussed earlier, empirical evidence shows that immigrants and U.S.-born laborers are not close substitutes in the production process. Whatever negative impact immigrants may have in the U.S. is with other immigrant groups and not with the native-born population. The finding of this study, that the entry of immigrants into local labor markets has a negligible effect on U.S.-born workers' employment prospects is echoed by several prominent immigration scholars (Borjas, 1990; Greenwood and McDowell, 1988; Simon, 1989; Reischauer, 1989). The inconsequential impacts that immigrants have on the employment and earnings of U.S.-born workers are consistent across a variety of disciplines, methodologies, regions, and population groups (Borjas, 1987a; Bean, Lowell and Taylor, 1988; Bean and Tienda, 1987; Muller and Espenshade, 1985; McCarthy and Valdez, 1986; DeFreitas, 1988).

What then is to account for some of the sporadic competition that the data suggest, particularly in New York? It may be that employers prefer immigrant or other types of workers over black and white workers. Indeed, Kirshenman and Neckerman (1990), Kirshenman (1991), and Neckerman (1991) show in their studies that employers regard black workers, especially males, as more devious, argumentative, intimidating, and

uncooperative than women or immigrants. Employers may be relocating to suburban areas, as the spatial mismatch hypothesis asserts, thus relying on informal recruiting and transportation systems that preclude black workers from work. Another likely possibility is that employers may be excluding blacks and whites from jobs in particular industries because they prefer to hire recent immigrants who are more vulnerable to employer exploitation and more likely to not complain. Because the data in this research suggest that an ethnic succession or job queuing process is taking place in both New York and Los Angeles, I believe that employers are selectively choosing immigrant employment over white and some black workers in those labor markets where competition is most likely to occur.

In so far as immigrants are competing with white, black, and Puerto Rican workers and that these workers belong to an underclass, then immigration may be contributing to a black and Latino urban underclass. However, a more palatable factor, one that is supported by the data in this research, is more likely to be inducing job competition than simply increases in immigration. The structure and labor market of Los Angeles and to a lesser extent New York seems to be favoring immigrant groups. For these reasons, I conclude that immigration is not a major contributor of a black and Latino underclass.

IV CONCLUSION

Limitations of This Study and Areas for Future Research

In attempting to analyze the industrial and occupational concentration effects of immigrants on U.S.-born laborers I have tried to be as thorough and detailed in the compilation and organization of the data and in the construction of the shift share model. Similar to most models or studies that primarily depend on survey data, certain limitations invariably surface. In this section I will discuss the limitations of this study and propose topic areas for future research.

The period of this study's analysis (1970 and 1980) is limited because it fails to capture the massive in-migration to the United States after 1980. Various studies and surveys have estimated the post 1980 flow of immigration to be quite substantial, particularly to Los Angeles which has experienced large inflows of Central American immigrants (DeFreitas, 1991:44). Likewise, the New York metropolitan area has witnessed the growth of the Caribbean population, particularly the Dominican origin population, during the 1980s (Foner, 1987; Grasmuck and Pessar, 1991). I suspect that the numbers of these two groups may have increased to the point were, if this study were to include the 1990 census, Central Americans and Dominicans could each be analyzed as separate groups just like Mexicans in Los Angeles and Puerto Ricans in New York.

The lack of data on undocumented immigrants makes any empirical analysis of Hispanic immigration and its relationship to poverty and the underclass incomplete. This is especially true when on considers the estimated 2 million undocumented immigrants in the United States in 1980 (Passel, 1986). Because of political and other socioeconomic factors, immigrants without legal documentation are left uncounted, further exacerbating their invisibility and contributing to their marginalization in all sectors (political, social, and economic) of our society. Incorporating the estimated 2 million immigrants (believed to be mostly Mexican and Central American, 70%) into this study could very well alter the results of this research, though I suspect by not much. Field research on undocumented immigrants from Latin America indicates that their economic, demographic and human capital characteristics are quite similar to those of legal immigrants from the same country (Chiswick, 1988; Papademetriou and DiMarzio, 1986; Massey, 1987; U.S. Department of Labor, 1989).

I was unable to incorporate the 1990 Census (*Public Use Microdata Sample*) into this study because it is yet unavailable to researchers.[62] I am limited to the PUMS survey

[62]By the end of 1993, the Census Bureau estimates that the 1990 PUMS file will be available to the public.

because of its uniqueness in allowing me to differentiate between native and foreign-born status (nativity), a variable that is included consistently in the PUMS and semi-consistently in other survey's such as the *Current Population Survey* (CPS) or other decennial census extracts. Besides the nativity status variable, the PUMS allows me to disaggregate the decennial census data to the SMSA level. This allows me to extract data on all the census defined industries (over 350) and occupations (over 500) by race, ethnicity, gender, and age according to regions such as New York, Los Angeles and Chicago. While the CPS data sets may be more current, they do not have a significantly large sample for focusing on New York City and Los Angeles at the level of disaggregation needed for this study. What is more important, however, is that the CPS and other data sets do not provide a nativity variable- probably the most important variable used in this particular research. Future work on this topic, at the minimum, must include the 1990 decennial Census.

Inferring that U.S.-born workers may be losing jobs in, for example, the subordinate primary because they may be moving upwards into a better segment would be further strengthened if a model is developed to test this assertion. In addition, given the complexities that shape the employment processes for immigrants, it makes sense to further specify and test job queuing, competition, segmentation and other theories used to explain immigrant employment. Some of these other theories include immigrant enclaves, networking among immigrants, and day laborers that are found in most major cities. All of these topics constitute part of the puzzle of immigrant employment and certainly contribute to the employment outcomes of U.S.-born labor.

As I mentioned earlier, incorporating the 1990 census will give us a more accurate and up-to-date picture of immigrant and U.S.-born employment processes. Likewise, incorporating other regions (SMSAs) such as Chicago, Miami, and Houston would provide us with different regional "flavors." Just as Los Angeles differed from New York, Chicago and Miami may yield an even more complex perspective from which to view immigrant and U.S.-born workers in labor markets.

Last, an important complement to this study would be to undertake industrial and/or occupational case studies where immigrant employment (representation) between 1970 and 1980 more than doubled or based on some other figure. As this study will attest, analyzing census data at the industrial and occupational level can be extremely tedious and archaic yielding results that do not specifically address whether immigrants are preferred over other segments of the population in specific labor markets. Nonetheless, researchers continue to rely on this type of data whose validity we must assess to determine whether the trends they imply are genuine. Case studies allow us to further provide evidence on the processes of an immigrant queue, job competition, or even some other theory at a much more micro level analysis. Understanding the employment processes of immigrants, particularly low-skilled immigrants, will allow us to document immigrant economic impacts more precisely which in turn will assist us in formulating good public policy on immigration.

Implications for Poverty and Immigration Policy

The results of my research lead to two broad policy prescriptions, those at the macro level (demand-side) and those at the micro (supply-side) level. Macro level policies would attempt to influence the structural mechanisms that maintain and indeed increase the concentration of U.S.-born minorities and immigrants in labor markets. Micro level policies would focus on the two major groups of workers analyzed in this research; low-skilled U.S.-born workers and low-skilled immigrants. Finally, policies, especially those at the micro level, need to emphasize immigration and poverty concerns.

Micro level policies need to focus on ameliorating low-skilled U.S.-born workers and immigrant's labor market position. Policies to address disadvantaged U.S.-born workers are more readily available and supported by the general populace.

Investing in a human capital strategy for immigrant and domestic workers makes good public policy because a work force that is idle, unskilled, out of the labor market will

cost us more in the long run than if we were to invest at present. In addition, given the youthful age of most immigrants, especially Latino immigrants, measures to improve their human capital is important because they will be a rapidly growing proportion of our total work force for many years to come. If the United States is to remain economically competitive at the international level, we must invest in training our labor force, which is rapidly becoming less white, more minority, and predominantly skilled.

Changes in the composition, skill level and flow of legal immigration should also be proposed as policies to restructure the "type" of immigrant the U.S. currently accepts. Proponents of this policy (Borjas, 1990; Marshall, 1991) argue that the decline in the "quality" of immigrants prolongs their assimilation rate, skews downward poverty and labor market indicators of U.S.-born workers, and leads to higher uses of welfare programs as a result of their higher probability to be unemployed and below the poverty line. However, as argued by Melendez (1992:10), empirical research challenges the validity of the "declining quality of immigrant" hypothesis and its implication for Latino Poverty. Melendez (1992) concludes, based on several studies (LaLonde and Topel, 1991; Jasso and Rosenzweig, 1990; Jasso and Rosenzweig, 1982; Melendez, 1991b) that "there is no conclusive evidence supporting a decline in the quality of recent immigrant cohorts when compared to similar ethnic groups in the United States." It is yet unclear whether a restrictive immigration policy based on "skill level" would have the desirable effect in reducing or possibly preventing poverty.

Lastly, because immigrants have such high rates of labor force participation combined with high rates of poverty, strategies that address the working poor may be more applicable than policies that focus on poverty status per se (e.g., AFDC, and other welfare). Given projected shortages of skilled workers, and given the volume of unskilled immigrants admitted, legal and undocumented, over the last decade, the long-term economic costs of not providing training and education to immigrants probably will exceed the short-run costs of adapting "band-aid" type programs to the needs of

immigrants.

Appendix A
Shift-Share Analysis

Shift-share analysis describes and decomposes changes in either a local or regional economy. Shift-share studies use a number of economic indicators to measure an economy's performance. For certain purposes, value added, gross revenues, sales, or some other output or earnings measure can be used instead of employment. When a money measure is used in addition to employment, the analysis may provide insights concerning relative productive impacts. Employment is most often used as the unit of measure because it is generally the most available in a suitable form for shift-share analysis (Bendavid-Val, 1983). Shift-share method is a relatively simple statistical technique which can easily be used with unpublished or published data. Shift share enables one to divide regional employment change in an industry or occupation in order to identify the factors that most influence that change. Through this method, one is also able to break down some of the effects attributable to different factors that may influence labor market movement.

By analyzing employment change through three variables; Population Growth, Group Size and Share Effect we will be able to separate the three different sources of employment change in each of the previously defined types of dual labor market segment and industrial categories for each of the population sub-groups. The analysis will focus on employment changes attributable to changes in a specific group's position or Group Size.

For a given period of time the employment change of each segment (independent primary, independent primary craft, subordinate primary, and secondary) is divided into three components corresponding to changes in employment induced by; **Population Growth (P), Group Growth (G), and Share Effect (S)**. Let:

$\mathbf{R_{ij}}$ be employment growth in sector $_i$ of region $_j$.
$\mathbf{P_i}$ be regional population growth per segment.
$\mathbf{G_{ij}}$ be group growth in sector $_i$ of region $_j$.
$\mathbf{S_{ij}}$ be share effect in sector $_i$ of region $_j$.

Then:

$$\mathbf{R_{ij} = P_i + G_{ij} + S_{ij}} \quad \text{or} \quad \mathbf{S_{ij} = R_{ij} - P_i - G_{ij}}.$$

With:

$$\mathbf{P_{ij} = B_{ij}X_S}$$
$$\mathbf{G_{ij} = B_{ijt}(A_{ij}-E_{ij})/B_{ijt}}$$
$$\mathbf{S_{ij} = R_{ij} - P_i - G_{ij}} \text{ or } \mathbf{R_{ij} = B_{ij}X_S - B_{ijt}(A_{ij}-E_{ij})/B_{ijt}}$$

Where:

$\mathbf{B}_{ijt}$ = Employment in sector $_i$ of region $_j$ during time period $_t$.
$\mathbf{X}_S$ = Regional population growth (employed persons) per segment.
$\mathbf{A}_{ij}$ = Groups employment in sector $_i$ of region $_j$.
$\mathbf{E}_{ij}$ = Groups expected employment in sector $_i$ of region $_j$.

NOTE: This model is applied separately for each group in Tests No. 1, 2 & 3.

1. Regional Population Growth (P)

Regional population Growth measures total population growth (employed persons) on employment change per segment in sector $_i$ (industry) and region $_j$ (New York or Los Angeles). This figure is obtained by multiplying regional employment growth in each industry per segment, per group (i.e. Puerto Rican native-born men, white foreign-born women, etc...) by the total regional population growth per segment (the total of all employed racial/ethnic groups in 1970 minus the same in 1980 divided by the total figure for 1970). This computation will yield the number of new or lost jobs in the region that can be attributed to a regional reflection of growth in regional population employment.

2. Group Size (G)

Group size measures how an increase of a given (racial, ethnic, sex, or age) group in the population affects employment change in sector $_i$ and region $_j$ per segment. In calculating these figures, I assume that job change in each industry is proportional to the change in the relative size for each group (as shown in column 7 of Table A). Each racial group (white, black, Asian, Puerto Rican and Latino) by gender, nativity status (foreign or native - born) has different percentage figures corresponding to their respective job change (column 7, Table A). Group size is obtained from multiplying the percent of job change proportional to group size change by the base year (1970) regional employment. The crux of this research will focus on this particular measure because here we can see the effect that increases in a particular group, say foreign-born Latinos or foreign-born (Island-born) Puerto Ricans has relative to other groups in the same labor market.

3. Share-Effect (S)

Since $\mathbf{R}_{ij} = \mathbf{P}_i + \mathbf{G}_{ij} + \mathbf{S}_{ij}$, the regional shares-effect can be calculated residually as $\mathbf{S}_{ij} = \mathbf{R}_{ij} - \mathbf{P}_i - \mathbf{G}_{ij}$. In other words, the shares-effect can be computed

as that part of the net relative change that was not accounted for by the population growth effect and the group growth effect. This residual can be computed for each industry separately and provides us with information on whether a group is moving towards concentration or de-concentration.

Appendix B
Procedure for Allocating Census Defined Occupations into Dual Labor Market Segments

Dual labor market theory and Gordon's (1986) "Procedure" allows us to categorize Census defined occupations according to the four segments outlined by Gordon et. al. (1982); independent primary, craft, subordinate primary, and secondary. From these four segments I have classified the first three (IP, Craft, and SP) to belong to the protected/skilled labor market and the secondary to belong to the unprotected/unskilled labor market.

The skilled (protected) labor market includes occupations with relatively high General Educational Development (GED) or Specific Vocational Preparation (SVP) --as defined by the Directory of Occupational Titles -- such as managerial, professional, technical, and craft occupations. In this market, educational credentials, which are specific to the United States, and government accreditation serve as barriers to the employment of immigrants. Thus, native-born workers are "protected" from competition from immigrants because immigrants are not employed in these segments.

The unskilled (unprotected) labor market employs workers with low (GED) or (SVP) and high Repetitive and Specific Instructions (RSI) or Frequent Change (FC), such as service, clerical, operators, and laborers. Unskilled workers may or may not be "protected" from competition with immigrant labor depending on recruitment and promotion practices and other institutions in a given industry. Native-born workers are protected from competition if institutional barriers such as unions, internal labor markets in large corporations, or patronage in government employment prevent immigrants from access to these sectors.

Utilizing Gordon's (1986) "Procedure for Allocating Jobs into Labor Segments," which follows dual labor market and segmentation theory, I have allocated census defined occupational categories (three-digit) into 4 distinct labor market segments. Occupations in the independent primary sector are those in which workers are allowed control of whole activities or with high general educational preparation requirements and are independent of detailed or repetitive instructions. Occupations in the independent primary craft are similarly independent and involve both frequent changes of activities and a high probability of specific training time of at least two years. The distinction between occupations in the subordinate primary and secondary sectors depends on whether or not jobs

require more than three months training time. In addition, jobs in which industry and union characteristics are most likely to be salient are categorized in the subordinate primary sector.

To allocate all the census defined occupations into the above four segments Gordon (1986) utilized a factor analysis for industries and a recursive method for the occupational categories. This method is divided into two sections: 1) relating industry characteristics to segments; and 2) relating occupational characteristics to segments. Combining the above two procedures will result in an exhaustive allocation of occupations according to the above four segments. This method is explained below.

Gordon et. al. (1982) hypothesizes that industrial unionism had the effect of homogenizing job conditions for some basic production-worker categories within core and peripheral industries. In the goods sectors in basic production occupations, therefore, the industry characteristics defining the core/peripheral distinction came to dominate the importance of occupational distinctions. Outside of those goods sectors, by contrast, industry characteristics played a much less important role because industrial unionism was not as salient a force and did not play a role of helping effect homogeneous job conditions for production workers within industries.

1. Industrial Classification

Based on his hypothesis Gordon (1986) then implements a method whereby industries are allocated between core and periphery sectors. In semi-skilled and unskilled "blue-collar" occupations in goods-producing industrial sectors, he assumes that location in either the core or the periphery is sufficient to determine location in either the subordinate primary or the secondary segment, respectively. In this unique industry and occupation combination, industry characteristics alone determine segment location. In all other industry and occupation combinations, conversely, Gordon assumes that occupational characteristics alone are sufficient to determine segment location. This scheme is summarized in the following two by two matrix:

Chart A

	SEMI-SKILLED & UNSKILLED OCCUPATION	ALL OTHER OCCUPATIONS
GOODS-PRODUCING INDUSTRIES	Industry Characteristics Determine Segment	Occupation Characteristics Determine Segment
ALL OTHER INDUSTRIES	Occupation Characteristics Determine Segment	Occupation Characteristics Determine Segment

Borrowing from Oster (1979), Gordon uses a factor analysis to systematically categorize all three-digit industries according to core or peripheral sectors. Transformation matrices are then used to allocate the three-digit industries into core or periphery.

2. Occupational Classifications

Gordon (1986) begins the allocation of census occupations with the data from the third edition of the Dictionary of Occupational Titles (DOT). He then constructs a transformation matrix which allocates DOT occupational categories to three-digit census occupational categories. This results in a (kxn) data matrix with K DOT variables for n three-digit occupation categories. Because heterogeneity exists in DOT categories within census categories, each DOT variable is coded not as a 0/1 dipole but as a continuous probability, ranging form 0 to 1, that someone in a given census occupation will experience the given DOT characteristic; almost all variables nonetheless exhibit bi-modal frequency distributions, with modes at 0 and 1 respectively.

Gordon (1986) then applies a specific set of rules (which I specify below) for identifying occupations for each of the four segments described above. The rules that Gordon (1986) utilizes contain both inclusive and exclusive elements. The inclusive elements aim to define the segment categories constructively, while the exclusive elements are designed to help ensure that an occupation which deserves properly to be in the subordinate primary sector or secondary sector does not end up in the independent primary segment. The rules refer to specific threshold levels for the values for the DOT variables; these cutoffs were established by Gordon visually inspecting the frequency distribution, aiming to minimize the overlapping of the bi-modal distributions at some point between 0

and 1. The specific rules follow.

- Occupations are included in the independent primary if Whole Activity (WA) > .250 or the sum of General Educational Development (GED) values 5 and 6 > .800 and if neither Repetitive Instructions (RI) nor Specific Instructions (SI) > .250.

- Occupations included in the independent primary craft segment if Frequent Change (FC) > .250 and sum of Specific Vocational Preparation (SVP) values 7, 8, and 9 > .800 and neither Repetitive Instructions (RI) nor Specific Instructions (SI) > .250.

- Occupations included in the subordinate primary segment are those in which the sum of SVP values 4 - 9 > .800.

- Remaining occupations are allocated to the secondary segment. This residual is a sufficient condition because it effectively designates secondary occupations as those with SVP requirements with values 1 through 3.

The final procedure for allocating jobs into segments is straight-forward. It can be applied for any data set with information at the three-digit level about a worker's industry and occupation of employment.

Identify those jobs in the upper left cell of the above matrix by sorting on industries within the code range in the appendix (Dictionary of Occupational Titles) tables and within occupations in the semi-skilled and unskilled blue-collar one-digit categories (i.e. Operators, Fabricators, and Laborers. For those identified jobs, use the appendix listings (DOT) to allocate those in core industries into the subordinate primary segment and those in peripheral industries into the secondary segment. For all other jobs, allocate among segments on the basis of the listings of occupations contained in the appendix tables (DOT). By completing these steps a complete exhaustive allocation of all jobs (and the workers holding them) among the four segments described above will be provided.

Appendix C
1970 Occupational Segments

***NOTE: "n.e.c." means not elsewhere classified.**

1. INDEPENDENT PRIMARY

- Professional, technical and kindred workers
  - Accountants
  - Architects
  - Computer specialists
    - Programmers
    - Systems analysts
    - Specialists, n.e.c.
  - Engineers
    - Aeronautical and astronautical
    - Chemical
    - Civil
    - Electrical and electronic
    - Industrial
    - Mechanical
    - Metallurgical and materials
    - Mining
    - Petroleum
    - Sales
    - Engineers, n.e.c.
  - Farm management advisors
  - Lawyers and judges
    - Judges
    - Lawyers
  - Archivists and curators
  - Mathematicians
  - Life and physical scientists
    - Agricultural
    - Atmospheric and space
    - Biological
    - Chemists
    - Geologists
    - Marine
    - Physicists and astronomers
    - Life and physical scientists, n.e.c.
  - Operations and systems researchers and analysts
  - Personnel and labor relations workers

Physicians, dentists, and related practitioners
- Chiropractors
- Dentists
- Optometrists
- Pharmacists
- Physicians, medial and osteopathic
- Veterinarians
- Health practitioners, n.e.c.

Dietitians
Clergymen
Religious workers, n.e.c.
Social Scientists
- Economists
- Political scientists
- Psychologists
- Sociologists
- Urban and regional planners
- Social scientists, n.e.c.

Social and recreation workers
- Social workers
- Recreation workers

Teachers, college and university
- Agriculture teachers
- Atmospheric, earth, marine, and space teachers
- Biology
- Chemistry
- Physics
- Engineering
- Mathematics
- Health specialists
- Psychology
- Business and commerce
- Economics
- History
- Sociology
- Social science teachers, n.e.c.
- Art, drama, and music
- Coaches and physical education
- Education
- Foreign language
- Home economics
- Law
- Theology
- Trade, industrial, and technical
- Miscellaneous teachers, college and university, subject not specified

Teachers, except college and university
Adult education
Elementary school
Prekindergarten and kindergarten
Secondary school
Teachers, except college and university, n.e.c.
Surveyors
Engineering and science technicians, n.e.c.
Embalmers
Vocational and educational counselors
Writers, artists, and entertainers
Actors
Athletes and kindred workers
Authors
Dancers
Designers
Editors and reporters
Musicians and composers
Public relations men and publicity writers
Radio and television announcers
Research workers, not specified
Professional, technical, and kindred workers- -allocated
Managers and administrators, except farm
Assessors, controllers, and treasurers: local public Adm.
Bank officers and financial managers
Buyers, wholesale and retail trade
Credit men
Funeral directors
Health administrators
Managers and superintendents, building
Office managers, n.e.c.
Officers, pilots, and pursers: ship
Officials and administrators: public administrators, n.e.c.
Officials of lodges, societies, and unions
Postmasters and mail superintendents
Rail conductors
Restaurant, cafeteria, and bar managers
Sales managers and department heads, retail trade
Sales managers, except retail trade
School administrators, college
School administrators, elementary and secondary
Managers and administrators, n.e.c.
Managers and administrators, except farm--allocated
Sales workers
Auctioneers

Stock and bond salesmen
Clerical and kindred workers
Insurance adjusters, examiners, and investigation
Teacher aides, exc. school monitors
Craftsmen and kindred workers
Foremen, n.e.c.
Inspectors, scalers, and graders; log and lumber
Farmers and farm managers
Farmers (owners and tenants)
Farm managers
Farmers and farm managers--allocated
Farm foremen
Farm service laborers, self-employed

2. CRAFTS

Librarians, archivists, and curators
Librarians
Physicians, dentists,and related practitioners
Podiatrists
Nurses, dietitians, and therapists
Therapists
Health record technologists and technicians
Professional, technical, and Kindred workers
Writers, artists, and entertainers
Photographers
Managers and administrators, except farm
Construction inspectors, public administration
Inspectors, except construction; public administration
Craftsmen and Kindred workers
Bakers
Blacksmiths
Boilermakers
Brickmasons and stonemasons
Carpenters
Carpenter apprentices
Carpet installers
Compositors and typesetters
Printing trades apprentices, exc. pressmen
Decorators and window dressers
Electricians
Electrician apprentices
Electric power linemen and cablemen
Furriers
Glaziers

Jewelers and watchmakers
Job and die setters, metal
Locomotive engineers
Locomotive firemen
Machinists
Machinists apprentices
Mechanics and repairmen
Air conditioning, heating and refrigeration
Mechanics and repairmen
Automobile body repairmen
Automobile mechanics
Automobile mechanic apprentices
Data and processing machine repairmen
Farm implement
Craftsmen and kindred workers--allocated
Cooks, except private household
Heavy equipment mechanics, incl. diesel
Household appliance and accessory installers and mechanics
Office machine
Radio and television
Railroad and car shop
Mechanic, exc. auto, apprentices
Miscellaneous mechanics and repairmen
Not specified mechanics and repairmen
Millwrights
Molder apprentices
Pattern and model makers, exc. paper
Plumbers and pipe fitters
Plumber and pipe fitter apprentices
Pressmen and plate printers, printing
Pressmen apprentices
Roofers and slaters
Sheetmetal workers and tinsmiths
Sheetmetal apprentices
Shoe repairmen
Telephone installers and repairmen
Telephone linemen and splicers
Tile setters
Tool and die makers
Tool and die maker apprentices

3. SUBORDINATE PRIMARY

Professional, technical, and kindred workers
Mathematical specialists

- Actuaries
- Statisticians
- Nurses, dietitians, and therapists
- Registered nurses
- Health technologists and technicians
  - Clinical laboratory technologists and technicians
  - Dental hygienists
  - Radiologic technologists and technicians
  - Therapy assistants
  - Health technologists and technicians, n.e.c.
- Engineering and science technicians
  - Agricultural and biological technicians, except health
  - Chemical technicians
  - Draftsmen
  - Electrical and electronic engineering technicians
  - Industrial engineering technicians
  - Mathematical technicians
  - Mechanical engineering technicians
  - Surveyors
  - Engineering and science technicians, n.e.c.
- Technicians, except health, and engineering and science
  - Air traffic controllers
  - Flight engineers
  - Radio operators
  - Tool programmers, numerical control
  - Technicians, n.e.c.
- Writers, artists, and entertainers
  - Painters and sculptors
  - Writers, artists, and entertainers, n.e.c.

Managers and administrators, except farm
- Buyers and shippers, farm products
- Purchasing agents and buyers, n.e.c.

Sales workers
- Advertising agents and salesmen
- Insurance agents, brokers, and underwriters
- Real estate agents and brokers
- Salesmen and sales clerks, n.e.c.
  - Sales representatives, manufacturing industries
  - Sales representatives, wholesale trade
  - Sales clerks, retail trade
  - Salesmen, retail trade
  - Salesmen of services and construction
  - Sales workers--allocated

Clerical and kindred workers
- Bank tellers

- Billing clerks
- Bookkeepers
- Clerical supervisors, n.e.c.
- Collectors, bill and account
- Counter clerks, except food
- Enumerators and interviewers
- Estimators and investigators, n.e.c.
- Expediters and production controllers
- Library attendants and assistants
- Mail handlers, except post office
- Meter readers, utilities
- Office machine operators
    - Bookkeeping and billing machine operators
    - Calculating machine operators
    - Computer and peripheral equipment operators
    - Duplicating machine operators
    - key punch operators
    - Tabulating machine operators
    - Office machine operators, n.e.c.
- Payroll and timekeeping clerks
- Postal clerks
- Proofreaders
- Real estate appraisers
- Receptionists
- Secretaries
    - Legal
    - Medical
    - n.e.c.
- Statistical clerks
- Stenographers
- Stock clerks and storekeepers
- Telegraph operators
- Ticket, station, and express agents
- Typists
- Weighers
- Miscellaneous clerical workers
- Not specified clerical workers
- Clerical and kindred workers--allocated

Craftsmen and Kindred workers

- Automobile accessories installers
- Bookbinders
- Brickmasons
- Bulldozer operators
- Cabinetmakers
- Cement and concrete finishers

Cranemen, derrickmen, and hoistmen
Dental laboratory technicians
Electrotypers and stereotypers
Engravers, exc. photoengravers
Excavating, grading, and road machine operators; exc. Bulldozer
Forgemen and hammermen
Furniture and wood finishers
Heat treaters, annealers, and temperers
Inspectors, n.e.c.
Mechanics and repairmen
Aircraft mechanic or repairmen
Loom fixers
Millers; grain, flour, and feed
Molders, metal
Motion picture projectionists
Opticians, and lens grinders and polishers
Painters, construction and maintenance
Painter apprentices
Paperhangers
Photoengravers and lithographers
Piano and organ tuners and repairmen
Plasterers
Plasterer apprentices
Power station operators
Rollers and finishers, metal
Shipfitters
Sign painters and letterers
Stationary engineers
Stone cutters and stone carvers
Structural metal craftsmen
Tailors
Upholsterers
Specified craft apprentices, n.e.c.
Not specified apprentices
Craftsmen and kindred workers, n.e.c.
Operatives, except transport
Asbestos and insulation workers
Blasters and powdermen
Chainmen, rodmen, and exmen; surveying
Checkers, examiners, and inspectors, manufacturing
Dressmakers and seamstresses, except factory
Drillers, earth
Heaters, metal
Meat cutters and butchers, exc. manufacturing
Milliners

Mine operatives, n.e.c.
Painters, manufactured articles
Photographic process workers
Sailors and deckhands
Sawyers
Sewers and stitchers
Stationary firemen
Weavers
Welders and flame-cutters
Operatives, except transport--allocated
Transport equipment operatives
Busdrivers
Conductors and motormen, urban rail transit
Deliverymen and routemen
Motormen; mine, factory, logging camp, etc.
Railroad brakemen
Transport equipment operatives--allocated
Laborers, except farm
Lumbermen, raftsmen, and woodchoppers
Service workers, exc. private household
Health service workers
Dental assistants
Health aids, exc. nursing
Health trainers
Lay midwives
Nursing aides, orderlies, and attendants
Practical nurses
Personal service workers
Barbers
Hairdressers and cosmetologists
Personal service apprentices
Protective service workers
Firemen, fire protection
Marshals and constables
Policemen and detectives
Sheriffs and bailiffs

4. SECONDARY

Sales workers
Demonstrators
Hucksters and peddlers
Newsboys
Clerical and kindred workers
Cashiers

- Clerical assistants, social welfare
- Dispatchers and starters, vehicle
- File clerks
- Mail carriers, post office
- Messengers and office boys
- Shipping and receiving clerks
- Telegraph messengers
- Telephone operators

Craftsmen and kindred workers

- Floor layers, exc. tile setters
- Former members of the Armed Forces

Operatives, except transport

- Assemblers
- Bottling and canning operatives
- Clothing ironers and pressers
- Cutting operatives, n.e.c.
- Dry wall installers and lathers
- Dyers
- Filers, polishers, sanders, and buffers
- Furnacemen, smeltermen, and pourers
- Garage workers and gas station attendants
- Graders and sorters, manufacturing
- Produce graders and packers, except factory and farm
- Laundry and dry cleaning operatives, n.e.c.
- Meat cutters and butchers, manufacturing
- Meat wrappers, retail trade
- Metal platers
- Mixing operatives
- Oilers and greasers, exc. auto
- Packers and wrappers, exec. meat and produce
- Precision machine operatives
    - Drill press operatives
    - Grinding machine operatives
    - Late and milling machine operatives
    - Precision machine operatives, n.e.c.
- Punch and stamping press operatives
- Riveters and fasteners
- Shoemaking machine operatives
- Solderers
- Textile operatives
    - Carding, lapping, and combing operatives
    - Knitters, loopers, and toppers
    - Spinners, twisters, and winders
    - Textile operatives, n.e.c.

- Winding operatives, n.e.c.
- Machine operatives, miscellaneous specified
- Machine operatives, not specified
- Miscellaneous operatives
- Not specified operatives

Transport equipment operatives
- Fork lift and tow motor operatives
- Parking attendants
- Railroad switchmen
- Taxicab drivers and chauffeurs
- Truck drivers

Laborers, except farm
- Animal caretakers, exc. farm
- Carpenters' helpers
- Construction laborers, exc. carpenters' helpers
- Fishermen and oystermen
- Freight and material handlers
- Garbage collectors
- Gardeners and groundskeepers, exc. farm
- Longshoremen and stevedores
- Stackhandlers
- Teamsters
- Vehicle washers and equipment cleaners
- Warehousemen, n.e.c.
- Miscellaneous laborers
- Not specified laborers
- Laborers, except farm--allocated

Farm laborers and farm foremen
- Farm laborers, wage workers
- Farm laborers, unpaid family workers
- Farm laborers and farm foremen--allocated

Service workers, exc. private household
- Cleaning service workers
  - Chambermaids and maids, exc. private household
  - Cleaners and charwomen
  - Janitors and sextons
- Food service workers
  - Bartenders
  - Busboys
  - Dishwashers
  - Food counter and fountain workers
  - Waiters
  - Food service workers, n.e.c., exc. private household
- Personal service workers
  - Airline stewardesses

Attendants, recreation and amusement
Attendants, personal service, n.e.c.
Baggage porters and bellhops
Boarding and lodging-house keepers
Bootblacks
Child care workers, exc. private household
Elevator operators
Housekeepers, exc. private household
School monitors
Ushers, recreation and amusement
Welfare service aides
Protective service workers
Guards and watchmen
Service workers, exc. private households--allocated
Private household workers
Child care workers, private household
Cooks, private household
Housekeepers, private household
Laundresses, private household
Private household workers--allocated
Workers not classifiable by occupation
Unemployed persons, last worked 199 or earlier
Occupation not reported

Appendix D
1980 Occupational Segments

*NOTE: "n.e.c" refers to not elsewhere classified.

1. INDEPENDENT PRIMARY

MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS
- Executive, Administrative, and Managerial Occupations
  - Legislators
  - Chief exec. and general administrators, public admn.
  - Financial managers
  - Personnel and labor relations managers
  - Purchasing managers
  - Managers, marketing, advertising, and public relations
  - Administrators, education and related fields
  - Managers, medicine and health
  - Managers, properties and real estate
  - Postmasters and mail superintendents
  - Funeral directors
  - Managers and administrators, n.e.c.
- Management Related Occupations
  - Accountants and auditors
  - Other financial officers
  - Management analysts
  - Personnel, training, and labor relations specialists
  - Buyers, wholesale and retail trade except farm products
  - Business and promotion agents
  - Construction inspectors
  - Inspectors and compliance officers, except construction
  - Management related occupations, n.e.c.
- Professional Specialty Occupations
  - Engineers, Architects, and Surveyors
    - Architects
  - Engineers
    - Aerospace
    - Metallurgical and materials
    - Mining
    - Petroleum
    - Chemical
    - Nuclear
    - Civil
    - Agricultural
    - Electrical and electronic

- Industrial
- Mechanical
- Marine and naval architects
- Engineers, n.e.c.
- Surveyors and mapping scientists

Mathematical and Computer Scientists
- Computer systems analysts and scientists
- Operations and systems researchers and analysts
- Statisticians
- Mathematical scientists, n.e.c.

Natural Scientists
- Physicists and astronomers
- Chemists, except biochemists
- Atmospheric and space scientists
- Geologists and geodesists
- Physical scientists, n.e.c.
- Agricultural and food scientists
- Biological and life scientists
- Forestry and conservation scientists
- Medical scientists

Health Diagnosing Occupations
- Physicians
- Dentists
- Veterinarians
- Optometrists
- Health diagnosing practitioners, n.e.c.

Health Assessment and Treating Occupations
- Pharmacists
- Dietitians
- Physicians' assistants

Teachers, Postsecondary
- Earth, environmental, and marine science teachers
- Biological science teachers
- Chemistry teachers
- Physics teachers
- Natural science teachers, n.e.c.
- Psychology teachers
- Economics teachers
- History teachers
- Political science teachers
- Sociology teachers
- Social science teachers, n.e.c.
- Engineering teachers
- Mathematical science teachers
- Computer science teachers

- Medical science teachers
- Health specialties teachers
- Business, commerce, and marketing teachers
- Agriculture and forestry teachers
- Art, drama, and music teachers
- Physical education teachers
- Education teachers
- English teachers
- Foreign language teachers
- Law teachers
- Social work teachers
- Theology teachers
- Trade and industrial teachers
- Home economics teachers
- Teachers, postsecondary, n.e.c.
- Postsecondary teachers, subject not specified

Teachers, Except Postsecondary
- Teachers, prekindergarten and kindergarten
- Teachers, elementary school
- Teachers, Secondary school
- Teachers, Special education
- Teachers, n.e.c.

Counselors, Educational and Vocational

Librarians, Archivists, and Curators
- Archivists and curators

Social Scientists and Urban Planners
- Economists
- Psychologists
- Sociologists
- Social scientists, n.e.c.
- Urban planners

Social, Recreation, and Religious Workers
- Social workers
- Recreation workers
- Clergy
- Religious workers, n.e.c.

Lawyers and Judges
- Lawyers
- Judges

Writers, Artists, Entertainers, and Athletes
- Designers
- Musicians and Composers
- Actors and directors
- Dancers
- Editors and reporters

This is the most complete text of the thesis available. The following page(s) were not included in the copy of the thesis deposited in the Institute Archives by the author:

pg. 179

Supervisors, production occupations

OPERATORS, FABRICATORS, AND LABORERS
Motor Vehicle Operators
Supervisors, motor vehicle operators
Rail Transportation Occupations
Railroad conductors and yardmasters
Water Transportation Occupations
Ship captains and mates, except fishing boats
Marine engineers
Material Moving Equipment Operators
Supervisors, material moving equipment operators
Supervisors, handlers, equip. cleaners, and laborers, n.e.c.

2. CRAFT

MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS
Health Diagnosing Occupations
Podiatrists
Therapists
Inhalation therapists
Occupational therapists
Physical therapists
Speech therapists
Therapists, n.e.c.
Librarians, Archivists, and Curators
Librarians
Writers, Artists, Entertainers, and athletes
Photographers

TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS
Health Technologists and Technicians
Health record technologists and technicians
Engineering and Related Technologists and Technicians
Electrical an electronic technicians

SERVICE OCCUPATIONS
Food Preparation and Service Occupations
Supervisors, food preparation and service occupations
Cooks, except short order
Short-order cooks

PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS
Mechanics and Repairers
Supervisors, Mechanics and Repairers

- Mechanics and Repairers, Except Supervisors
  - Vehicle and Mobile Equipment Mechanics and Repairers
  - Automobile mechanics, except apprentices
  - Automobile mechanic apprentices
  - Bus, truck, and stationary engine mechanics
  - small engine repairers
  - Automobile body and related repairers
  - Heavy equipment mechanics
  - Farm equipment mechanics
- Industrial Machinery Repairers
- Electrical and Electronic Equipment Repairers
  - Electronic repairers, communications and industrial equip.
  - Data processing equipment repairers
  - Household appliance and power tool repairers
  - Telephone line installers and repairers
  - Telephone installers and repairers
  - Miscellaneous electrical and electronic equip. repairers
- Heating, air condition, and refrigeration mechanics
- Miscellaneous Mechanics and Repairers
  - Camera, watch, and musical instrument repairers
  - Locksmiths and safe repairers
  - Office machine repairers
  - Mechanical controls and valve repairers
  - Elevator installers and repairers
  - Millwrights
  - Specified mechanics and repairers, n.e.c.
  - Not specified mechanics and repairers

Construction Trades

- Supervisors, Construction Occupations
  - Supervisors, brickmasons, stonemasons, and tile setters
  - Supervisors, carpenters and related workers
  - Supervisors, electricians and power transmission installers
  - Supervisors, plumbers, pipefitters, and steamfitters
- Construction Trades, Except Supervisors
  - Brickmasons and stonemasons, except apprentices
  - Brickmason and stonemason apprentices
  - Tile setters, hard and soft
  - Carpet installers
  - Carpenters, except apprentices
  - Carpenter apprentices
  - Electricians, except apprentices
  - Electrician apprentices
  - Electrical power installers and repairers
  - Plumbers, pipefitters, and steamfitters, except apprentices
  - Plumber, pipefitter, and steamfitter apprentices

Glaziers
Roofers
Sheetmetal duct installers
Precision Metal Working Occupations
Tool and die makers, except apprentices
Tool and die maker apprentices
Machinists, except apprentices
Machinist apprentices
Biolermakers
Patternmakers and model makers, metal
Precious stones and metals workers (Jewelers)
Sheet metal workers, except apprentices
Sheet metal worker apprentices
Miscellaneous precision metal workers
Precision Woodworking Occupations
Patternmakers and model makers, wood
Precision Textile, Apparel, and Furnishings Machine Workers
Shoe repairers
Precision Workers, Assorted Materials
Patternmakers, lay-out workers, and cutters
Precision food production Occupations
Bakers

OPERATORS, FABRICATORS, AND LABORERS
Metalworking and Plastic Working Machine Operators
Lathe and turning machine set-up operators
Printing Machine Operators
Printing machine operators
Typesetters and compositors
Machine Operators, Assorted Materials
Extruding and forming machine operators
Mixing and blending machine operators
Roasting and machine operators, food
Transportation Occupations, Except Motor Vehicles
Rail Transportation Occupations
Locomotive operation occupations

3. SUBORDINATE PRIMARY

MANAGERIAL AND PROFESSIONAL SPECIALTY OCCUPATIONS
Executive, Administrative, and Managerial Occupations
Administrators, Protective Services
Management Related Occupations
Underwriters
Purchasing agents and buyers, farm products

Purchasing agents and buyers, n.e.c.
Mathematical and Computer Scientists
Actuaries
Health Assessment and Treating Occupations
Registered Nurses
Writers, Artists, Entertainers, and Athletes
Technical Writers
Painters, sculptors, craft-artists, and artist printmakers
Artists, performers, and related workers, n.e.c.
Clinical Laboratory Technologists and Technicians
Dental Hygienists
Radiologic Technicians
Licensed Practical Nurses
Health Technologists and Technicians, n.e.c.
Mechanical Engineering Technicians
Engineering Technicians, n.e.c.
Drafting Occupations
Biological Technicians
Chemical Technicians
Science Technicians, n.e.c.
Technicians; Except Health, Engineering, and Science
Air traffic controllers
Broadcast equipment operators
Tool programmers, numerical control
Legal assistants
Technicians, n.e.c.
Sales Representatives, Finance and Business Services
Insurance sales occupations
Real estate sales occupations
Advertising and related sales occupations
Sales occupations, other business services
Sales Workers, Retail and Personal Services
Sales workers, motor vehicles and boats
Sales workers, apparels
Sales workers, shoes
Sales workers, furniture and home furnishings
Sales workers, radio, TV, hi-fi, and appliances
Sales workers, hardware and building supplies
Sales workers, parts
Sales workers, other commodities
Sales counter clerks
Supervisors, Administrative Support Occupations
Supervisors, distribution, sched., and adjusting clerks
computer equipment operators
Computer operators

- Peripheral equipment operators
- Computer Equipment Operators
  - Computer operators
  - Peripheral equipment operators
- Secretaries, Stenographers and Typists
  - Secretaries
  - Stenographers
  - Typists
- Information Clerks
  - Interviewers
  - Hotel clerks
  - Transportation ticket and reservation agents
  - Receptionists
  - Information clerks, n.e.c.
- Records Processing Occupations, Except Financial
  - Classified-ad clerks
  - Correspondence clerks
  - Order clerks
  - Personnel clerks, except payroll and timekeeping
  - Library clerks
  - Records clerks
- Financial Records Processing Occupations
  - Bookkeepers, accounting, and auditing clerks
  - Payroll and timekeeping clerks
  - Billing clerks
  - Cost and rate clerks
  - Billing, posting, and calculating machine operators
- Duplicating, Mail and Other Office Machine Operators
  - Office Machine operators, n.e.c.
  - Telegraphers
  - Postal clerks, except mail carriers
  - Mail clerks, except postal service
- Material Recording, Sched., and Distrib. Clerks, n.e.c.
  - Production coordinators
  - Stock and inventory clerks
  - Meter readers
  - Weighers, measurers, and checkers
  - Samplers
  - Expediter
  - Material recording, sched., and distrib. clerks, n.e.c.
  - Investigators and adjusters, except insurance
  - Bill and account collectors
- Miscellaneous Administrative Support Occupations
  - General office clerks
  - Bank tellers

Proofreaders
Data-entry keyers
Statistical clerks
Administrative support occupations, n.e.c.

SERVICE OCCUPATIONS
Supervisors, Protective Service Occupations
Supervisors, firefighting and fire prevention occupations
Supervisors, police and detectives
Firefighting and Fire Prevention Occupations
Firefighting occupations
Police and Detectives
Police and detectives, public service
Sheriffs, bailiffs, and other law enforcement officers
Health Service Occupations
Dental assistants
Health aids, except nursing
Nursing aides, orderlies, and attendants
Personal Service Occupations
Barbers
Hairdressers and cosmetologists
Farm Occupations, Except Managerial
Marine life cultivation workers
Nursery workers
Graders and sorters, agricultural products
Forestry and Logging Occupations
Timber cutting and logging occupations
Fishers, Hunters, and Trappers
Fishers
Hunters, and trappers

PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS
Aircraft Engine Mechanics
Aircraft Mechanics, except Engine
Construction Trades
Supervisors, painters, paperhangers, and plasterers
Construction Trades, Except Supervisors
Painters, construction and maintenance
Paperhangers
Plasterers
Concrete and Terrazzo finishers
Insulation workers
Paving, surfacing, and tamping equipment operators
Structural metal workers
Drillers, earth

Extractive Occupations
- Drillers, oil well
- Explosives workers
- Mining machine operators
- Mining occupations, n.e.c.

Precision Production Occupations
- Lay-out workers
- Engravers, metal
- Cabinet makers and bench carpenters
- Furniture and wood finishers
- Miscellaneous precision woodworkers

Precision Textile, Apparel, and Furnishings Machine Workers
- Dressmakers
- Tailors
- Upholsterers
- Miscellaneous precision apparel and fabric workers
- Optical goods workers
- Dental laboratory and medical appliance technicians
- Bookbinders

Precision Food Production Occupations
- Butchers and meat cutters

Precision Inspectors, Testers, and related Workers
- Inspectors, testers, and graders

Plant and System Operators
- Water and sewage treatment plant operators
- Power plant operators
- Stationary engineers
- Miscellaneous plant and system operators

OPERATORS, FABRICATORS, AND LABORERS
- Rolling machine operators
- Forging machine operators
- Heat treating equipment operators
- Sawing machine operators
- Photoengravers and lithographers
- Miscellaneous printing machine operators
- Knitting, looping, taping, and weaving machine operators
- Textile sewing machine operators
- Painting and paint spraying machine operators
- Furnace, kiln, and oven operators, except food
- Motion picture projectionists
- Photographic process machine operators
- Welders and cutters
- Hand painting, coating, and decorating occupations
- Production inspectors, checkers, and examiners

Production testers
Driver-sales workers
Truck drivers-light
Bus drivers
Railroad brake, signal, and switch operators
Sailors and deckhands
Operating engineers
Hoist and winch operators
Crane and tower operators
Excavating and loading machine operators
Grader, dozer, and scraper operators
Helpers, surveyor
Helpers, extractive occupations

4. SECONDARY

TECHNICAL, SALES, AND ADMINISTRATIVE SUPPORT OCCUPATIONS
Sales Workers, Retail and Personal Services
Cashiers
Street and door-to-door sales workers
News vendors
Sales Related Occupations
Sales support occupations, n.e.c.
Records Processing Occupations, Except Financial
File clerks
Duplicating machine operators
Mail preparing and paper handling machine operators
Telephone operators
Communications equipment operators, n.e.c.
Mail carriers, postal service
Messengers
Material Recording, Sched., and Distrib. Clerks, n.e.c.
Dispatcher
Traffic, shipping, and receiving clerks
Eligibility clerks, social welfare

SERVICE OCCUPATIONS
Private Households Occupations
Launderers and Ironers
Cooks, private household
Housekeepers and butlers
Child care workers, private household
Private household cleaners and servants
Supervisors, guards
Police and Detective

Correctional institution officers
Guards
Crossing guards
Guards and police, except public service
Protective service occupations, n.e.c
Food Preparation and Service Occupations
Bartenders
Waiters and Waitresses
Food counter, fountain and related occupations
Kitchen workers, food preparation
Waiters'/waitresses' assistants
Miscellaneous food preparation occupations
Cleaning and Building Service Occupations, except household
Supervisors, cleaning and building service workers
Maids and housemen
Janitors and cleaners
Elevator operators
Pest control occupations
Personal Service Occupations
Attendants, amusement and recreation facilities
Guides
Ushers
Public transportation attendants
Baggage porters and bellhops
Welfare service aides
Child care workers, except private household
personal service occupations, n e c

FARMING, FORESTRY, AND FISHING OCCUPATIONS
Farming
Farm workers
Supervisors, related agricultural occupations
Groundskeepers and gardeners, except farm
Animal caretakers, except farm

PRECISION PRODUCTION, CRAFT, AND REPAIR OCCUPATIONS
Machinery Maintenance Occupations
Construction Trades, Except Supervisors
Drywall installers
Construction trades, n e c
Precision Production Occupations
Precision assemblers, metal
Precision grinders, fitters, and tool sharpeners
Apparel and fabric patternmakers
Electrical and electronic equipment assemblers

Miscellaneous precision workers, n.e.c.
Food batchmakers
Adjusters and calibrators

OPERATORS, FABRICATORS, AND LABORERS
Machine Operators, Assemblers, and Inspectors
Lathe and turning machine operators
Milling and planing machine operators
Punching and stamping press machine operators
Drilling and boring machine operators
Grinding, abrading, buffing, and polish. machine operators.
Numerical control machine operators
Miscellaneous metal, plastic, stone, and glass working machine operators
Fabricating machine operators, n.e.c.
Metal and plastic Processing Machine Operators
Molding and casting machine operators
Metal plating machine operators
Miscellaneous metal and plastic processing machine operators
Wood lathe, routing, and planing machine operators
Shaping and joining machine operators
Nailing and tacking machine operators
Miscellaneous woodworking machine operators
Winding and twisting machine operators
Textile cutting machine operators
Shoe machine operators
Pressing machine operators
Laundering and dry cleaning machine operators
Miscellaneous textile machine operators
Machine Operators, Assorted Materials
Cementing and gluing machine operators
Packaging and filling machine operators
Separating, filtering, and clarifying machine operators
Compressing and compacting machine operators
Washing, cleaning, and pickling machine operators
Folding machine operators
Crushing and grinding machine operators
Slicing and cutting machine operators
Miscellaneous and not specified machine operators
Machine operators, not specified
Solderers and blazers
Hand cutting and trimming occupations
Hand molding, casting, and forming occupations
Assemblers
Hand engraving and printing occupations
Hand grinding and polishing occupations

Miscellaneous hand working occupations
Production samplers and weighers
Graders and sorters, except agricultural
Truck drivers, heavy
Taxicab drivers, and chauffeurs
Parking lot attendants
Motor transportation occupations
Rail vehicle operators, n.e.c.
Bridge, lock, and lighthouse tenders
Longshore equipment operators
Industrial truck and tractor equipment operators
Miscellaneous material moving equipment operators
Helpers, mechanics and repairers
Helpers, construction and extractive occupations
Construction laborers
Production helpers
Freight stock, and material handlers
Garbage collectors
Stevedores
Stock handlers and baggers
Machine feeders and offbearers
Freight, stock, and material handlers, n.e.c.
Garage and service station related occupations
Vehicle washers and equipment cleaners
Hand packers and packagers
laborers, except construction

Appendix E
1970 Industrial Classifications

***("N.E.C." means not elsewhere classified.)**

(1) AGRICULTURE, FORESTRY, and FISHERIES

Agricultural production
Agricultural services, except horticultural
Horticultural services
Forestry
Fisheries
Agriculture, forestry, and fisheries - - allocated

(2) MINING

Metal mining
Coal mining
Crude petroleum and natural gas extractions
Nonmetallic mining and quarrying, except fuel
Mining - - allocated

(3) CONSTRUCTION

General building contractors
General contractors, except building
Special trade contractors
Not specified construction
Construction - - allocated

(4) FOOD MFG

Meat products
Dairy products
Canning and preserving fruits, vegetables, and sea foods
Grain-mill products
Bakery products
Confectionery and related products
Beverage industries
Miscellaneous food preparation and kindred products
Not specified food industries

(5) TOBACCO MFG

(6) TEXTILE MFG

Knitting mills
Dyeing and finishing textiles, except wool and knit goods

Floor coverings, except hard surface
Yarn, thread, and fabric mills
Miscellaneous textile mill products

(7) APPAREL MFG

Apparel and accessories
Miscellaneous paper and pulp products

(8) PAPER MFG

Pulp, paper, and paperboard mills
Miscellaneous paper and pulp products
Paperboard containers and boxes

(9) PRINTING AND PUBLISHING MFG

Newspaper publishing and printing
Printing, publishing, and allied industries, except newspapers

(10) CHEMICAL MFG

Industrial chemicals
Soaps and cosmetics
Paints, varnishes, and related products
Agricultural chemicals
Miscellaneous chemicals
Not specified chemicals and allied products

(11) PETROLEUM and COAL MFG

Petroleum refining
Miscellaneous petroleum and coal products

(12) RUBBER AND MISC. PLASTICS MFG

Rubber products
Miscellaneous plastic products

(13) LEATHER MFG

Tanned, curried, and finished leather
Footwear, except rubber
Leather products, except footwear

(14) LOGGING/LUMBER and WOOD PRODUCTS MFG

Logging
Sawmills, planing mills, and mill work
Miscellaneous wood products

(15) FURNITURE MFG

Furniture and fixtures

(16) STONE, CLAY, and GLASS MFG

Glass and glass products
Cement, concrete, gypsum, and plaster products
Structural clay products
Pottery and related products
Miscellaneous nonmetallic mineral and stone products

(17) METAL INDUSTRIES MFG

Blast furnaces, steel works, rolling and finishing mills
Other primary iron and steel industries
Primary aluminum industries
Other primary nonferrous industries
Cutlery, hand tools, and other hardware
Fabricated structural metal products
Screw machine products
Metal stamping
Miscellaneous fabricated metal products
Not specified metal industries

(18) GENERAL MACHINE MFG

Engines and turbines
Farm machinery and equipment
Construction and material handling machines
Metalworking machinery
Machinery, except electrical, n.e.c.
Not specified machinery

(19) ELECTRICAL MACHINE MFG

Household appliances
Electrical machinery, equipment, and supplies, n.e.c.
Not specified electrical machinery, equipment, and supplies

(20) TRANSPORTATION EQUIPMENT MFG

Ship and boat building and repairing
Railroad locomotives and equipment
Mobile dwellings and campers
Cycles and miscellaneous transportation equipment
Motor vehicles and motor vehicle equipment

(21) PHOTOGRAPHIC and TIME EQUIPMENT MFG

Photographic equipment and supplies
Watches, clocks, and clockwork-operated devices

Not specified professional equipment

(22) MISCELLANEOUS MFG

Miscellaneous manufacturing industries
Manufacturing, durable goods - - allocated
Manufacturing, nondurable goods - - allocated
Not specified manufacturing industries

(23) HIGH TECH MFG

Office and accounting machines
Electronic computing equipment
Radio, T.V., and communication equipment
Scientific and controlling instruments
Optical and health services supplies
Plastics, synthetics and resins, except fibers
Synthetic fibers
Drugs and medicines

(24) AIR and ORDNANCE MFG

Ordnance
Aircraft and parts

(25) RAIL SERVICE

Railroads and railway express service

(26) TRUCKING, WAREHOUSING and STORAGE, POSTAL SRV

Trucking service
Warehousing and storage
Postal service

(27) TRANSPORTATION

Street railways and bus lines
Taxicab service
Water transportation
Air transportation
Pipe lines, except natural gas
Services incidental to transportation

(28) COMMUNICATIONS

Radio broadcasting and television
Telephone (wire and radio)
Telegraph and miscellaneous communication services

(29) UTILITIES AND SANITATION

Electric light and power

Electric-gas utilities
Gas and steam supply systems
Water supply
Sanitary services
Other and not specified utilities
Transportation, communications, and other public utilities - - allocated

(30) WHOLESALE TRADE DURABLE

Motor vehicles and equipment
Electrical goods
Hardware, plumbing, and heating supplies
Not specified electrical, and heating supplies
Machinery equipment and supplies
Metals and minerals
Scrap and waste materials
Lumber and construction materials
Wholesalers, n.e.c.
Not specified wholesale trade
Wholesale trade - - allocated

(31) WHOLESALE TRADE NONDURABLE

Drugs, chemicals, and allied products
Dry goods and apparel
Food and related products
Farm products -- raw materials
Petroleum products
Alcoholic beverages
Paper and its products

(32) BUILDING, HARDWARE, DEPARTMENT ESTABLISHMENTS

Lumber and building material retailing
Hardware and farm equipment stores
Department and mail order establishments
Limited price variety stores
Miscellaneous general merchandise stores

(33) FOOD STORES

Grocery stores
Dairy products stores
Retail bakeries
Food stores

(34) MOTOR VEHICLE DEALERS and GAS SERVICES

Motor vehicle dealers
Tire, battery, and accessory dealers
Gasoline service stations
Miscellaneous vehicle dealers

(35) EATING and DRINKING ESTABLISHMENTS

(36) SPECIALTY RETAIL STORES

Drug stores
Liquor stores
Farm and garden supply stores
Jewelry stores
Fuel and ice dealers
Retail florists
Miscellaneous retail stores
Not specified retail trade
Retail trade - - allocated

(37) FINANCE, INSURANCE, and REAL ESTATE

Banking
Credit agencies
Security, commodity brokerage, and investment companies
Insurance
Real estate, incl. real estate-insurance-law offices
Finance, insurance, and real estate - - allocated

(38) BUSINESS SERVICES

Advertising
Services to dwellings and other buildings
Commercial research, development, and testing labs
Employment and temporary help agencies
Business management and consulting services
Computer programming services
Detective and protective services
Business services, n.e.c.

(39) REPAIR SERVICES

Automobile services, except repair
Automobile repair and related services
Electrical repair shops
Miscellaneous repair services
Business and repair services - - allocated

(40) PRIVATE DOMESTIC/HOUSEHOLDS SERVICES

(41) PERSONAL SERVICES

Hotels and motels
Lodging places, except hotels and motels
Laundering, cleaning, and other garment services
Beauty shops
Barber shops
Shoe repair shops
Dressmaking shops
Miscellaneous personal services
Personal services - - allocated

(42) ENTERTAINMENT AND RECREATION SERVICES

Theaters and motion pictures
Bowling alleys, billiard and pool parlors
Miscellaneous entertainment and recreation services
Entertainment and recreation services - -allocated

(43) HEALTH SERVICES

Offices of physicians
Offices of dentists
Offices of chiropractors
Hospitals
Convalescent institutions
Offices of health practitioners

(44) EDUCATION

Elementary and secondary schools
Colleges and universities
Libraries
Educational services, n.e.c.
Not specified educational services

(45) PROFESSIONAL AND RELATED SERVICES

Legal services
Museums, art galleries, and zoos
Religious organizations
Welfare services
Residential welfare facilities
Nonprofit membership organizations
Engineering and architectural services
Accounting, auditing, and bookkeeping services
Miscellaneous professional and related services
Professional and related services - - allocated

(46) PUBLIC ADMINISTRATION

Federal public administration
State public administration

Local public administration
Public administration - - allocated

Appendix F
1980 Industrial Classifications

***("N.E.C." means not elsewhere classified.)**

(1) AGRICULTURE, FORESTRY, and FISHERIES

Agricultural production, crops
Agricultural production, livestock
Agricultural services, except horticultural
Horticultural services
Forestry
Fishing, hunting, and trapping

(2) MINING

Metal mining
Coal mining
Crude petroleum and natural gas extractions
Nonmetallic mining and quarrying, except fuel
Mining - - allocated

(3) CONSTRUCTION

(4) FOOD MFG

Meat products
Dairy products
Canning and preserving fruits, vegetables, and sea foods
Grain-mill products
Bakery products
Confectionery and related products
Beverage industries
Miscellaneous food preparation and kindred products
Not specified food industries

(5) TOBACCO MFG

(6) TEXTILE MFG

Knitting mills
Dyeing and finishing textiles, except wool and knit goods
Floor coverings, except hard surface
Yarn, thread, and fabric mills
Miscellaneous textile mill products

(7) APPAREL MFG

Apparel and accessories, except knit
Miscellaneous fabricated textile products

(8) PAPER MFG

Pulp, paper, and paperboard mills
Miscellaneous paper and pulp products
Paperboard containers and boxes

(9) PRINTING AND PUBLISHING MFG

Newspaper publishing and printing
Printing, publishing, and allied industries, except newspapers

(10) CHEMICAL MFG

Soaps and cosmetics
Paints, varnishes, and related products
Agricultural chemicals
Industrial and miscellaneous chemicals

(11) PETROLEUM and COAL MFG

Petroleum refining
Miscellaneous petroleum and coal products

(12) RUBBER AND MISC. PLASTICS MFG

Tires and inner tubes
Other rubber products, and plastics footwear and belting
Miscellaneous plastic products

(13) LEATHER MFG

Leather tanning and finishing
Footwear, except rubber and plastic
Leather products, except footwear

(14) LOGGING/LUMBER and WOOD PRODUCTS MFG

Logging
Sawmills, planing mills, and mill work
Miscellaneous wood products

(15) FURNITURE MFG

Furniture and fixtures

(16) STONE, CLAY, and GLASS MFG

Glass and glass products
Cement, concrete, gypsum, and plaster products
Structural clay products
Pottery and related products

Miscellaneous nonmetallic mineral and stone products

(17) METAL INDUSTRIES MFG

Blast furnaces, steel works, rolling and finishing mills
Iron and steel foundries
Other primary metal industries
Primary aluminum industries
Other primary nonferrous industries
Cutlery, hand tools, and other hardware
Fabricated structural metal products
Screw machine products
Metal forgings and stampings

(18) GENERAL MACHINE MFG

Engines and turbines
Farm machinery and equipment
Construction and material handling machines
Metalworking machinery
Machinery, except electrical, n.e.c.
Not specified machinery

(19) ELECTRICAL MACHINE MFG

Household appliances
Electrical machinery, equipment, and supplies, n.e.c.
Not specified electrical machinery, equipment, and supplies

(20) TRANSPORTATION EQUIPMENT MFG

Ship and boat building and repairing
Railroad locomotives and equipment
Mobile dwellings and campers
Cycles and miscellaneous transportation equipment
Motor vehicles and motor vehicle equipment

(21) PHOTOGRAPHIC and TIME EQUIPMENT MFG

Photographic equipment and supplies
Watches, clocks, and clockwork-operated devices
Not specified professional equipment

(22) MISCELLANEOUS MFG

Toys, amusement, and sporting goods
Miscellaneous manufacturing industries
Not specified manufacturing industries

(23) HIGH TECH MFG

Office and accounting machines
Electronic computing equipment
Radio, T.V., and communication equipment
Scientific and controlling instruments
Optical and health services supplies
Plastics, synthetics and resins, except fibers
Synthetic fibers
Drugs and medicines

(24) AIR and ORDNANCE MFG

Ordnance
Aircraft and parts

(25) RAIL SERVICE

Railroads

(26) TRUCKING, WAREHOUSING and STORAGE, POSTAL SRV

Trucking service
Warehousing and storage
U.S. Postal service

(27) TRANSPORTATION

Bus service and urban transit
Taxicab service
Water transportation
Air transportation
Pipe lines, except natural gas
Services incidental to transportation

(28) COMMUNICATIONS

Radio broadcasting and television
Telephone (wire and radio)
Telegraph and miscellaneous communication services

(29) UTILITIES AND SANITATION

Electric light and power
Electric and gas, and other combinations
Gas and steam supply systems
Water supply and irrigation
Sanitary services
Not specified utilities

(30) WHOLESALE TRADE DURABLE

Motor vehicles and equipment
Furniture and home furnishings

Sporting goods, toys, and hobby goods
Electrical goods
Hardware, plumbing, and heating supplies
Not specified electrical, and hardware products
Machinery, equipment and supplies
Metals and minerals, except petroleum
Scrap and waste materials
Lumber and construction materials
Miscellaneous wholesale, durable goods

(31) WHOLESALE TRADE NONDURABLE

Drugs, chemicals, and allied products
Apparel, fabrics, and notions
Groceries and related products
Farm products -- raw materials
Petroleum products
Alcoholic beverages
Paper and paper products
Farm supplies
Miscellaneous wholesale, nondurable goods
Not specified wholesale trade

(32) BUILDING, HARDWARE, DEPARTMENT ESTABLISHMENTS

Lumber and building material retailing
Hardware stores
Retail nurseries and garden stores
Mobil home dealers
Department stores
Variety stores
Miscellaneous general merchandise stores

(33) FOOD STORES

Grocery stores
Dairy products stores
Retail bakeries
Food stores

(34) MOTOR VEHICLE DEALERS and GAS SERVICES

Motor vehicle dealers
Auto and home supply stores
Gasoline service stations
Miscellaneous vehicle dealers

(35) EATING and DRINKING ESTABLISHMENTS

(36) SPECIALTY RETAIL STORES

Apparel and accessory stores, except shoe
Shoe stores
Furniture and home furnishings stores
Household appliances, TV, and radio stores
Drug stores
Liquor stores
Jewelry stores
Fuel and ice dealers
Retail florists
Miscellaneous retail stores
Not specified retail trade
Sporting goods, bicycles, and hobby stores
Book and stationery stores
Sewing, needlework, and piece goods stores
Mail order houses
Vending machine operators
Direct selling establishments

(37) FINANCE, INSURANCE, and REAL ESTATE

Banking
Savings and loan associations
Credit agencies, n.e.c.
Security, commodity brokerage, and investment companies
Insurance
Real estate, incl. real estate-insurance-law offices

(38) BUSINESS SERVICES

Advertising
Services to dwellings and other buildings
Commercial research, development, and testing labs
Personnel supply services
Business management and consulting services
Computer and data processing services
Detective and protective services
Business services, n.e.c.

(39) REPAIR SERVICES

Automobile services, except repair
Automobile repair and related services
Electrical repair shops
Miscellaneous repair services
Business and repair services - - allocated

(40) PRIVATE DOMESTIC/HOUSEHOLDS SERVICES

(41) PERSONAL SERVICES

Hotels and motels
Lodging places, except hotels and motels
Laundering, cleaning, and garment services
Beauty shops
Barber shops
Funeral service and crematories
Shoe repair shops
Dressmaking shops
Miscellaneous personal services

(42) ENTERTAINMENT AND RECREATION SERVICES

Theaters and motion pictures
Bowling alleys, billiard and pool parlors
Miscellaneous entertainment and recreation services

(43) HEALTH SERVICES

Offices of physicians
Offices of dentists
Offices of chiropractors
Offices of optometrists
Offices of health practitioners, n.e.c.
Hospitals
Nursing and personal care facilities
Health services, n.e.c.

(44) EDUCATION

Elementary and secondary schools
Colleges and universities
Business, trade, and vocational schools
Libraries
Educational services, n.e.c.
Job training and vocational rehabilitation services

(45) PROFESSIONAL AND RELATED SERVICES

Legal services
Museums, art galleries, and zoos
Religious organizations
Residential care facilities, without nursing
Engineering, architectural, and surveying services
Accounting, auditing, and bookkeeping services
Miscellaneous professional and related services
Child day care services

Social services, n.e.c.
Membership organizations
Noncommercial educational and scientific research

(46) PUBLIC ADMINISTRATION

Executive and legislative offices
General government, n.e.c.
Justice, public order, and safety
Public finance, taxation, and monetary policy
Administration of human resources programs
Administration of environmental quality and housing programs
Administration of economic programs
National security and international affairs

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