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By

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Abstract

THE IMPACT OF SUBURBAN LABOR
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by

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In this paper the role of suburban labor markets on unemployment in New York City is discussed. The issue is considered by using both time series and cross-sectional data to analyze factors which influence the demand and supply sides of the labor market.

To consider the demand side, the impact of growing suburban labor markets is considered. Initially the paper looks at the suburban share of the regional labor market and how it affects unemployment in New York City. Later the market is broken down into nine major industries for more detailed analysis. The key industries in the analysis are found to be, transportation and public utilities, wholesale trade, and finance, insurance and real estate.

The issue of supply is looked at in two ways; a general model and then by analyzing eight specific neighborhoods within New York City. Four major issues are considered for analysis. They are discrimination, education, neighborhood stability and income levels, and travel to selected work places. There is some indication of racial discrimination but education levels no doubt play a role. Neighborhood stability had little effect but the same cannot be said with respect to income levels.

The results indicated that if any reverse commuting is done from New York City to the outlying areas it is done through the use of an automobile. Because of the lack of adequate public transportation facilities they are not a major factor in reverse commuting. However they do play a major role in travel to Manhattan. The vast subway and bus network is the likely reason. The results for the general supply model are generally more definitive than those for the neighborhood models.

To My Parents

without whose constant

encouragement and support

this project would not

have been possible.

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CHAPTER I

INTRODUCTION

1.1 Basic Overview

New York City presents an economist with an extremely interesting and challenging problem. For many years the city was considered to be the center of many different industries, including finance, communications, and fashion. Today this may no longer be the case. With the shift toward suburbanization in the past few years, the labor market is but one of many areas within the city that has gone through several changes.

Through much of the fifties and sixties, total employment grew. The peak was reached in 1970 when the level of employment approached three million positions. It has been over the past decade that total employment has fallen, and rather substantially. Obviously, certain industries have been affected more than others. In the manufacturing sector, the total number of jobs declined by nearly a third in the decade prior to 1976. Other major sectors, such as retail trade, and transportation and public utilities, suffered similar declines. Only the service sector has managed to avoid the overall drop of employment.

Changes have also been taking place regarding the type of people seeking employment who reside in the city. If we are to believe urban economic theory and the various econometric models, model by writers such as Muth (10) for example, higher income people tend to seek more space. They are able to satisfy this demand somewhat, by relocating in the outer areas of the city and in the suburbs where land tends to be cheaper.[1] Mills (9) argues that the people who leave the inner area of the city will be replaced by people who tend to have lower incomes and probably lower educational and skill levels. In addition, the new migrants to the urban core may face further problems because they tend to be members of minority groups.

Mills also shows that an increasingly large proportion of urban employment is now located in the suburbs. He speculates that some low income workers would qualify for suburban positions and would want to live there. Because of discrimination and suburban zoning rules, however, housing is difficult to obtain, especially for Black people. If Blacks wish to work in the suburbs, they must live on high-priced city center land and commute long distances.

Commuting presents further problems. On the whole, mass transportation facilities are designed to move large num-

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[1]The higher income residents, because of a higher value of time, live further from the Central Business Districts (CBD) only if their income elasticity for space exceeds "one." For most people, Muth finds this elasticity to exceed "two." However for some residents, it is less than one, and they may wish to live close to the CBD.

bers of people into the central city in the morning and carry them back home at night. Very few facilities are available for the reverse commute. Therefore, if a person's company moves out of the city, he may find it difficult to reach the new work site. He may be forced to move, possibly at a financial loss, travel many hours during a day, or become unemployed.

1.2 Reasons for Urban Areas

In his discussion of the principle reasons for the growth of urban regions, Mills says a primary cause is that people may find it to their advantage to carry on certain activities in a concentrated region. He gives three particular reasons for the growth of urban areas: economies of scale, agglomerative economies, and comparative advantage.

The basic urban models are sometimes called central place theory. They are based on the idea of scale economies, first presented by August Lösch (8). Mills feels that economies of scale can occur in all industries, not just in manufacturing. He argues that they can occur in sectors such as wholesale trade, retail trade, and services, but perhaps at a lower level than that found in manufacturing. For example, some service industries are very specialized and may have very low per capita demand and may only be able to exhaust their scale economies in large areas.

Small areas may contain only those industries whose economies of scale are exhausted by the lower levels of population. However larger urban areas contain not only small

scale specialized industries but large industries whose output may be exhausted only by the demands of the larger population. In fact, the large urban region may supply goods not only to its own citizens but also to residents of smaller urban regions. This would lead to exports by larger areas to smaller ones but no other trade between urban regions.

A second reason for urban growth is agglomerative economies. Agglomerative economies are concerned with the advantages of spatial concentration as a result of scale economies. Probably the most important outgrowth of the economies is statistical in nature, a product of the law of large numbers. Sales of outputs and the buying of inputs may vary across many firms for seasonal, cyclical, secular, or random reasons. If it is assumed that some of these variations are not perfectly correlated across all industries, a region with many employers may be better able to provide full employment of its workers than areas with few firms.

Another element in agglomerative economies is the complementarity between labor supply, and production. For example, an industry with a high demand for female employees may be attracted to places where women live because of their husbands' places of work. The complementarity of production is usually concerned with the problem of where two goods can be produced more cheaply together than separately. Complementarity will hopefully attract both producers to the areas where the goods will be produced.

The third element in agglomerative economies is some-

what different. It consists of the idea that the gathering of large groups of people allows for personal interaction, which then generates new ideas, processes, and products. The urban region is seen as the innovative and progressive sector of the society.

The third factor in explaining the growth of the city is comparative advantage. Some regions offer an advantage for producing certain goods because of variations in natural resources, so that there may be regional comparative advantages for certain areas. Mills speculates, however, that because of economical interurban transportation, proximity to natural resources will gradually become less important relative to the two other factors already discussed.

Little has been said about the actual size of the urban area and whether there is an approachable limit. One factor that could limit the growth of an urban area is the demand for its products. In other words, if the demand for its exports decreases, its size could also decline. Mills says that limits could also result from diminishing returns to production and transportation activities in urban regions.

Obviously one measure of the size of a particular city is the labor market. If the demand for a city's products falls, then the demand for labor may also decrease. Unless the labor force in the area is reduced, say by a net decline in population, the lowered demand may lead to an excess supply of labor. Economists generally define an excess supply of labor at the prevailing wage rate to be unemployment.

Unemployment is the subject of this essay, that is the rate of joblessness in a specific part of a particular urban region, the core of the New York region. The core consists of the four inner boroughs of New York City--the Bronx, Brooklyn, Manhattan, and Queens. It is apparent that in a city as large as New York no one variable would be expected to be the single determinant of the unemployment rate. However by considering the supply side as well as the demand side, this essay hopes to discover the key factors explaining the variance in unemployment.

Before discussing the outline, some further background seems to be appropriate. Mills argues that urban areas tend to be labor market regions. By this he means that most people who work in a particular urban area also live there, and very little commuting takes place between different regions. With this in mind any major shift of positions to urban areas outside of New York City within the urban region is likely to have a serious impact on the rate of unemployment within the city.

1.3 Outline of the Essay

Chapter II presents a sample of some of the recent literature that deals with the problem being discussed. Although a considerable number of articles and books deal with specific urban problems, very few zero in directly on the unemployment issue.

Chapter III discusses the demand side of the urban labor market. The discussion is concerned primarily with the movement of jobs between the New York City core and other areas within the region and the effects of that movement on the unemployment rate. Because of the very large size of the New York labor market the examination will include how the movement of key industries (Standard Industrial Code one-digit groups) has influenced movements in the rate of unemployment. Some of the findings will be compared to the previous work done in this area by Mills.

In Chapter IV the supply side of the labor market is considered. With the use of 440 selected New York City census tracts, the model will examine which factors are significant in explaining the variation in the level of unemployment. Standard variables suggested by Mills, such as discrimination and education, will be considered. So will neighborhood stability and the income level of the particular tract be included for consideration.

Also considered are the effects of distance and travel time to work on the rate of unemployment. The travel issue is analyzed by checking the air distance and the time by automobile and time by public transit needed to reach a suburban Central Business District (CBD) from a particular census tract. The model considers travel to the Manhattan CBD in addition to three outlying CBD's. The purpose is to see whether the distance to and travel time needed to reach the increasingly important suburban labor markets has influ-

enced the joblessness rate in New York City.

Chapter V is similar to the previous one because the same variables are discussed. In this chapter, however, the data is broken down by eight separate neighborhoods. Four predominantly White and four mainly Black areas in the city were chosen for the analysis. Because of the large size of the city and its labor market, it would appear to be appropriate to examine selected neighborhoods on an individual basis. The results here may yield a clearer answer to the question of what influences the level of unemployment.

The final chapter states some of the conclusions from the work and gives suggestions for public policy. Some ideas for future research are also noted.

CHAPTER II

A SUMMARY OF SELECTED LITERATURE

Urban problems have been discussed in quite some detail in the literature in recent years. Articles and books have varied widely in their scope and purpose. Surprisingly, however, the specific problem of unemployment in an urban context have been dealt with rather sparingly. Although many articles deal with the urban labor market, very few address themselves to the unemployment issue directly. This chapter discusses three key papers that were of importance during the preparation of this work. The three deal with both urban and labor economics and help to develop the basic theoretical framework alluded to by Mills.

Somewhat similar to the work in this paper is the model developed by Paul Offner (11). He is concerned primarily with labor force participation in the ghetto and includes a major discussion of ghetto location relative to Central Business District location and its impact on the level of joblessness. Using New York City 1960 census tract data he attempts to ascertain which factors explain the variation of the supply of labor in low income neighborhoods. In this model included are some of the variables that he uses--education,

ethnic background, and distance to a major work site. He considers other variables as well, such as public housing, marital status, age, sex and a dummy variable to differentiate between ghetto and poverty areas; these variables are not included in this paper.

Offner finds that both Spanish origin and education variables have negative and significant effects on the labor supply of ghetto areas across all ages and sexes. A variable which measures the impact of the Black population is negative and significant only for men ages 55-64 and women ages 25-54.

Offner's distance variable is similar to the one chosen in this essay. He considers only the air distance between various ghetto areas and the center of the Manhattan CBD. He finds that there is a negative and significant correlation between the distance to work and the supply of labor in the ghetto.

In light of the trend of jobs leaving the urban core, as discussed by Mills, three suburban CBD's were also selected for analysis in this paper. In addition to air distances, examined are the effects of time by automobile and time by public transit needed to reach outlying work sites from various city neighborhoods. Becker (1) suggests that a person's valuation of time in travel can equal up to forty percent of his wage rate, so that any high amount of travel is likely to influence a person's choice of whether and where he will work. This study also includes several predominantly White neighborhoods in order to consider how Whites would be affected by generally longer travel times.

If the results of the Offner model are followed through, certain areas will have depressed levels of labor supply, and the unemployment rate may not measure all people out of work involuntarily. This paper looks at the unemployment rate because it is generally a standard and accepted measure of people out of work. In addition, statistics regarding the level of unemployment are more easily available and more uniform than those which deal with those workers not in the labor force. However any results obtained from this study should probably be evaluated in the light of Offner's questions concerning the true measure of labor supply.

The two basic conclusions of his paper should be noted. First he believes that as employers continue to leave the city, thus increasing the average distance to various job centers, labor supply in poverty areas will decline. This would imply that the reported unemployment rate is likely to understate the actual number of people not working. Second, he suggests that after taking into account demographic and distance factors, the labor supply is depressed mainly for prime age groups, rather than for teenagers and older workers. One reason for this could be residential segregation. He believes that some of the poverty regions have a high proportion of jobs in the retail sector. While this may be good for teenagers and older workers, it may not be adequate for prime age workers, who may expect higher wages than those available in such positions. Thus urban Blacks are likely to lose out not just because of employment discrimination, but also because of residential segregation.

It is hoped to see how Offner's conclusions compare with those of this work.

To continue along this line, John Kain (5) investigates further the problem of housing segregation on Black unemployment. The data for his study is derived from the Detroit Area Traffic Study of 1952 and the Chicago Area Traffic Study of 1956. A basic assumption through his entire paper, it should be noted, is that housing discrimination has been maintained by both legal and extralegal methods.

Kain gives several reasons why this type of segregation may affect the level of Black unemployment. First among these is the difficulty of reaching certain jobs that imposes costs high enough to discourage Blacks from working. Second Blacks may have access to less information and, therefore, less opportunity to learn about positions distant from their homes. In addition, Kain feels that there may also be discrimination on the part of employers, either unfavorable in mainly White regions or favorable in Black areas.

This study investigates the problem of unemployment in selected Black neighborhoods. It considers the question of distance by examining the effects of time needed to reach the outlying CBD's from various residential areas. If some positive correlation is found, then Kain's basic argument about high travel costs would have been proved true.

Kain suggests that suburbanization has a negative effect on the level of Black employment. In a finding similar to Offner's, he notes that jobs traditionally held by Blacks are moving to the suburbs at a rate equal to or above

the rate for all jobs, but suburbanization of Black families is only limited, thus increasing unemployment. He also intimates that even if Blacks held the same number of jobs in the city after suburbanization, their position would have declined because the size of their labor force would have grown faster than that of the white population. With the breakup of the data into predominantly White and Black regions, the issue of jobs leaving the city and its impact, on Black unemployment will be explored.

David Bradford and Harry Kelejian (3) deal specifically with the problem of labor supply by considering the issue of why people move to the suburbs. They believe that the problems of central cities, such as high crime rates, deteriorating schools, and dirt are the result of the decline in the number of higher income city residents. The "worsening" is caused by the movement of wealthier families to the suburbs and their replacement by lower income residents. This only adds to the problem by causing even more people to flee.

This problem has been analyzed in the specific sense of how it relates to unemployment within the core. This model includes a variable which is a measure of the new residents in a particular neighborhood. It is defined as the percentage of families living in a neighborhood who have lived in the same house for at least five years.

The data used in Bradford and Kelejian's study is cross-sectional for the eighty-seven most populous Standard Metropolitan Statistical Areas (SMSAs) in 1950 and 1960.

They divide the population into three basic income classes and by region, either suburban or central city. They use the two stage least squares method of estimation, and their dependent variables are the number of poor and middle income families in the central city. Among the explanatory variables chosen are the number of poor, rich, and middle income families in the entire urban region "currently" and a decade earlier. They also include measures of income, population concentration, age of housing stocks, housing units and government services. Measures of income and poverty are included in this paper to measure the impact of low wages on unemployment.

Bradford and Kelejian discuss three key findings in their paper, one of which is of particular interest for this essay. A middle class family is more likely to reside in the suburbs, the higher the percentage of central city families who were defined as poor a decade earlier, and the higher the median income of the area. The authors argue that people may move because they perceive that the poor are likely to bring typical urban problems, but with a relatively high level of income they can move to the suburbs, and escape those problems. In addition, Bradford and Kelejian contend that racial composition does not affect residential location greatly, and that economic factors outweigh racial considerations in choosing a place to live.

Looking at the movement of families and its effects on unemployment should provide a measure of whether the flight of middle class people has caused joblessness to rise. In

other words, when new people move into a central city area and perhaps bring typical urban problems, does the unemployment rate increase because the middle and upper income residents leave the city?

CHAPTER III

THE DEMAND SIDE OF THE LABOR MARKET

3.1 Introduction

In this chapter the labor market in the New York Metropolitan Area is considered, with particular emphasis on the market in New York City. As is generally known, the labor market is somewhat different from commodity markets. In the labor market the firm serves as the principal source of demand for the particular goods; in this case, labor services which are supplied by workers. For the purposes of this study the number of jobs will serve as the primary measure of demand.

This chapter is divided into three major parts. First, the theoretical issues are explored, then the data sources are discussed, and then the empirical findings are presented.

The theoretical issues analyzed are

1. the size of the city's labor market, both in nominal and per capita terms and its relationship to the region as a whole
2. the changing relationship of the labor market between the city and the rest of the region and

its impact on the city's unemployment rate

3. the shifting distributions of positions by major industry sectors and their impacts on the level of joblessness in the city

The data sources used for performing tests of significance are then discussed.

The empirical results are then presented in the following manner:

1. Tabular and graphic descriptions of the recent history of the New York City labor market. In addition, a test of significance is undertaken to check whether the jobs per capita ratio has changed significantly over time.
2. An empirical test of significance is conducted to check the correlation between the city's changing share of jobs and its rate of unemployment.
3. Tests of significance are performed so as to ascertain how each industry's shifting mix affects changes in the level of unemployment.

A summary of the major findings concludes this chapter.

3.2 Theoretical Issues

3.2.1 The Size of the Market

When the demand side of the unemployment issue is investigated, one question obviously to be considered is

whether employers have reduced their demand for labor in New York City. Under the assumptions that firms maximize profit and that there is no substantial interference in the operation of the market, then the market will determine where and how fast growth will occur. Various models show that the value of land tends to decrease as one moves further from the center of the city and since land is an input into a firm's cost function, its price is likely to be a determining factor in where companies choose to locate. Obviously where any particular firm locates will help to determine the demand for labor in that area.

However there are other variables that may influence a firm's choice of location. Nearness to customers and transportation facilities are likely to play a role as do the various public services offered in any specific region. The question which is being examined here deals with this issue: that is, whether land values are the only or at least the primary determinant of where a firm will locate.

It is generally believed that the number of positions in New York City has declined in recent years in absolute terms as well as relative to the region as a whole, but this belief should be checked to verify its validity. This latter issue is looking at the theoretical supposition of the city losing jobs, at least on a relative basis, to areas of lower priced land, assuming land rents decrease with distance from the center of the city (research on land values has not been performed in connection with this paper.)

Jobs per capita may also be a useful tool to analyze

the problem of a declining job market. This is because even if the number of jobs in the city varies to a large degree, if the population shifts by a similar proportion, the loss of jobs may not be a major problem to contend with.

3.2.2 The Shifting Distribution and its Impact on Unemployment

If total employment within the city has declined and the suburbs have gained a larger share of the regional labor market, one question to be considered is how this drop has affected the rate of unemployment of the city. To put this in the context of urban economics is to consider the impact of land values in a region on the joblessness level in one particular area. One would expect that as more of the region's jobs are located outside of the urban core unemployment in the core should increase. One reason could be due to the extra travel time which may be needed to reach positions located in outlying areas. This would have the effect of reducing a person's real wage and thereby reduce the total amount of labor which is supplied, In this section the problem is considered on an overall basis. Section 3.2.3 analyzes this question in a more detailed manner.

3.2.3 The Changing Distributions by Industry and their Relationship to Unemployment

In this part total employment is broken down into nine specific industries as defined by the Standard Industrial Code shown in 3.3. This part of the study considers whether the changing distributions of particular industries have a significant effect on the level of unemployment in the core. If certain sectors do play a major role in explaining the variation in unemployment, then in effect it may be an explanation of the shifting of the labor demand curve.

The literature on this issue has been surprisingly sparse. But Mills does offer some particularly good ideas on the topic. Obviously to learn about location patterns of employment sectors, it is necessary to know more about each industry's production functions and the relative advantages to each sector of central city and suburban location. However, in recent years very little has been written with regard to land as an input into the production function. Mills notes, however, that much is known about where in urban regions various activities tend to locate.

He states that there are two major reasons for the central location of production within urban areas. First,

some industries, particularly manufacturing, produce goods that are exported from the urban region at centrally located port or rail facilities. Similarly, some manufacturing industries may find it to their advantage to be near terminal facilities because they may need inputs imported from other areas. Usually it is the immense size of the inputs and outputs which justifies rail and water shipments and hence location near a terminal facility. Mills argues, however, that this factor has become of decreasing importance as road transportation has gained in stature. This enables a suburban location to offer "the best of both worlds." High central city land values are avoided and so are the congested downtown streets.

There seems little doubt that better road transportation has had a major effect. Table 3.1 shows that the manufacturing sector's share of total city employment has dropped sharply since World War II. In addition, in Appendix I it can be seen that the suburbs have gained a steadily increasing amount of the region's total manufacturing employment.

Mills' second reason is that firms in specialized industries may need the demand of the entire region to exhaust their economies of scale. For such firms' central location is likely to be very important. Included are such

TABLE 3.1

PERCENTAGE OF
EMPLOYMENT BY MAJOR
SECTORS IN NEW YORK CITY
(1946-1976)

	Total Employment (Thousands)	Agriculture	Mining	Contract Construction	Manu-facturing
1946	2736.9	0.02%	0.1%	2.6%	37.2%
1947	2954.0	0.03	0.1	3.4	35.6
1948	2797.7	0.03	0.1	3.5	35.5
1951	3008.4	0.1	0.1	4.1	36.0
1953	3002.5	0.03	0.1	3.5	35.6
1956	2950.3	0.04	0.1	3.8	34.1
1959	2988.8	0.03	0.1	3.7	30.9
1962	3134.7	0.04	0.1	4.0	30.2
1964	3039.8	0.03	0.1	3.9	28.9
1965	3103.1	0.03	0.1	3.4	38.9
1966	3156.0	0.03	0.1	3.2	28.8
1967	3203.8	0.03	0.1	3.1	27.9
1968	3277.9	0.04	0.1	3.0	27.7
1969	3315.5	0.04	0.1	3.1	26.9
1970	3337.2	0.04	0.1	3.2	25.7
1971	3183.3	0.04	0.1	3.3	24.3
1972	3106.8	0.04	0.1	3.4	24.2
1973	2088.9	0.04	0.1	3.4	24.1
1974	2975.9	0.04	0.2	3.5	22.9
1975	2796.8	0.02	0.2	3.0	21.0
1976	2761.9	0.02	0.1	2.7	22.1

NOTE: Percentages May not total to one hundred due to rounding.

TABLE 3.1--Continued

Transportation And Public Utilities	Wholesale Trade	Retail Trade	Finance Insurance Real Estate	Services
8.9%	10.9%	15.3%	11.1%	12.9%
9.9	11.4	15.6	10.7	12.7
9.6	11.7	15.8	10.7	12.7
8.6	11.8	15.8	10.7	12.8
8.2	11.4	15.4	11.6	13.1
8.4	11.3	15.2	12.4	14.0
8.5	10.7	14.2	12.7	18.2
8.6	10.5	13.7	12.9	19.4
8.4	10.2	14.1	12.9	21.3
9.8	10.1	13.7	12.6	21.1
9.8	10.2	13.7	12.6	21.4
10.0	10.0	13.7	12.5	22.2
10.2	9.6	13.5	13.7	23.4
10.0	9.4	13.5	13.5	23.1
10.6	9.5	13.6	13.7	23.5
10.9	9.4	13.8	13.9	23.8
10.8	9.4	13.8	13.8	23.7
10.7	9.3	13.7	14.0	24.4
10.5	8.3	12.8	15.6	25.6
10.8	8.2	13.1	15.7	27.4
9.9	8.5	13.0	15.8	27.5

fields as specialized legal financial, retailing and medical services, as well as many cultural and governmental activities.

The city's total labor market may have been hurt because a large class of these urban service industries may require the demand of a substantial part, but perhaps not all, of an urban area to exhaust its scale economies. These industries tend to locate in subcenters away from the main center of an urban area. The suburban shopping center is an outstanding example, as are the suburban subcenters providing a variety of office activities that have sprung up in recent years.

Several key industries, it would seem, are likely to have a major impact in explaining variations in the rate of unemployment. Because of the way the variables are defined in the regression models, services would be expected to exert a positive influence. One obvious reason is that services has now become the single largest employer in the city, in terms of major sectors. The need for this industry to exploit its economies of scale, which is likely to require many of its firms to locate in a central area, is probably the primary cause. Any regional growth of services is likely to take place in the core, thus diminishing the share of jobs held in the suburbs and hopefully reducing unemployment in the core. The finance insurance and real estate industry should also yield a positive coefficient for similar reasons but the

result may not be as strong because of the need to meet local consumer needs, particularly with regard to bank locations.

Manufacturing would also be positively correlated with the level of joblessness, but for totally different reasons. As Mills shows, increasing use of road transportation for moving goods has diminished the need for firms to locate at or near central part or railway facilities so firms can locate in the suburbs and avoid high priced central city land. Thus the outlying areas are likely to gain an increasing amount of the region's manufacturing positions. So unless the worker is willing to follow his job or undergo some retraining he may be out of work. In other words, the person must be willing either to change his residence, travel long distances, move possibly at a financial loss, learn a new skill, or face the possibility of becoming structurally unemployed. For Black workers particularly, the problem of jobs shifting to the suburbs may be very serious because of the likelihood of discrimination in suburban housing markets. This issue is discussed in greater detail in Chapter V.

The increase in suburban shopping centers gives reason to expect some positive correlation between unemployment and retail trade. The same result is likely to happen with regard to wholesale trade. This is because it seems reasonable for firms in this latter industry to locate near their source of demand, particularly when it is not high priced city center land.

3.3 Sources of Data

Two basic sources of data have been used to analyze the theoretical issues discussed. In most of the regression models the unemployment rate for New York City is the dependent variable. It is derived from official statistics of the State of New York, Department of Labor. The data on the number of jobs, in most cases the dependent variables, is derived from the United States Department of Commerce; more specifically the publication entitled County Business Patterns for all the years available between 1946 and 1976. This source supplies several types of key data. The publication is arranged by state and within each state by county. It reports all business establishments within each county with detailed figures on employment and payroll by industry.

Each type of industry is assigned a Commerce Department code, the Standard Industrial Code, [sic], which simplifies gathering data by industry. Generally, the Commerce Department breaks down industries into the nine distinct sectors listed below.

SIC	Industry
0	Agriculture
1	Mining
15	Contract Construction
2 and 3	Manufacturing
4	Transportation and Public Utilities
5	Wholesale Trade

SIC	Industry
52	Retail Trade
6	Finance, Insurance and Real Estate
7 and 8	Services

To consider a specific industry requires use of the additional digits assigned that industry. For example, SIC 3841 is the code for the Medical and Surgical Instruments Industry within the manufacturing sector and SIC 3241 signifies the Cement Industry.

The counties in the New York Region are divided by the Bureau of the Census into three distinct areas as follows:

Core	Inner Ring	Outer Ring
Manhattan	Nassau	Fairfield
Bronx	Essex	Suffolk
Brooklyn	Westchester	Middlesex
Queens	Bergen	Monmouth
	Union	Morris
	Passaic	Orange
	Richmond	Dutchess
		Somerset
		Rockland
		Putnam

3.4 Empirical Results

3.4.1 Recent History of the New York City Labor Market

An examination of table 3.2 and figure 3.1 indicates that the number of jobs in the city increased from 1946 through

TABLE 3.2

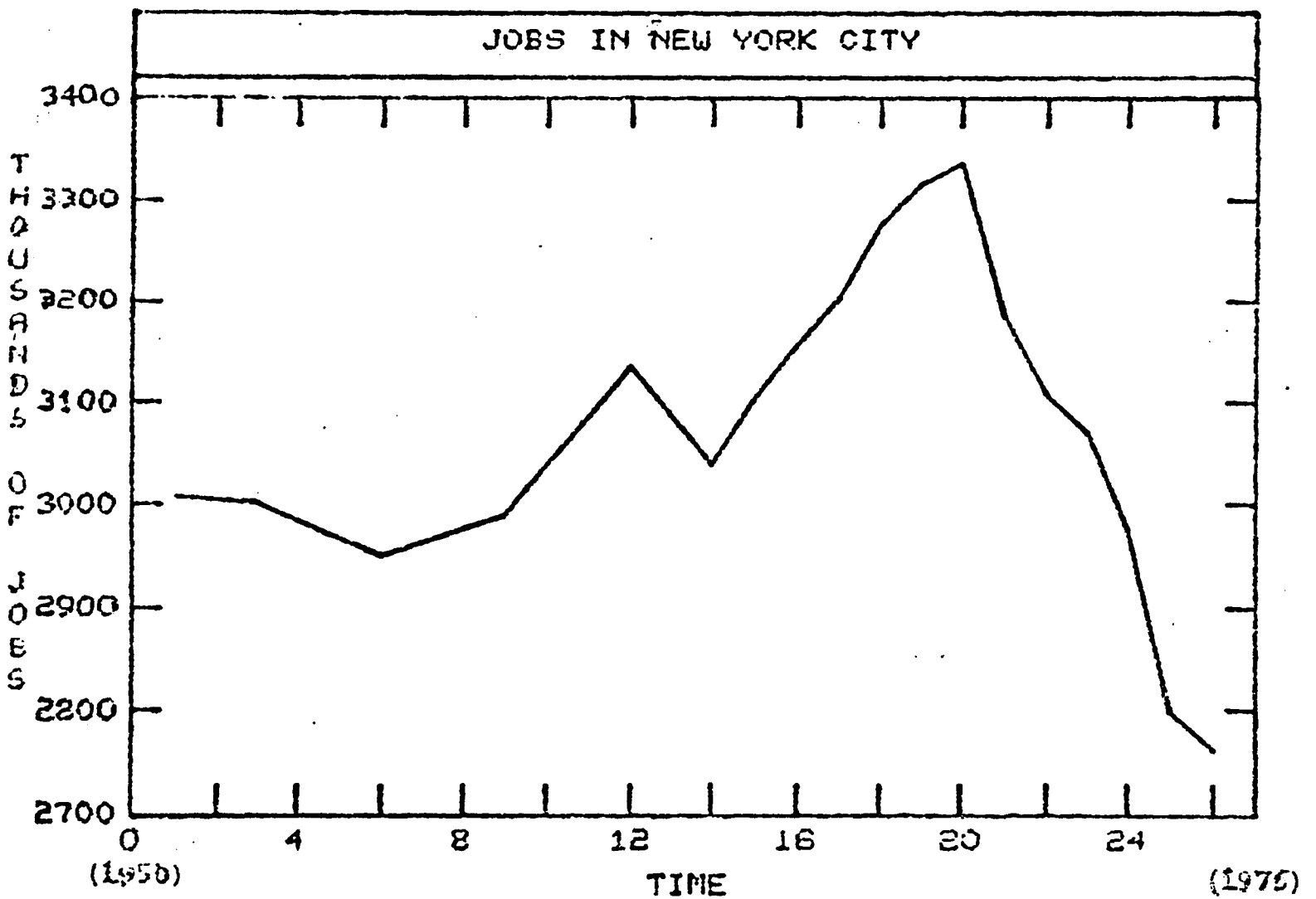
JOBS IN NEW YORK CITY 1946 - 1976

Year	Jobs in New York City (Thousands of Positions)
1946	2736.9
1947	2954.0
1948	2980.0
1951	3008.4
1953	3002.4
1956	2950.3
1959	2988.8
1962	3134.7
1964	3039.8
1965	3103.3
1966	3156.0
1967	3203.8
1968	3277.9
1969	3315.5
1970	3337.2
1971	3183.3
1972	3106.8
1973	3088.9
1974	2975.9
1975	2796.6
1976	2761.9

SOURCE: County Business Patterns.

NOTE: Data was not published for every year until 1964.

Fig 3.1


JOBS IN NEW YORK CITY
3400
3300
3200
3100
3000
2900
2200
2700
THOUSANDS OF JOBS
0
4
8
12
16
20
24
(1950)
TIME
(1970)

1970 and declined thereafter. This could be taken to mean that total employment within the core varies with time, at least somewhat. Time is a measure of a long run trend of, in this instance, labor market size, regardless of other variables. However, it may be an indication that there are other factors that determine the location of jobs. Other elements that may also play a role are available transportation, nearness to customers and employees, as well as the level of municipal services. Land values per se may not influence the choice of plant location, with a given level of services. However, if the level decreases significantly, land values may gain in importance relative to the declining services. Thus as these factors vary, some of which may be difficult to quantify, so possibly could a firm's choice of location.

As shown in table 3.3 jobs per capita has not changed by a significant amount over time, and so the results may be seen as inconclusive. This could be because, perhaps, jobs and population have either left or entered the city at about the same time, in about the same proportion, thus keeping the ratio relatively constant. However, the large size of the coefficient may lead one to believe that the population is declining at a somewhat faster pace than that of total employment.

To continue along, table 3.4 indicates that suburban areas are gaining an increasing proportion of the regions's total jobs. In 1946 just over one quarter of the positions in this region were located in the outlying areas. By 1976 the suburbs had captured over half of all the jobs in the

TABLE 3.3

REGRESSION RESULTS OF JOBS
PER CAPITA VERSUS TIME
1946-1976

Intercept:	-33.00 (-0.80)
Time:	132.35 (1.25)
R^2:	0.076323
F:	1.57

t values in parenthesis

TABLE 3.4.

THE SUBURBAN SHARE OF THE REGIONAL LABOR MARKET

Year	Total Jobs in Region (Thousands of Positions)	Percentage Located in Suburbs
1946	3824.5	28.4%
1947	4192.6	29.5
1948	4231.8	29.6
1951	4462.9	32.6
1953	4641.0	35.3
1956	4635.2	36.4
1959	4713.4	36.6
1962	5115.9	38.7
1964	5219.0	41.8
1965	5360.4	42.1
1966	5536.3	43.0
1967	5673.5	43.5
1968	5848.0	43.9
1969	5979.7	44.6
1970	6065.9	45.0
1971	5833.9	45.3
1972	5774.4	46.2
1973	5882.7	47.5
1974	5911.1	49.7
1975	5630.6	50.3
1976	5623.9	50.9

SOURCE: County Business Patterns.

metropolitan area. The growth appears to have occurred on a relatively steady basis over the last three decades, rather than several major jumps.

Although it would seem that this shift of jobs may be a result of differences in site rents this may not be the reason entirely. Reductions in New York City municipal services over the last decade, such as police, fire fighting, or medical care may have contributed to the downturn for the city. However it is likely that the relationship between land values and municipal services is the determining factor, not either one individually. This idea of using a measure of the value of municipal services as a determinent of locational choice is similar to the "net fiscal surplus" alluded to by Bradford and Kelejian. Although they consider this measure only for individual families it can be applied to a firm's choice of location in a similar fashion.

3.4.2 The General Distribution and Unemployment

The first test of significance regarding the distribution of jobs against unemployment is presented in table 3.5. The way the model is defined should be kept in mind. "All positions" is defined as the suburbs' share of all jobs located in the region. Table 3.5's results indicate that there is a significant and positive relationship between the distribution of positions and the level of unemployment in the city. In other words, the higher percentage of jobs located outside of the core, the higher the unemployment rate in the city. This result is not at all unexpected and may indicate that

TABLE 3.5

UNEMPLOYMENT VERSUS THE DISTRIBUTION OF ALL JOBS

Intercept	-6.49* (-2.95)
All Positions:	0.28* (5.12)
$\bar{R}^2$:	0.579910
$\bar{R}^2$:	0.5578001
F:	26.23*

t values in parenthesis

*significant at 95% level

the generally higher travel times needed to reach jobs in the outer area are a factor in increasing the level of joblessness in the core. It could also be due to the immobility of labor which does not allow a worker to accept a suburban position. The worker may be unable or unwilling to move to outlying areas, possibly due to housing discrimination. In addition, the person may be unwilling to undergo a period of retraining which would allow him to accept a position in a different industry.

In table 3.6 unemployment in the United States and a time variable are included in the model. As can be seen the share of jobs located in the suburbs is still a significant and positive influence on the city's unemployment rate when considered together with the national rate. That variable also exerts a strong positive influence. This is what could be expected since New York City is the largest single labor market in the country and any major shift in national unemployment is likely to have a significant impact on the New York Market.

The time variable, by itself, is significant indicating that there is an upward trend in the New York City unemployment rate. This could be due to many things such as increase welfare benefits, unemployment compensation or perhaps an increase in secondary workers in the labor force.

What is somewhat puzzling is that the distribution variable is not significant when considered with time. However when taken together, as shown in the F test, they do have a major impact on the level of unemployment. This could be

TABLE 3.6

UNEMPLOYMENT VERSUS THE GENERAL DISTRIBUTION INCLUDING NATIONAL UNEMPLOYMENT AND TIME FACTORS

	All Variables	Without Time	Time Only	Without National Unemployment
Intercept	-18.94 (-2.66)	-5.99 (-4.49)	1.42 (1.68)	-18.10 (-1.39)
All Positions	0.59* (2.31)	0.12* (3.03)		0.70 (1.50)
Time	-0.33 (-1.85)		0.19* (4.80)	-0.30 (-0.90)
National Unemployment	1.24* (6.56)	1.23* (6.12)		
R^2	0.886333	0.863568	0.547914	0.598188
$\bar{R}^2$	0.8662742	0.8484089	0.5241201	0.5535423
F	44.19*	56.97*	23.03*	13.40*

t values in parenthesis

* significant at 95% level

more a result of multicollinearity than economic activity. Because of a generally upward movement of the suburban share of jobs, that variable and time tend to be highly correleated. When this happens this is likely to increase the standard error of the regression to a great degree. This does not allow for rejection of the null hypothesis which is why neither variable is significant together but both are when each is considered separately. In the other regression models in table 3.6 multicollinearity does not appear to be a problem, or in other words, the expected results are obtained despite the presence of multicollinearity.

3.4.3 Specific Distributions and Unemployment

The next area considered is which specific industries are particularly important in influencing the rate of unemployment or preventing a full employment equilibrium from being attained. To look at this problem, regression models were run of unemployment against the distributions of jobs between the city and suburbs by specific industry. The regressions were run with and without time to see whether that variable significantly affects changes in the rate of unemployment. Time, in effect, is a measure of whether there is a long run trend of unemployment in the city, independent of other factors.

In order to deal with the distribution issue an index was constructed to measure the distribution of jobs between the core and the outer areas, similar to that which was discussed in section 3.4.2. It takes the form:

$$\frac{\text{Number of Jobs in Industry i in the Suburbs}}{\text{Number of Jobs in Industry i in Region}}$$

The region is the sum of the core plus the suburbs. The "i" represents each of the one-digit sectors in the Standard Industrial Code.

Before the results of the models are presented in Tables 3.6 - 3.10, a quick note about the data used: Two sets of regression models were run--one for the years 1946-1976 and one for the years 1959-1976. This was done because it was thought that the dependent variable for the early years could not be counted on for complete accuracy. The New York State Department of Labor has stated that prior to 1959 unemployment statistics for any particular area for each individual year were extrapolated from the 1950 Census. Although these semi-official unemployment rates give a good indication of the situation at that particular time, they cannot be relied upon for complete accuracy.

Before the results are discussed it must be noted that one other variable is considered in the model.

In order to measure the impact of the overall United States economy, the level of national unemployment is considered in the analysis. Some correlation on the positive side is predicted since the city has the highest number of jobs of any city in the country and so any changes in unemployment on a national basis is likely to have a major impact on the labor market in New York City.

The addition of the national unemployment component strengthens the model on an overall basis, and many of the

TABLE 3.7

REGRESSION OF UNEMPLOYMENT AGAINST SPECIFIC INDUSTRIES 1946-1976

	Without Time	With Time
Intercept:	-20.00 (-1.80)	-20.71 (-1.16)
Agriculture:	0.25 (1.43)	0.26 (1.49)
Mining:	0.02 (0.40)	-0.01 (-0.15)
Contract Construction:	-0.17 (-1.68)	-0.17 (-0.15)
Manufacturing:	-0.03 (0.09)	-0.31 (0.78)
Transportation Public Utilities:	0.82* (4.21)	0.89* (4.65)
Wholesale Trade:	0.30* (3.02)	0.41* (3.06)
Retail Trade:	-0.38 (1.52)	-0.03 (-0.09)
Finance, Insurance Real Estate:	-0.21 (-0.87)	-0.05 (0.20)
Services	0.08 (0.35)	-0.15 (-0.38)
Time:		-0.24 (-0.50)
R^2:	0.90	0.92
$\bar{R}^2$:	0.82	0.85
F:	11.19*	11.91*

t values in parenthesis

* significant at 95% level

TABLE 3.8

REGRESSION MODEL: UNEMPLOYMENT VERSUS
SPECIFIC INDUSTRY JOB DISTRIBUTIONS
1959-1976

	Without Time	With Time
Intercept:	-15.17 (-1.73)	-5.13 (-0.39)
Agriculture:	0.41* (4.22)	0.43* (4.35)
Mining:	0.04 (1.24)	0.03 (1.14)
Contract Construction:	-0.66* (-5.93)	-0.66* (-6.01)
Manufacturing:	-0.24 (-0.80)	-0.34 (-1.08)
Transportation Public Utilities:	0.66* (3.02)	0.77* (3.17)
Wholesale Trade:	0.54* (3.85)	0.64* (3.80)
Retail Trade:	-0.10 (-0.64)	0.22 (-1.12
Finance, Insurance Real Estate:	0.50 (1.32)	0.90 (1.65)
Services:	0.50 (1.32)	0.90 (1.65)
Time:		0.34 (1.02)
R^2	0.986446	0.989238
$\bar{R}^2$:	0.962049	0.959646
F:	40.43*	36.77*

t values in parenthesis

* significant at 95% level

TABLE 3.9

REGRESSION MODEL: UNEMPLOYMENT VERSUS SPECIFIC INDUSTRY JOB DISTRIBUTIONS PLUS NATIONAL UNEMPLOYMENT 1946-1976

	Without Time	With Time
Intercept:	-8.73*	-2.59
	(-2.10)	(-0.40)
Agriculture:	0.08	0.10
	(1.28)	(1.59)
Mining:	0.02	0.01
	(1.12)	(0.43)
Contract Construction:	0.03	0.03
	(0.79)	(0.80)
Manufacturing:	-0.35*	-0.41*
	(-2.69)	(-3.00)
Transportation: Public Utilities:	0.61*	0.60*
	(8.09)	(8.01)
Wholesale Trade:	0.32*	0.32*
	(6.49)	(6.67)
Retail Trade:	-0.06	-0.14
	(-0.58)	(-1.15)
Finance, Insurance Real Estate:	0.22*	0.20*
	(2.28)	(2.19)
Service:	-0.44*	-0.54*
	(-3.53)	(-3.63)
National Unemployment:	1.04*	1.08*
	(8.44)	(8.59)
Time:		0.21
		(1.20)
R^2:	0.989575	0.991009
$\bar{R}^2$:	0.979150	0.9800201
F:	94.92*	90.18*

t values in parenthesis

* significant at 95% level

TABLE 3.10

REGRESSION RESULTS: UNEMPLOYMENT VERSUS SPECIFIC INDUSTRY JOB DISTRIBUTIONS PLUS NATIONAL UNEMPLOYMENT 1959-1976

	Without Time	With Time
Intercept:	-11.59 (-2.16)	-16.26 (-1.67)
Agriculture:	0.22 (2.51)	0.17 (1.34)
Mining:	0.003 (0.15)	-0.002 (-0.08)
Contract Construction:	-0.09 (-0.48)	0.04 (0.13)
Manufacturing:	-0.41* (-2.14)	-0.38 (-1.84)
Transportation Public Utilities:	0.45* (3.04)	0.35 (1.50)
Wholesale Trade:	0.26* (2.06)	0.15 (0.67)
Retail Trade:	-0.07 (-0.73)	-0.001 (0.00)
Finance Insurance: Real Estate:	0.12 (0.54)	0.01 (0.04)
Services:	-0.11 (-0.41)	0.19 (0.33)
National Unemployment:	0.91* (3.14)	1.09* (2.50)
Time:		-0.18 (0.60)
R^2:	0.996088	0.996510
$\bar{R}^2$:	0.986308	0.9837134
F:	101.86*	77.88*

t values in parenthesis

* significant at 95% level

other individual variables gain increased importance. It should also be noted that by manipulation of the models seven of the nine employment categories are significant factors in explaining the variation in unemployment rates. Only the mining and retail trade industries are not significant but this should not matter much, particularly as far as the mining sector is concerned. As shown in table 3.1 the mining industry has never accounted for more than two tenths of one percent of the city's total employment market. Similarly the agriculture industry although significant, includes fewer than six thousand jobs, out of more than two and a half million.

The negative coefficient for contract construction is interesting. What it seems to suggest is that as the suburbs gain an increasing proportion of the jobs in this sector, the unemployment rate in the city declines. One possible explanation for the negative coefficient is this: Unlike some of the other industries being analyzed, construction work may take place at many different sites. With some work being perhaps available outside the city, workers may engage in reverse commuting through the use of cars or other methods. The fact that construction workers tend to be paid at higher than average wages may imply easier access to cars that would ease their problem of getting to the construction sites.

A major surprise was the negative correlation between unemployment and the manufacturing sector. There appear to be two reasons to explain this result. One reason may be that the city has begun to realize the decreasing importance of

this sector in the labor market and may perhaps have started to shift emphasis away from this industry, both in terms of tax policy and the direction of various education and training programs. This does not mean that the city has written off the manufacturing industry entirely, but rather that it may have become more concerned with other sectors in an effort not only to keep and attract jobs to the core, but also in the area of training programs to fill those vacancies which currently exist.

A second reason is similar to the explanation given with regard to contract construction. Heavily unionized workers in certain skilled industries tend to be paid at a higher rate than the rest of the population. This would imply that they are more likely to have automobiles, which would allow them to reach positions outside of the city in a relatively easy fashion. So even if workers employed by the manufacturing sector choose to live in the city, say for cultural benefits, any increase in plants in areas outside the core is not likely to have an adverse effect on the unemployment rate. The "best of both worlds" situation which was discussed earlier may give rise to firms from outside the region, entering the area and locating in the suburbs. Then if travel is not a major problem this may actually reduce the city's rate of joblessness as workers reverse commute which may explain the results obtained from the model.

Unexpectedly strong results are obtained from the finance, insurance and real estate and transportation and public utility sectors. There may be parallel reasons to

explain the results. In order to exhaust all of the economies of scale, the demand of consumers throughout the entire region is needed for both industries. However, it is apparently not crucial that all the firms in these sectors locate in the center of the area; they need only be just within the region. Some relative loss of jobs to the suburbs has been observed (See Appendix I), but both of these sectors remain an important part of the city's labor picture.

Seemingly the demand for the goods these industries provide is high, and therefore a large number of employees are needed to serve the customers. However in the transportation and public utility sector any new expansion for major plants and facilities is likely to take place outside of the core because the land values are probably lower. The positive sign may be a reflection in the growth of new facilities, located in outlying areas, not necessarily a decline in urban jobs. This may be an indication that the type of skills which the industry is seeking may have changed, not that the demand for labor within the core has decreased greatly.

The positive coefficient for finance, insurance and real estate may be the result of similar developments. There is little doubt that New York City and in particular, Manhattan is a major area of financial activitiy. However there may be a dichotomy in this sector, similar to the transportation and public utilities sector, most prominently in the banking area. The growth in the urban sector for this industry may have come about because of the increased demand by major

business customers. For this, a central location may be needed to exploit all the economies of scale. On the other hand, the gain in the suburban region is likely to have been caused by the greater demands of the consumer banking sector. In this case a central location is likely to be ineffective in meeting the needs of individual customers. However, the growth of suburban subcenters may allow for full exploitation of scale economies where only a small part of the region is needed. This may explain the growth of the sector in many of the outlying areas. The positive correlation with unemployment, which the model says is taking place, suggests that the consumer sector has been growing at a faster rate than that of the commercial area and thus causing the relative loss of positions in the core.

The model did not confirm expectations with regard to services but did with respect to wholesale trade. Obviously central location in a large area is not required for all types of firms in the service sector in order for them to use all of their scale economies. Additionally, it would appear that with the growth of suburban subcenters many types of service related firms are able to exhaust their economies of scale without having to locate on high priced city center land.

This increasing suburbanization of what was thought to be a centrally located industry seems to be where services are headed. The negative sign on the coefficient seems to indicate that one or both of two events are taking place. One possibility is that some reverse commuting is taking place.

The other is that residents of suburban areas are taking some of the positions in the outlying areas that are closer to their homes, possibly reducing their own travel time, and thus opening up employment opportunities for workers who live in the core and wish to work there for service producing firms.

Wholesale trade, similarly, may not call for a central location but the need to locate in the region appears to be important. Seemingly the increased importance of road transportation allows this sector to take advantage of lower priced suburban land, where possible, while maintaining easy access to the central city area to exploit its scale economies fully.

The strength that was expected from the suburban retail trade sector did not materialize. Despite the growth in suburban shopping areas the city apparently still retains a sufficient number of specialized stores to prevent major losses in employment in this sector. In addition, the development of suburban style shopping malls within the city may have helped to stabilize this sector.

The largest single influence on unemployment in New York City is however, the national rate of unemployment. Again this is not unexpected; as the largest urban labor market in the country, it is likely that any change on a national level will have a major impact on changes in the joblessness rate in New York City. The time variable does not play a major role in the analysis, but rather several other factors appear to play a role, including the shifting distribution of positions between the city and the rest of the region and the level of national unemployment.

3.4.3.1 An Additional Note on the Results Obtained

These findings seem to imply that the labor force participation rate in New York City has risen over time. Consider the following model:

Let E = employment

L = labor force

P = population

U = unemployment

Then let $\frac{E}{P} \equiv \frac{L}{P}\frac{E}{L} \equiv \frac{E+U}{P}\frac{E}{E+U}$ (1)

$e \Rightarrow e\,(1-u) \qquad u = \frac{U}{L}$ (2)

$\ln e = \ln e + \ln (1-u)$ (3)

Differentiate (3) with respect to time (t)

$$\frac{d \ln e}{dt} = \frac{d \ln e}{dt} + \frac{d \ln (1-u)}{dt} \quad (4)$$

$$\bar{e} = \bar{e} + (\overline{1-u})$$

Employment ($\bar{e}$) approximates the number of jobs According to table 3.3 $\bar{e} = o$. According to tables 3.5 and 3.6 $(\overline{1-u}) < o$ (u has risen over time). Therefore $\bar{e} > o$ and $\bar{e} = -(\overline{1-u})$. Although the trend is not significant in tables 3.7 - 3.10 the national unemployment rate has an upward trend as does the distribution of jobs located outside of the city.

3.5 Summary and Conclusion

The models presented in this chapter yield some seemingly useful results. Nearly all of the major industry sectors have a significant impact on the level of unemployment in the city. The shifting focus of the labor market from one that was heavily manufacturing to one more service oriented

tells of the changing nature of demand.

Obviously as the types of positions in demand change, some amount of structural unemployment is likely to occur. If a person is either unable or unwilling to follow a job, he may be forced to learn a new skill, or become unemployed, particularly if he worked in the manufacturing area. This is a primary sector of concern, probably because it is the one that may need the central location least to use its economies of scale fully.

With the buildup of road transportation, over the past several decades, placement near rail or shipping facilities is no longer crucial. A firm can take advantage of lower priced suburban land and still meet its consumers' demands through the use of trucks. This question of location in relation to economies of scale appears to be crucial with regard to the city's unemployment rate.

Wholesale trade, for example, which appears to require the region as a whole but not any specific location, is likely to locate heavily in the suburbs. By so doing it does not incur high city center rents but is still close enough to the city to meet its customers' needs by using trucks. Similarly, many service oriented firms, for which central location was thought to have been vital, now find that with suburban subcenters they also can consider locating in an outlying region. The region as a whole may not be needed to exploit its scale economies fully but rather a smaller part may only be necessary.

Other industries such as the financial, and transportation and public utility sectors are able to use both central city location and lower price suburban land to their benefit for differing purposes. In the case of these industries the model stated that as the suburbs gained a larger share of the jobs the rate of unemployment in the city increased. However, this positive correlation could be a reflection of the changing nature of the demand for positions within each industry in the core, rather than a reflection only of an increased suburban market share.

CHAPTER IV

THE SUPPLY SIDE OF THE UNEMPLOYMENT ISSUE

4.1 Introduction

The other side of the unemployment question deals with supply. In this chapter there will be an attempt to find the reasons why people are not able to find employment. In other words, from the supply side what are the factors preventing the labor market from attaining a full employment equilibrium. In analyzing this question this study makes the same assumptions as Offner: namely that labor force participation is function of a person's actual or expected income, wealth, and taste for work.

In this chapter, first the theoretical reasons for the selection of the variables are explained. Then, following a description of the sources of data, empirical tests of significance are conducted. A discussion of the findings follows. Included in this discussion is a reconciliation of findings where they differ from theoretical speculation and results attained from other works in this area.

The theoretical issues which are considered are:

1. discrimination
2. education and skill levels

3. population movements and income effects

4. distances to major employment centers

Tests of significance are performed to explore the relationship between unemployment and the four areas of speculation. After a discussion of the results, some of the major findings of the chapter are then summarized.

4.2 Theoretical Issues

4.2.1 Discrimination

One area that is frequently mentioned in the literature as contributing to unemployment is discrimination against a worker because of his ethnic background. Several authors, including Mills, Offner, Kain, and Rees and Schultz (12), consider this issue to be a major cause of unemployment. Specifically Kain, as well as Rees and Schultz, find a significant amount of positive correlation between unemployment and selected minority group participation in the labor force. Obviously, their results affirm the presence of discrimination but education as well as language barriers may also play key roles.

In addition to the work already done in this area, government programs such as affirmative action and other civil rights activities would seem to be an indication that some discrimination does take place. To analyze this problem three ethnic groups are considered in the model. They are the percentage of a census tract's population which is Black, of Spanish origin, and foreign born. A positive result is anticipated based upon the work previously done in

this area and because of the presence of government in dealing with the issue.

4.2.2 Education and Skill Levels

The availability of skilled and trained workers should have a negative effect on the level of unemployment. Offner, and Rees and Schultz, find this to be true. It is usually accepted that someone with a high level of education will not only be in a position to accept a better paying job, but also will be able to supply his services to more firms than a less educated individual. Even if positions are not available in the highly skilled worker's field, positions in related areas may be open to the worker, thus possibly reducing unemployment. Additionally, because of a generally higher opportunity cost for a highly educated person than for a less educated person, the well educated individual is more likely to be seeking work because his income loss is likely to be higher than those with less education.

The question of whether a highly educated labor force significantly helps to reduce unemployment is considered in the model. One variable included is the percentage of people in a tract who have completed high school; another is the proportion who have finished college. Negative correlation is anticipated in accordance with the findings of previous writers in the field and the assumption that well educated workers have a high value to employers at least in terms of human capital.

4.2.3 Population Shifts

There is little doubt that the makeup of the population of New York City has been changing through the years. The city has lost a considerable number of people since World War II. At that time the population was approximately eight million; today the city has just about seven million residents. In addition, minority groups are becoming an increasing proportion of the population, as are many lower income citizens. This follows the pattern of urban population discussed by Mills. He finds that in the United States as a whole, the lowest income group tends to live closest to the center of the city, the next lowest the next closest, and so on. Mills argues that any new residents in the city are likely to live in the center of the city. The primary reason is housing discrimination in the outer areas against all low income people, particularly Blacks.

Standard urban economic theory states that most people have a desire for more space and the higher income citizens are able to satisfy this demand by moving to areas of cheaper land, generally the suburbs. Muth speculates that if the income elasticity for housing exceeds "one," high income workers tend to live further from the city center than do low income workers. His empirical studies find this elasticity to be somewhat greater than "two." Mills argues further that even if the elasticity is less than "one," high income employees live farther out, provided the demand for housing is not too inelastic with respect to its own price.

This does not mean that all poor people live close to the city center while all rich citizens reside in the suburbs. Not everyone has the same tastes for housing, commuting, and other conditions. However, as the high income citizens tend to move further out, Mills states, their places will usually be taken by lower income residents who are generally less educated. The influx of poor minority group members into the city in recent years could be an example of that taking place.

If this is the situation, then the tax load has been spread among fewer persons. Additionally, if the new, poorer residents require more municipal services, such as police, fire fighting, and health care, the remaining citizens who are able must pay higher taxes. These increased taxes may cause even greater migration rates thus deepening the situation.

Mills discusses two other reasons for the movement of population. One, racial discrimination, deals with people leaving one area for another if Blacks or other minorities move in. He believes that in most urban areas Whites rent to Blacks only at premium rates, attempting to keep Blacks out of certain sections.

The other factor is that mortgage interest payments and real estate taxes are deductible for federal income tax purposes whereas rent payments are not, encouraging personal home buying. If more homes are built outside the city center where the rent gradient is lower, then more families are likely to move out.

Bradford and Kelejian contend that as the number of low income citizens in the city increases, middle and high income residents are likely to move out. They argue that the higher income citizens fear the urban blight and other problems that may arise when poor people move into an area. They also contend that it is primarily economic considerations that cause people to move, not racial factors.

Whether this shifting population plays a major role in altering the labor supply and ultimately the rate of joblessness is the question being studied in this section. Of specific interest is whether the new residents have affected the labor force to such an extent as to have a significant impact on the rate of unemployment in the city. It is not the unemployment rate of new residents that is being studied here but rather their impact on the unemployment rate in the city as a whole.

Three variables are used in investigating the problem. These are the median income of a census tract, the percentage of families below the poverty level, and the proportion of people who have lived in the same house for at least five years prior to the 1970 census. This latter variable is in effect a measure of neighborhood stability. Any negative correlation of that factor combined with negative correlation of median income or positive correlation with regard to the poverty variable could be an indication that poor and less educated citizens are moving into the city, possibly replacing the higher income people who may have left. This would more or less confirm the findings of Mills and to a

lesser extent of Bradford and Kelejian.

4.2.4 Distances to Employment Centers

One other set of variables is considered in the model. Generally, it is thought that long distances and high travel times discourage people from accepting jobs. The reasons are the high amount of leisure time that is given up and the high out of pocket costs. The estimate by Becker states that time in commuting can be worth up to forty percent of a person's wage rate. These higher travel costs have the effect of reducing a person's real wage, possibly diminishing the amount of labor he wishes to supply.

If the central city is becoming less of a factor in the regional labor market, for example, New York City particularly during the 1970s, then it would seem important to examine the effects of distance and travel time to the outer areas on the rate of unemployment in the core. Because of the decline of the city, in some instances people may be forced to uproot themselves and move, perhaps at a financial loss. In other cases, those workers who choose to remain in the city may face a lengthy commuting trip or perhaps even some period of unemployment.

In general, mass transportation facilities are designed to bring a large number of people into the center of the city in the morning and get them home at night. Little consideration has been given the worker who travels in the opposite direction. Even the implementation of a reverse commutation system may have little effect. A study on the

Saint Louis labor market by Kalacheck and Goering (7) tends to confirm this. They felt the primary reason for its failure was the high amount of travel time which the trip involved.

Kain and Meyer (6) appear to agree but state the problem in a somewhat different manner. They argue that since most poor people live in the central city they are reasonably well served by public transit to the urban central Business District. They note, however, that over the past thirty years new job opportunities have increased to a greater extent outside of the core. Therefore, good transportation to the urban CBD is no longer the major advantage for low income groups that it once was. As for moving to the suburbs to follow their jobs or seek new ones the issue of housing discrimination comes into focus for all low income citizens and for Blacks in particular. The Kain and Meyer Study points out, however, that transportation is but one of several factors that influence the unemployment rate.

With this in mind, two questions appear important to consider regarding the relationship in New York City and the distance to the outlying major work sites. One is whether the actual distance between the suburban CBD's and the urban census tracts is a significant factor. The other is whether time in travel plays a major role in the analysis.

In line with the findings of Kain and Meyer as well as Kalachek and Goering, some positive correlation between unemployment and travel time is anticipated. As fewer positions are located in the city, most persons who must travel

to an area outside of the core are likely to face a more costly trip, both in terms of time and money. This would have the effect of reducing aperson's real wage and thus possibly reduce his willingness to accept a position. Four CBD's are considered in the model; Manhattan, an urban center; and Jersey City, Yonkers, and Stamford, three suburban centers. The three types of variable chosen are the distance from the a tract to each of the CBD's, commuting time by automobile, and the fastest travel time by available public transit facilities.

4.3 Data Sources

The role of supply in preventing attainment of a full employment equilibrium is examined using cross-sectional data. All the statistics, except those that deal with the journey to work distances and times, are derived from various New York City census tracts from the 1970 census. Approximately 440 tracts were chosen from eight areas of the four core counties. The regions were selected by choosing a predominantly Black and a primarily White area in each borough. First the tracts are considered together in this chapter, and then each area is separately analyzed in Chapter V.

To examine the travel question the Manhattan Central Business District and three CBD's outside of New York City are used. The three suburban areas considered are Jersey City, Yonkers, and Stamford. The distance as well as the time needed to travel by both public transit facilities and automobile from the various tracts is examined in the model.

The data is derived from various maps and public transit schedules.

The model contains certain assumptions regarding the journey to work. The means of public transit used are AMTRAK trains for the journeys to Stamford and Yonkers as well as subways to reach the starting rail point, which usually is Grand Central Station. The PATH system and the subways is the method of travel assumed for the trip to Jersey City. All distances and times for the Manhattan CBD are based on measurements from 42nd Street and Fifth Avenue, which is defined as the center. In deciding the time needed for the trip by automobile, the assumptions of J. Hayden Boyd and others (2) relating to travel times are made; fifteen miles per hour on the street, and forty-five miles per hour on the highway. Some variations will obviously occur among the rates chosen but, they are a good reflection of normal traffic flow.

Two regression models are considered. The first one includes all twenty-one variables. Because of a relatively high correlation among certain factors, some selected variables are excluded from the second model. Completion of high school and college had a high level of correlation, and so the latter is left out. The median income level and the percent of families below the poverty line were highly correlated, and so the former is not considered. In addition, the distance variables tended to be closely related to travel times by both automobile and public transit and were therefore omitted from the second model.

4.3.1 Relationship of Distance and Time

Muth says very little about distance but does discuss the disutility of time in commutine to establish an equilibrium location for households. This may be an indication that commuting time may be equivalent to or possibly more important than distance.

The model in this study does not necessarily suggest that distance does not play any role. With distance fixed, a reduction in travel time may imply an increase in the direct cost of travel. This would probably be most relevant for public transit and may imply that the public transit time coefficient might be weaker if the distance is constant. This is because the direction the biases take is not clear.

Consider the following model:

$u = a + bz \qquad b > o$

Where u = unemployment rate

z = full price of a trip

then $z = kt + p$

where k = value of time

t = total travel time

p = price of a trip

therefore, $u = a + bkt + bp$

Both t and p are positively related to distance. With distance fixed, p probably rises as t falls. This would indicate that if the person desires a faster trip his out of pocket costs are likely to rise, assuming the distance is unchanged. The conclusion would appear to hold in some cases; for example, a slower and cheaper bus trip versus a more expensive but

quicker railroad journey. The actual role that distance plays in the model is seen in section 4.4.4.

4.4 Empirical Findings

4.4.1 Results for Discrimination

The results of the models as shown in table 4.1 present an interesting picture. The strong showing by the Black variable confirms a priori expectations. It would appear that discrimination does play a major role, but as noted earlier education may also be an important factor in preventing the reduction of unemployment. At the same time language barriers apparently are not an important element. The weakness of both the Spanish origin and foreign born variable in tests of significance appears to uphold this finding.

These results agree with the conclusions of several authors most notably, Kain. He argues in particular that employers located outside of ghetto areas may discriminate against Blacks because of fear of retaliation by white customers. At the same time, firms in or near ghetto regions may favor Blacks in their hiring practices. These results indicate that discrimination is a far greater force than any type of reverse discrimination. The Kain explanation may, however, apply to the language issue as a contributing factor towards explaining unemployment.

4.4.2 Empirical Findings for Education

The education coefficients, as presented in table 4.2, yield the expected results. A higher level of educa-

TABLE 4.1

REGRESSION RESULTS OF ETHNIC VARIABLES

	All Variables	Restricted Model
Intercept:	25.47*	39.55*
	(2.51)	(4.16)
Black:	0.95*	1.03*
	(2.76)	(3.48)
Foreign Born:	-0.18	-0.22
	(-1.08)	(-1.82)
Spanish Origin:	-0.004	-0.003
	(-0.14)	(-0.10)

t values in parenthesis

* significant at 95% level

TABLE 4.2

REGRESSION RESULTS OF EDUCATION VARIABLES

	All Variables	Restricted Model
College Graduation:	-0.13*	
	(-5.29)	
High School Completion:	-0.23*	-0.09
	(-3.16)	(-1.38)

t values in parenthesis

* significant at 95% level

tion as an element toward reducing or eliminating unemployment is discussed in the literature by many authors--Kain and Meyer, Rees and Schultz, as well as several others. The most notable finding of this model is that high school completion becomes a relatively insignificant factor once college education is no longer considered.[2]

One explanation is perhaps some residents may feel that a college diploma is what is needed to obtain a good job. If it seems likely that they will not complete college, some students may elect not to initiate a college education and to take whatever position is available upon the completion of high school. However, once the alternative of college is eliminated entirely, some students may stay in school only until a "good position" is offered, regardless of how far along they are in their education and even if they have not finished high school. Obviously, this analysis may be of value for those people who are indifferent about attending college, or not likely to enroll at all and willing to accept positions which require a minimal level of education.

4.4.3 Findings for Income and Family Location

As seen in table 4.3, in both models only the pov-

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[2]It may be of little value to exclude the college variable. Both the college and high school variables are significant with the right signs when both are entered in spite of multicollinearity. To put this somewhat differently, multicollinearity does not appear to be a problem.

TABLE 4.3

REGRESSION RESULTS FOR INCOME AND FAMILY LOCATION

	All Variables	Restricted Model
Median Income:	0.001 (1.09)	
Families Below Poverty:	-0.37* (-6.52)	-0.24* (-5.91)
In same House five years:	-0.02 (-0.90)	-0.03 (-1.32)

t values in parenthesis

* significant at 95% level

erty variable is significant but the correlation is the opposite of what was expected. Normally it would be predicted that where there is a high level of poverty there is likely to be considerable unemployment. The regression model indicates that the opposite is more likely to occur.

This may be caused by possible errors in the statistics measuring unemployment. A considerable number of people who are below the poverty level may have given up seeking work and thus are not even in the labor force. If this is so, the unemployment data is not a true measure of the number who are out of work. It would appear that in reality a significant rise in families below the poverty line may help to reduce the level of measured unemployment as people drop out of the labor force.[3]

To put the model's results in line with those of Bradford and Kelejian's findings may be difficult because of the size of the city and the differences among neighborhoods. The fact that there is no significant correlation between unemployment and neighborhood stability may imply that people moving into the city do not greatly change the mix of labor, between employed and unemployed, from those who currently reside there. Again it should be noted, however,

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[3]Because of the closeness of unemployment and poverty the problem of simultaneity may arise and the coefficients may be biased to some degree.

that Bradford and Kelejian do not deal specifically with the labor market, only with the movement of people. But some stability in the labor force is implied by the results of the model.

4.4.4 Empirical Findings for Distances and Travel Times

The results for distance and time tend to be consistent between models, as illustrated in table 4.4.

Air distance did not prove to be a significant factor, while the commuting time by automobile yielded positive and significant coefficients. On the other hand, public transit times are also significant, but negative correlation with unemployment is implied.

With regard to automobile travel time, the solutions indicate that as the time needed to reach the outlying region increases unemployment has a tendency to grow in the core area. This is what was anticipated. It may be that people in outlying areas of the city would consider a position in a suburban work place simply because they are closer to it. A person living in or very close to the center of the center of the city may not wish to consider traveling thirty or forty minutes to a suburban site, especially if he lives very close to the Manhattan CBD. Furthermore, Mills argues that the income levels are likely to be higher the farther people reside from the center of the city. With higher income, ownership of a car would be more likely and the possibility of accepting employment at an outlying work place may be increased.

TABLE 4.4

REGRESSION RESULTS OF DISTANCE

AND TIME VARIABLES

	All Variables	Restricted Model
Distance to Jersey City:	0.001 (0.58)	
Car to Jersey City:	0.21* (3.41)	0.23* (3.72)
Transit to Jersey City:	-0.02* (-5.66)	-0.03* (-6.43)
Distance to Yonkers:	0.001 (1.56)	
Car to Yonkers:	0.18* (6.49)	0.17* (8.50)
Transit to Yonkers:	-0.11* (-5.34)	-0.11* (8.26)
Distance to Stamford	-0.11 (-1.61)	
Car to Stamford:	0.14* (3.45)	0.07* (2.30)
Transit to Stamford:	-0.14* (-3.35)	-0.13* (3.36)
Distance to Manhattan:	0.02 (0.68)	
Car to Manhattan:	0.02 (0.51)	-0.02 (-0.75)
Transit to Manhattan:	0.06 (1.67)	0.08* (+3.36)

t values in parenthesis

* significant at 95% level

The opposite results are obtained regarding travel time by public facilities to outlying areas. The findings are somewhat different than what was expected. The work of Kain and Meyer may offer some explanation. They believe that the workers involved in reverse commuting will use public transit only while searching for a job and then during the first few weeks of employment. Once they manage to save enough for a car or become acquainted with others in their work situation, they will drive to work or join a car pool. Therefore the public transit facilities may not even be a factor except when no automobile is available.

It must also be considered that travel time by mass transit may not be related to distances to suburban work sites. This is because a worker generally must take one mode to a central point in the city to make connections to the outlying place of work. In reality the worker may not be that far from a suburban CBD by car, and yet a great amount of time may be needed to reach the suburban work place by public facilities. Furthermore, since Kain and Meyer feel that mass transit facilities are not of major importance, these results are consistent with their findings if cars are assumed to be the primary method of reverse commuting.

The elimination of the distance variables does not greatly change the results of the model as a whole. Whatever role they do play appears to be secondary in the person's choice of whether to accept a position.

Offner, however, argues that air distance is an important determinant of unemployment, but he looks at the

problem strictly within the confines of New York City. In that regard, this model finds travel time to the Manhattan CBD to be significant, specifically by mass transit. The reason could be the large amount of traffic congestion, which causes many workers not to consider taking an automobile to work in New York City but to choose instead a subway or bus as the method of commuting. With regards to Offner's finding, distance may be significant because time is not included in his analysis. In reality distance may be a proxy for time and once time itself is considered, distance as an isolated variable loses much of its importance.

4.4.4.1 The Impact of Multicollinearity on the Results

With respect to table 4.4 travel time by car and travel time by mass transit to each of the three suburban CBD's there is some degree of multicollinearity, particularly with regard to travel to Jersey City and Yonkers. The simple correlations are 0.91 and 0.73. As can be seen these variables have opposite signs with one being significantly positive and the other significantly negative.

This may be a statistical artifact of multicollinearity. Usually multicollineary produces insignificant coefficients, but it can also produce coefficients with opposite signs. To see this consider the case of two independent variables where

$$y = a + b_1 x_1 + b_2 x_2$$

It is generally known that

$$b_1 = \left[\frac{ry_1 - ry_2\, r_{12}}{1 - r_{12}^2}\right] \frac{Sy}{S_1}$$

$$b_2 = \left[\frac{ry_2 - ry_1\, r_{12}}{1 - r_{12}^2}\right] \frac{Sy}{S_2}$$

Here S_1 = Standard deviation of X_1

S_2 = Standard deviation of X_2

S_y = Standard deviation of y

r_{y1} = simple correlation between Y and X_1

r_{y2} = simple correlation between Y and X_2

r_{12} = simple correlation between X_1 and X_2

Suppose r_{12} is very large but less than one, then

$$\text{Sign } b_1 \overset{\text{sign}}{\approx} ry_1 - ry_2$$

$$\text{Sign } b_2 \overset{\text{sign}}{\approx} ry_2 - ry_1$$

If ry_1 and ry_2 are both positive then the

$$\text{sign } b_1 \approx \text{sign } b_2$$

A further note on this problem. When the travel times by mass transit are eliminated the results of the model change even more the travel times by automobile to Jersey City and Yonkers although positive become insignificant. However, travel time to Stamford still remains positive and significant. Its simple correlation with travel time by mass transit is somewhat lower than the other two suburban workplaces, 0.49.

4.5 Summary and Conclusions

Four hundred and forty census tracts were examined and the findings of this model support similar studies in this area. Ethnic background, particularly color, is significant and appears to play a major role in determining the level of joblessness. One reason could be the fear of boycotts by White customers if Black workers are hired. Another is that some employers may not feel comfortable in hiring workers of different ethnic backgrounds than their own. In addition, although it may not be due to color directly, the lack of education on the part of potential Black workers may be a contributing factor. The findings in this paper generally agree with those of Kain, Offner, Rees and Schultz and other writers.

The results with respect to human capital also tend to follow the standard conclusions reached by such authors as Rees and Schultz, and Kain and Meyer. Both completion of high school and college play a key role, although when the latter factor is eliminated the overall importance of education drops sharply.

One area that is not discussed in the literature to any great extent is the shifting population and its effect on the labor market of the city. With standard theory speculating that higher income people are likely to move to regions further from the city center, some change in the type of labor supplied to the market may be inferred. However, the rate of unemployment does not appear to be greatly affected by the changing population.

The location of suburban workplaces does appear to have an impact on the city's unemployment rate. The travel time by automobile needed to reach these outlying areas plays a major role. Somewhat different and unexpected results are obtained concerning public transit. However, with automobiles seemingly the primary method of reverse commuting, the role of mass transit may be overstated considerably. The high travel time and possible modal changes may also discourage any reverse commuting by this method.

Kain and Meyer argue that it is not distance or available transportation alone, but rather a combination of many elements such as education and counseling that are needed to reduce unemployment. No one factor is particularly responsible. Offner carries the analysis somewhat further. He speculates that because of these and other factors, people, particularly in ghetto areas, remove themselves from the labor market entirely and become discouraged workers. In effect the true unemployment level is higher than the one actually reported. The results of this model, specifically with regard to the poverty variable lend support to his findings.

The basic results regarding influences on unemployment are clear and there are several of them. These include such factors as discrimination, low levels of education, and the time needed to reach major job sites. Each of these elements, as well as possibly others, should be considered when attempting to deal with the unemployment question.

CHAPTER V

THE SUPPLY SIDE BY NEIGHBORHOOD

5.1 Introduction

Because of the unique character of New York City, to consider it just one labor market could mean overlooking some of the problems that may be important, but perhaps can only be seen on a local level. This chapter looks at some variables which may affect the level of unemployment from the supply side in eight separate regions in the four inner counties. It considers whether the various differences between neighborhoods such as, ethnic makeup, education and income levels, and location, play a major role in explaining variations in the rate of unemployment. The basic assumptions with regard to labor supply are discussed in section 4.1.

In this chapter first the presumptive reasons for selecting the different variables are discussed. The possible differences between the overall supply model and the neighborhood ones is considered in that discussion. Empirical tests of significance are then performed. A discussion of the findings accompanies these tests. The results, in addition to those obtained from the overall supply model,

should yield some clues as to which are the key variables that influence movements of the unemployment rate--even though not all the census tracts in the city are analyzed. The actual areas that comprise the data set are discussed in detail in Appendix II.

The theoretical issues that are considered, (they are the same as for the general supply model in Chapter IV), are:

1. discrimination against members of certain ethnic groups
2. the skill and training levels of the population
3. changes in population and the income levels of the neighborhoods
4. travel times and distances needed to reach selected work site from the various neighborhoods

After the empirical work on these four questions is presented, the results are discussed. Their role in relation to theoretical expectations and to previous work in this area is also considered. A summary of the major findings concludes the chapter.

5.2 Theoretical Issues

5.2.1 Discrimination

One area where the importance of the variables may change is discrimination. Kain thinks that because of discrimination in the housing market, the effects of discrimination are likely to be more pronounced when unemployment

is analyzed by neighborhood. In agreement with the findings of Kain and Meyer, he argues that the distance to, and the difficulty of reaching jobs from certain Black areas may impose costs high enough to discourage many Blacks from even seeking employment in outlying areas. In addition, because of the distance involved, Blacks may have less information about positions that are distant from where they or their informal contacts reside.

Kain further believes that employers located outside of ghetto regions may discriminate against Black workers for fear of retaliation by White customers. This would imply that some positive correlation between unemployment and the level of Black population in primarily White areas. The overall effect of discrimination may be lessened, Kain argues, particularly in Black areas, because firms in or near ghetto regions may favor Blacks and other minorities in their hiring practices. Thus any negative correlation between minority group population and the level of unemployment may indicate reverse discrimination.

5.2.2 Education Levels

In education levels some results different from the overall supply model might also be expected, specifically in the ghetto regions. The primary reason is discussed by Offner.

He argues that Black ghetto residents are particularly hurt when their jobs leave the city because they are blocked out of many suburbs by discrimination in housing.

The major group to be affected are the prime age males, rather than teenagers and older workers. Those hurt, he thinks, work primarily in manufacturing, transportation and public utilities, and wholesale trade. Offner notes, however, that most positions in the ghetto are in the retail sector, not only where wages are lower, but also where high levels of education are not likely to be needed.

This analysis may lead one to expect different than the standard signs for the education variables in ghetto areas. In primarily White areas the standard results can be expected. Because the problem of discrimination is not likely to be a factor, the level of education would seemingly be the primary determinant of whether a person is able to find employment. On the other hand, a minority group member may find that discrimination, in addition to his skill level, plays a role in his ability to find a job. If that person feels that discrimination is quite strong, he may take the first job available with the thought that a high level of education will not necessarily assure him of a better position. If this is the case, and Offner's findings are combined as well, some positive correlation might be expected between education and unemployment. The basic reason is that the highly educated ghetto residents are likely to be unemployed because they will not take low paying jobs in the retail sector, whereas those with minimal education will probably take any positions that are offered.

The occurrence of positive correlation would still be somewhat of a surprise in light of recent events. The

government has funded a number of programs designed to reduce the impact of discrimination in both housing and employment. The very fact of these programs seems to indicate that education will be a key variable in the future in determining changes in the rate of joblessness. Still, unless this concept is conveyed to residents of ghetto areas, education is likely to continue playing less of a role than it should.

5.2.3 Changes in Neighborhood Population and Income Levels

How the variables concerned with neighborhood stability and income will fare on a local basis is not clear. The reason is that as the higher income people tend to move to areas further from the center of the core, they are likely to be replaced by citizens with lower incomes, and possibly lower education levels. In such a situation negative correlation with unemployment can be expected in regions near the center of the city. The opposite result may occur in areas further from the city center that are receiving residents who are leaving sections in or near the center of the city.

The poverty variable may gain in importance particularly in some of the lower income neighborhoods because as the number of families at or below the poverty line increases, the percentage of the population engaging in illegal activities may also rise. If such activities are successful, their success may induce other workers, particularly those at the very bottom of the income scale, to leave their jobs and take part in street activities. In that case while

the number of families at or below the poverty line in terms of legal incomes may seem large, the actual figure may be somewhat smaller. Furthermore, the reported unemployment rate may be biased upward because of street activity.[4] Obviously, in any area high unemployment generally implies a significant level of poverty.

5.2.4 Distances and Travel Times

Another area where the importance of a variable may change is commuting time, particularly in relation to travel time by public transit facilities. A good reason for the change is discussed in the study by Kain and Meyer. Their analysis refers specifically to the three outer boroughs, where mass transportation facilities may not be as developed as those in Manhattan.

They argue that for an individual to make a trip from the edge of the city to another point on the periphery or in the suburbs usually means taking one radial line into the Central Business District and then transferring to another line to complete the trip to his destination. This implies a very long trip and could possibly discourage people from accepting positions in outlying areas. Living in or close to the CBD reduces the travel time to the suburban areas somewhat and possibly increases the likelihood of a person taking a position in an outer region.

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[4]However if these people engaged in street activities say that they are not in the labor force this would imply a truer legal unemployment rate.

Kain and Meyer believe, however, that a worker who commutes in reverse is not likely to use the public transit facilities for a great period of time anyway, primarily because of the high costs in terms of time. He will use the public facilities only until he is able to purchase an automobile or join a carpool. The findings of Kalacheck and Goering generally agree with those of Kain and Meyer. In fact they argue that unless this switch to private facilities is made soon after the person starts the position he will leave the position because of the high time costs involved. Even the reduction of fares by a substantial amount is likely to have little effect, they believe. Accordingly any significant results may overstate the true importance of mass transit, particularly for the White areas.

These findings still may be of great importance in Black areas, however, because a worker's residence may not follow a job to the suburbs when there is discrimination in housing. Public transit facilities may be of great importance because ownership of a car is less likely because the income level is probably lower. So for ghetto residents, particularly minority group members, the railroad or bus may be the only method of reaching the suburbs and the jobs located there.

The standard results are expected for travel time by automobile. That is some positive correlation with unemployment is anticipated because increases in travel time have the effect of reducing a person's real wage and possibly the

amount of labor he will supply to the market. Particularly with regard to Black areas any significant positive correlation may overstate the importance of the suburban labor markets toward reducing ghetto unemployment. First, ownership of a private car may be unlikely because of a low income, so the trip itself cannot be undertaken. Second, housing discrimination may prevent the worker from moving closer to a suburban position, and in so doing reducing the cost of the daily commute, thereby making the real wage more attractive. So in this case ownership of an automobile may not help to reduce unemployment.

For the journey to the Manhattan CBD the automobile commuting time may not be of great importance from any local region--because of the high traffic congestion there and the city's well-developed subway and bus system. In the case of the Manhattan CBD, travel time by public facilities will likely be the determining factor in all areas under study.

5.3 Sources of Data

The data sources in this chapter are the same as those given in Chapter IV. In addition, the pattern of the general supply model is followed in analyzing the neighborhoods. That is two regression models were run for each area; one with all the variables included, the other with some of the highly correlated ones eliminated. In order to maintain consistency the same variables are excluded from each model, again following the general supply model. The results of the models are presented in section 5.4.

5.4 Empirical Results

5.4.1 Ethnic Background of Workers

The results of the two sets of regression models, presented by tables 5.1, 5.2, and 5.3, seemingly do not allow for any definitive statements to be made. Each of the three ethnic variables is found to be significant once, in different areas of the city. Positive signs are obtained with regard to the Black variable in the Queens White section and for the Spanish origin variable in the predominantly White section of the Bronx. These solutions generally support the results reported by writers such as Kain, Offner, and Rees and Schultz. They argue that such results could be an indication that some local employers show a preference toward hiring White workers over potential Black or Spanish origin employees.

As was stated earlier, Kain speculates that the primary reason for the discrimination is the fear, on the part of some firms, of retaliation or a boycott by White customers. The results of this model may also indicate that the two neighborhoods contain relatively high numbers of Black and Spanish origin citizens who are not in the labor force for some reason or other such as retirement. Kain also speculates that there may be some reverse discrimination by employers in Black areas but the results of these models do not support that to any great extent.

The unexpected result is the positive correlation of unemployment with the foreign born variable in a primarily

TABLE 5.1

REGRESSION RESULTS OF ETHNIC VARIABLES

	All Variables	Restricted Model
	Black Population	
Brooklyn White:	-0.76	0.39
	(-0.53)	(0.31)
Bronx White:	-0.09	-0.05
	(-1.58)	(-1.07)
Queens White:	0.09*	0.11*
	(2.31)	(3.18)
Manhattan White:	0.55	0.02
	(0.69)	(0.02.)
Brooklyn Black:	-0.02	0.001
	(-0.60)	(0.07)
Bronx Black:	0.09	0.25
	(1.23)	(0.83)
Queens Black:	0.06	0.06
	(1.26)	(1.20)
Manhattan Black:	-0.08	0.003
	(-0.64)	(1.83)

t values in parenthesis

* significant at 95% level

TABLE 5.2

RESULTS FOR POPULATION

FOREIGN BORN

Brooklyn white:	0.02 (0.36)	0.01 (0.15)
Bronx White:	0.09 (1.11)	0.04 (0.56)
Queens White:	0.01 (0.38)	0.02 (0.54)
Manhattan White:	-0.42 (-1.52)	-0.13 (-0.53)
Brooklyn Black	-0.004 (-0.08)	0.01 (0.29)
Bronx Black:	0.93* (5.38)	0.24 (0.45)
Queens Black:	0.16 (1.08)	0.15 (0.96)
Manhattan Black	0.07 (0.31)	0.18 (0.87)

t values in parenthesis

* significant at 95% level

TABLE 5.3

RESULTS FOR POPULATION

OF SPANISH ORIGIN

	All Variables	Restricted Model
Brooklyn White:	0.03 (0.25)	-0.02 (-0.23)
Bronx White:	0.15* (2.38)	0.11 (1.83)
Queens White:	0.05 (1.35)	0.04 (1.22)
Manhattan White:	-0.45 (-1.69)	-0.06 (-0.30)
Brooklyn Black:	-0.02 (-0.52)	-0.001 (-0.04)
Bronx Black:	-0.01 (-0.09)	0.17 (0.64)
Queens Black:	0.04 (0.44)	0.08 (0.87)
Manhattan Black:	-0.11 (-1.10)	0.02 (0.46)

t values in parenthesis

* significant at 95% level

Black area of the Bronx. Here again the reason could be many people not being included in the labor force, perhaps because they are too old or involved in other activities. There is some possibility that some discrimination may be taking place because of a language barrier or lack of education on the part of some potential workers.

5.4.2 Education Results

In most instances the results of the models confirm expectations. As seen in table 5.4, negative correlation between unemployment and either high school or college graduation takes place in several neighborhoods. Additionally, in several regions, the high school diploma takes on added importance once the college factor is not considered in the model. This may imply that completion of high school is the minimum educational leval needed to qualify for a good position. Some people who feel that they will not attend college, apparently still attempt to attain a high school diploma before entering the labor market.

Somewhat puzzling is the positive sign for the Bronx Black area that is located primarily in the South Bronx. The seemingly incorrect direction for the correlation could obviously present problems. But there may be some explanation. If the students who drop out of high school are able to find some type of employment they can gain seniority over those who seek work after they complete their high school education. This may induce other students to leave school early.

Another explanation perhaps is some of the residents

TABLE 5.4

REGRESSION RESULTS OF EDUCATION VARIABLES

	All Variables		Restricted Model
	High School	College	High School
Brooklyn White:	-0.01 (-0.18)	0.01 (0.10)	-0.07* (-2.04)
Bronx White:	0.03 (0.45)	-0.02 (-0.19)	-0.03 (-0.50)
Queens White:	-0.02 (-0.38)	0.05 (0.73)	-0.03 (-0.82)
Manhattan White:	-0.23 (-1.87)	-0.51* (-2.74)	-0.23* (-2.67)
Brooklyn Black:	-0.01 (-0.24)	-0.13 (-1.33)	-0.03 (-0.96)
Bronx Black:	0.76* (4.28)	-5.96* -8.15)	-0.33 (1.25)
Queens Black:	-0.05 -0.67	-0.06 (-0.39)	-0.15) (-2.22)
Manhattan Black:	0.13 (1.52)	-0.24 (-0.72)	0.01 (0.19)

t values in parenthesis

* significant at 95% level

may feel that a college degree is what is really needed to get a good position. The models indicates this to be the case for residents of that area. If it is likely that they will not complete college, some students may drop out of school after high school and take whatever jobs are available. Once the alternative of college is eliminated, entirely, however, they may remain in school only until a "good" position is offered, regardless of how far along they are in their education. Obviously this line of reasoning is important for people who are willing to take positions where a minimal level of education is required.

Offner agrees with the argument in general. He believes that in many ghetto areas the retail sector is the primary source of employment. This is a sector that requires minimal education and its positions are likely to be filled primarily by teenagers and, to a lesser extent, older workers. He argues that this sector will most likely employ the dropout and allow him the opportunity to gain work experience. Obviously for the person who wants a job which requires a higher level of education he is not likely to drop out of school to take a job in this area. Rather it is the marginal student who is likely to take the lure of a job at a relatively early age.

5.4.3 Population Shifts and the Neighborhood Income Levels

The income and family stability variables are not a significant factor in the models on a consistent basis between neighborhoods. However, there are some results as seen

in tables 5.5, 5.6, and 5.7, that do warrant discussion. In three of the regions, one mainly White and two primarily Black, the poverty coefficient is significant. In the predominantly Black sections, the correlation with unemployment is positive, as would be expected. That is to say, where the amount of poverty is high, unemployment is also likely to be high.

The opposite result is found in the White area of Manhattan. It appears that as poverty increases unemployment declines. As was stated earlier, however, many residents may not have been included in the labor force for a variety of reasons such as retirement, language barriers, or involvement in street activities.

The median income of an area is not a significant factor in determining what causes changes in unemployment in most neighborhoods. Two exceptions are the mainly Black section of Queens and the primarily White neighborhood of Manhattan. In both instances the sign of the coefficient is negative. Coincidentally, these regions have the highest level of income by race of all the neighborhoods selected. Perhaps in a high income area the earnings of a neighbor do influence a person to accept a position to some extent. Obviously, any area with a low level of unemployment will have a tendency to have a high median income level.

The neighborhood stability variable is significant in only one area. This may be an indication that any new people moving into an area do not influence the unemployment rate in that neighborhood to a great degree. The Bradford and Kelejian model shows that as the number of poor families in

TABLE 5.5

REGRESSION RESULTS FOR

THE POVERTY VARIABLE

	All Variables	Restricted Model
Brooklyn White	0.09 (0.54)	0.06 (-0.53)
Bronx White:	0.03 (0.19)	-0.02 (-0.22)
Queens White:	-0.12 (-1.23)	-0.11 (-1.17)
Manhattan White:	-0.26* (-3.62)	-0.35* (-5.35)
Brooklyn Black:	0.18* (2.90)	0.13* (2.84)
Bronx Black:	0.33* (3.15)	-0.11 (-0.79)
Queens Black:	-0.07 (-0.73)	0.09 (0.94)
Manhttan Black:	0.003 (0.04)	0.08 (1.15)

t values in parenthesis

* significant at 95% level

TABLE 5.6

RESULTS FOR

MEDIAN INCOME

Brooklyn White:	0.00002 (0.07)
Bronx White:	-0.003 (-0.62)
Queens White:	-0.0003 (-1.63)
Manhattan White:	-0.001* (-1.96)
Brooklyn Black:	0.0004 (1.04)
Bronx Black:	0.03 (1.30)
Queens Black:	-0.001* (-3.25)
Manhattan Black:	-0.001 (-1.19)

NOTE: Median Income is not included in the Restricted Model.

t values in parenthesis

* significant at 95% level

TABLE 5.7

RESULTS FOR

FAMILY LOCATION VARIABLE:

IN SAME HOUSE FIVE YEARS

	All Variables	Restricted Model
Brooklyn White:	0.001 (0.20)	-0.001 (-0.22)
Bronx White:	0.07 (1.40)	0.06 (1.42)
Queens White:	0.04* (1.96)	0.03 (1.86)
Manhattan White:	-0.01 (-0.49)	-0.01 (-1.29)
Brooklyn Black:	0.01 (0.38)	0.03 (0.83)
Bronx Black:	0.01 (0.17)	-0.04 (-0.31)
Queens Black:	0.04 (1.01)	0.05 (1.26)
Manhattan Black:	0.03 (0.59)	-0.004 (-0.11)

t values in parenthesis

* significant at 95% level

the city increases, middle and high income citizens are likely to move out. This may be true, but any new people moving into a specific neighborhood, regardless of their income level, probably do not influence the status of the working population of the area. In other words, even though the overall character of a neighborhood may change as families leave and enter it, the mix between the employed and unemployed proportion of the labor force remains relatively stable.

In the primarily White section of Queens, however, the coefficient of the neighborhood stability variable is positive and significant. One reason is that the area may contain many long time residents who have retired but have chosen to remain there rather than move elsewhere. The reason for this could be that the area has remained relatively stable and has not been subject to the decline other neighborhoods in the city have undergone. It could also attract retirees from other areas in the city for that reason.

5.4.4 Distance and Time Factors

The distance and time coefficients, on the whole, did not prove to be significant. There are, however, some results in tables 5.8-5.13 that should be elaborated on. Generally, air distances from individual tracts to the various major work sites do not play a major role in explaining variations in the rate of unemployment. This would seem to indicate that distance when combined with time variables is not an important factor. Muth appears to assume that distance

TABLE 5.8

REGRESSION RESULTS OF DISTANCE VARIABLES TO:

	Stamford	Yonkers
Brooklyn White:	-0.002 (-0.45)	0.04 (1.62)
Bronx White:	0.05 (-0.27)	1.17 (1.33)
Queens White:	0.08 (0.82)	0.05 (0.39)
Manhattan White:	0.007 (0.49)	-0.004 (-0.23)
Brooklyn Black:	0.02 (0.14)	0.65 (0.67)
Bronx Black:	-3.91* (-4.26)	-24.93* (-4.98)
Queens Black:	0.07 (0.80)	-0.05 (-0.21)
Manhattan Black	-0.05 (-0.66)	-0.46 (-0.70)

t values in parenthesis

* significant at 95% level

TABLE 5.9

RESULTS FOR DISTANCE TO:

	Jersey City	Manhattan
Brooklyn White	-0.001 (-0.04)	0.84 (1.45)
Bronx White:	-0.22 (-0.86)	-7.61 (1.28)
Queens White:	0.09 (1.12)	-1.10 (-0.87)
Manhattan White:	0.00003 (-0.49)	-0.01 (-1.23)
Brooklyn Black:	0.21 (0.23)	4.40 (0.57)
Bronx Black:	-0.82 (-0.56)	-10.44 (-1.39)
Queens Black:	0.03 (0.12)	2.96 (0.91)
Manhattan Black:	0.01 (0.11)	-1.42 -0.21

t values in parenthesis

* significant at 95% level

TABLE 5.10

REGRESSION RESULTS OF TIME VARIABLES

TO STAMFORD

	All Variables		Restricted Model	
	Car	Public Transit	Car	Public Transit
Brooklyn White:	0.001	-0.005	0.003	-0.005
	(0.06)	(-0.68)	(0.32)	(-0.93)
Bronx White:	-0.23	-0.04	-0.004	-0.06
	(-1.07)	(-0.33)	(-0.04)	(0.59)
Queens White:	-0.02	0.07	-0.004	0.03
	(-0.46)	(1.06)	(-0.19)	(0.67)
Manhattan White:	-0.007	-0.008	-0.009	-0.01
	(-0.62)	(-0.89)	(-0.93)	(-1.28)
Brooklyn Black:	0.20	-0.06	0.25*	-0.07
	(1.73)	(-1.01)	(2.66)	(-1.33)
Bronx Black:	10.07*	-6.79*	-0.09	0.08
	(3.41)	(-3.61)	(-0.19)	(0.14)
Queens Black:	0.01	0.06	0.01	0.04
	(0.09)	(0.56)	(0.31)	(0.37)
Manhattan Black:	-0.20	-0.83	-0.05	-0.42
	(-0.55)	(-0.85)	(-0.02)	(0.54)

t values in parenthesis

* significant at 95% level

TABLE 5.11

RESULTS FOR TIME VARIABLES

TO YONKERS

	All Variables		Restricted Model	
	Car	Public Transit	Car	Public Transit
Brooklyn White:	0.01 (0.84)	-0.001 (-0.12)	0.01 (0.53)	0.004 (-0.52)
Bronx White:	0.60 (-1.58)	-0.07 (-0.49)	0.07 (1.12)	-0.01 (-0.10)
Queens White:	-0.09 (-0.64)	-0.09 (-1.41)	-0.05 (-0.43)	-0.07 (-1.39)
Manhattan White:	-0.01 (-0.01)	-0.01 (-0.89)	0.01 (0.93)	-0.03 (-1.28)
Brooklyn Black:	-1.65* (-2.91)	-0.02 (-0.68)	-0.15* (-2.76)	-0.03 (-1.09)
Bronx Black:	5.15* (5.25)	3.51 (1.86)	-0.36 (-0.14)	1.58 (0.29)
Queens Black:	-0.14 (-1.01)	-0.15 (-1.44)	0.09 (-0.62)	-0.16 (-1.48)
Manhattan Black:	5.01 (1.56)	-0.17 (-0.10)	0.68 (0.33)	-0.67 (-0.53)

t values in parenthesis

* significant at 95% level

TABLE 5.12

RESULTS FOR TIME VARIABLES

TO JERSEY CITY

	All Variables		Restricted Model	
	Car	Public Transit	Car	Public Transit
Brooklyn White:	0.01	-0.01	0.002	0.003
	(0.62)	(-0.79)	(0.27)	(0.29)
Bronx White:	2.96	-3.57*	3.55	-4.14*
	(1.03)	(-2.08)	(1.33)	(-2.80)
Queens White:	0.06	0.06	-0.05	0.05
	(0.46)	(1.78)	(-0.43)	(1.67)
Manhattan White:	-0.004	0.001	-0.01	0.001
	(-0.23)	(0.80)	(-0.44)	(1.41)
Brooklyn Black:	-0.21	0.15	-0.15	0.16
	(-1.57)	(1.23)	(-1.28)	(1.48)
Bronx Black:	2.58	-3.06	0.41	-0.32
	(1.31)	(-1.38)	(-.12)	(-0.04)
Queens Black:	0.08	-0.003	0.11	-0.10
	(0.39)	(-0.03)	(0.54)	(-1.48)
Manhattan Black:	-0.74	0.05	-0.21	0.09
	(-0.64)	(0.21)	(-0.21)	(0.44)

t values in parenthesis

* significant at 95% level

TABLE 5.13

RESULTS FOR TIME VARIABLES

TO MANHATTAN

	All Variables		Restricted Model	
	Car	Public Transit	Car	Public Transit
Brooklyn White:	0.01 (0.85)	0.16 (-1.54)	0.01 (0.72)	-0.01 (-0.78)
Bronx White:	0.96 (0.79)	4.19 (1.79)	1.75 (1.53)	1.85 (0.85)
Queens White:	0.22 (-0.77)	-0.16 (0.71)	-0.24 (-1.17)	-0.12 (-0.59)
Manhattan White:	-0.07 (-0.60)	0.05 (0.54)	-0.08 (-0.73)	0.08 (0.83)
Brooklyn Black:	0.05 (0.42)	-0.04 (-0.49)	0.08 (0.62)	-0.81 (0.97)
Bronx Black:	-5.98 (-2.86)	14.11* (3.55)	4.45 (0.82)	-7.82 (-1.04)
Queens Black:	0.13 (0.49)	0.02 (1.38)	0.05 (0.18)	0.02 (1.78)
Manhattan Black:	-0.16 (-1.48)	2.17 (1.44)	-0.20 (-0.58)	1.76 (1.50)

t values in parenthesis

* significant at 95% level

is not a major determinent of residential location. On the other hand, Offner argues that distance by itself is a major element in explaining the level of joblessness. As was stated earlier he looks at travel only within New York City.

The New York City area is well served by mass transit facilities, in particular by an extensive subway network. In this model where public transit to many of the suburban work places is not as well developed as in New York City, distance is not a major factor. A variable to measure time is not considered in the Offner model; in its place distance may serve as a function of time, which may explain his results. In addition because of the large subway and bus system in the city distance and time may be closely related. This may not be the case with regard to the outlying areas because one must usually travel to the center of the core to reverse commute which may diminish the close relationship between time and distance.

Although many of the coefficients in this chapter's models are not significant, in some instances the coefficients for the journey to Manhattan are extremely large, particularly those that result when distance is included. This could be taken to mean that distance plays a role to some extent, but other factors may be more important. Distance is of some value in the analysis, but not as qualitively great as Offner finds it to be in his work. The full role of distance is discussed in greater detail in Chapter IV.

The minimal role that travel time to the Manhattan CBD plays may be somewhat confusing. In only one neighbor-

hood is the travel time significant. One reason could be that people are perhaps first concerned about where they live, and this may not be strictly related to where they work. Some may wish to live in Manhattan for the cultural activities and where they work may be of secondary concern. Another reason could be that people consider jobs in their neighborhood and in Manhattan on a somewhat equal footing. Although travel time to the center of the city may be longer, some may feel that the cultural activities and retail services of Manhattan are important reasons to work there.

The only areas of significance for travel by public transit are in the Bronx. There is negative correlation between unemployment travel time by public facilities from the mainly White area to the Jersey City CBD as well as from the primarily Black section to Stamford.

These findings are the opposite of what was predicted. They state that as travel time by public facilities increases, unemployment is likely to fall. It should be remembered, however, that the general supply model yielded similar results. As was pointed out in Chapter IV, the results may not be important, a person may use mass transit facilities only when he starts his employment. After a period of time he may have managed to save enough to purchase a car or have become acquainted with others and joined a carpool. In reality, Kain and Meyer argue that public transit facilities do not play a major role in explaining changes in the level of unemployment and the results of these models, the many coefficients

which are not significant, tend to support their findings.

The situation appears to be somewhat different regarding travel time by automobile. All the significant coefficients are in two mainly Black areas of the Bronx and Brooklyn. For travel to Stamford, the signs of the coefficients are both positive.

The findings are generally what was expected. The models indicate that as the time needed to travel to the outlying CBD grows, unemployment increases. This conclusion agrees with the results of the general supply model. It indicates, at least to some degree, that high travel time may be a barrier in reducing the level of joblessness. The results appear to say that if people could move closer to the suburban CBD, unemployment could perhaps be reduced. However, several authors, including Kain, Kain and Meyer and Michele White (18) argue that discrimination in suburban housing markets prevents people from moving closer to these outlying work areas. They believe that instead of making a long trip, some of the inner city residents would rather not accept the position. Incidentally this thinking may also apply to the positive and significant result for travel time by automobile from the mainly Black area of the Bronx to Yonkers.

Michele White shows that even though many Blacks are qualified for suburban jobs, they often refuse them rather than reverse commute. The primary reason is that the real wage may be too low after all the traveling is considered. She speculates that many Black workers would accept employment in outlying areas if they could life close to the work

site. Discrimination in many suburban housing markets prevents Blacks in particular from moving closer to suburban work sites, however, and thus insures that unemployment will not be reduced to a great extent. The results of the models in this chapter lend support to her findings.

The major surprise of this part of the model is the negative and significant correlation between unemployment and automobile travel time from the Brooklyn Black region to the Yonkers CBD. This indicates that as the time needed to reach that suburban CBD grows, unemployment has a tendency to decline. One explanation could be in part the proximity of Yonkers. It is also important to remember, at least with regard to the Brooklyn Black area, that as the distance from the Yonkers CBD increases the distances also increases from the center of New York City.

Mills shows that as the distance from the center of a city grows, income levels generally rise. To carry this further, as the levels of income increase, a resident is more likely to own an automobile. In addition, if a worker feels that because Yonkers is so close to the city it is really part of the New York City labor market, he may be willing to accept a position there. The ownership of a car is likely to make travel easier, and if the person wishes to continue living at the same place, housing discrimination is not a factor.

Little has been said so far about the role of travel times in mainly White areas. Obviously for the White population, discrimination is likely to be less of a problem. With

none of the time coefficients significant, the model may be saying that location and travel times are not major determinants of unemployment because White workers can live relatively close to their jobs, so other factors may be more relevant. For Black workers this may not be true.

5.5 Summary and Conclusions

In this chapter the problem of unemployment has been looked at on a strictly local basis. Eight separate regions were selected for analysis. The issues duscussed were discrimination, location, income and education levels. Although no variable had a particularly strong impact on unemployment, some meaningful statements can be made on the basis of the results obtained.

With respect to discrimination, the findings here generally agree with results of other writers, most notably Kain. He suggests that the strongest discrimination would be felt by minority group workers in predominantly White residential areas. This chapter's models, particularly in the Bronx and Queens, lend support to his argument. Kain also believes that there will be discrimination against Whites in or near ghetto regions, but this model does not confirm that.

Except in one instance, the education results follow a priori expectations. The more highly educated a person, the less likely he is to be unemployed. In only one neighborhood is the opposite found, the Black section of the Bronx. The primary reason appears to be that if a person feels a high level of education will not yield him a good position,

possibly because of discrimination, he may leave school relatively early and take the first job available, even if it is low paying. Offner suggests that this person is likely to be employed in the retail sector where a minimal level of education may be needed.

The shifting population does not appear to influence changes in the rate of unemployment to any great extent. That is the loss of middle and upper income citizens along with the influx of poor people does not appear to greatly affect the proportion of the population that is working. Additionally, the low income of an area does not play a significant role in explaining variations in the level of unemployment. The poverty variable showed some importance, but the dual problem of discouraged workers and street activities may mean the unemployment statistics are inaccurate.

On the other end of the spectrum, there appears to be some importance in the high income of an area as a factor toward reducing unemployment in that area. It is not exactly clear which one of two reasons can help to explain this; possibly both can. First is the obvious explanation that where unemployment is low, a high level of income exists for that area. The second reason could be what James Dusenberry (4) calls the "relative income hypothesis." Briefly this postulates that the high income of a neighborhood may influence a person to accept a position in a less time than normal. So doing will allow the person to compete with his neighbor in terms of social status and material possessions.

The distance and time factors did not play as impor-

tant a role as had been expected. In particular, distance to work is not of great significance. Offner places great importance on that variable, but its significance declines once time is considered.

The possibility of reducing unemployment by encouraging reverse commuting by mass transit facilities is not likely to be a major one for two reasons. One is the lack of adequate facilities, which, because of the high time costs involved, may not allow for the daily trip to be made. The other is that automobile availability, either by the worker directly or through a carpool, combined with the poor public facilities, insures that any reverse commuting will usually be done by privately owned means of transportation.

The Kain and Meyer hypothesis concerned with living close to connecting points for outward commutation as factor toward reducing unemployment is not supported by the results in this chapter. The findings concerned with the Manhattan neighborhoods, which is relatively close to the connecting points, vary little from those for the three outer boroughs. It may be that people who live in or near the Manhattan CBD do so to be able to reside near where they work, thereby reducing their own travel time. If this is the situation, then they do not consider employment elsewhere should they become unemployed.

For Black workers the issue of housing discrimination must be considered. The problem can be seen as a result of the findings with respect to automobile travel times to outlying work site. In some Black areas, it would appear that

unemployment could be lowered if travel times were reduced to the suburban work sites. Because of housing discrimination, however, Blacks may be kept from moving closer to suburban work places. Michele White argues that any wage offered for a position in an outlying location is likely to be too low after the cost of travel is included. She speculates that if discrimination were reduced, more Blacks would accept suburban positions because they could live near their place of employment. The findings of the models of this chapter tend to support her results.

The time and distance variables with regard to the Manhattan CBD were not significant. The lack of significance may be explained by explained by considering one possible reason. People may settle in one area of the city for a number of reasons that are not related to their jobs directly. For them the need to be near cultural activities, or friends or relatives, may be of greater importance than the need to be close to the place of employment. In addition, the large network of mass transit facilities makes access to the center of the city relatively easy from many areas of the city.

It is interesting to note the importance of travel times in the general supply model but there is very little significant correlation with unemployment in the neighborhood models. One explanation could be that within any particular area the travel times vary very little because of the closeness of the tracts. However in considering tracts

across many different areas may imply that travel times are likely to be more dispersed and thus may better be able to explain changes in the level of unemployment.

CHAPTER VI

SUMMARY AND CONCLUSIONS

There is little doubt about the decline of the labor market in New York City during the last ten years. A significant number of positions in the city have been lost, while the suburbs have gained an increasing share of the regional labor market. Generally, all of the major industrial sectors have played a role to some extent in the changing labor picture.

This study has shown that in most major industries the increased share of the region's jobs located in the suburbs has significantly explained changes of the unemployment in the city. In particular the higher suburban share of positions in wholesale trade, the financial sector, and transportation and public utilities has had a positive impact on the level of joblessness in the city. On the other hand, the growth of service-oriented industries in the suburbs has had a negative impact on the level of unemployment in the core.

The paper also looked at the problem of supply and its role in the unemployment picture, in a manner similar to that used by Offner. He argues that a major reason for the high rate of joblessness in the city generally, and in the ghetto specifically, is the decline in city's share of the regional labor market. He finds that ghetto residents

are employed primarily in three sectors: manufacturing, wholesale trade, and transportation and public utilities. Coincidentally all three industries were found significant in explaining unemployment in the models used in this study. Accordingly, the combined findings would tend to imply that residents of ghetto neighborhoods are particularly hurt when the suburbs gain an increased proportion of the region's jobs.

Mills, Muth, Kain, White, and others, argue that the primary reason the ghetto residents are hurt is that many are members of minority groups and as such are likely to face discrimination in suburban housing markets. In the absence of discrimination, some low income or minority group workers might qualify for jobs in the suburbs and might wish to live there. It is generally believed, however, that the choice is not available because of restrictive policies in suburban housing market. So those who wish to work in the suburbs are likely to face a long commute which reduces their real wage and in effect restricts the amount of labor supplied from the ghetto areas. With this in mind there appears to be a great deal going for the White working population. They can use low cost suburban land for housing and avoid a long trip to the core by working nearby. But if a member of a minority group wishes to work outside of the city, generally he must live on high priced city center land and also commute long distances to work.

The issue of reverse commuting and its relationship to unemployment has been covered in the models used in the study. The problem was examined both on an overall basis and

in relation to specific local areas. It appears that primarily two results emerge from the models. First, as was noted earlier, it is apparent that housing discrimination does play a role in determining the level of unemployment on both a local and overall basis, although it could not be shown directly. Second the automobile appears to be the key method of reverse commuting, and public transit does not play as great a role as might be expected. In fact, in many cases it appears that mass transit is so inadequate, at least when traveling from any individual neighborhood, that it cannot even be considered a factor. Only in traveling to the Manhattan CBD does public transit become important on its own. Here, only the vastness of the subway and bus system allows mass transit to gain importance as an influential factor on the unemployment problem.

In his model Offner shows that distance by itself is a significant variable. The results of the models in this paper indicate that it is not distance alone, but rather a combination of that factor together with commuting time by both automobile and public transit that is important.

Two other standard explanations for unemployment generally are supported by this paper's results. Both the educational and discrimination results lend support to other works in this area. In the case of human capital, an increased level of education generally has a negative correlation with the rate of unemployment. In particular, the attainment of a high school diploma appears to be a key factor towards reducing unemployment.

A worker's ethnic background is also a consideration. There appears to be some reluctance towards hiring minority workers, particularly Blacks. Kain argues that Black workers are likely to face discrimination primarily in White residential neighborhoods but will be shown favoritism by employers close to ghetto regions. The favoritism has the effect of reducing the overall impact of discrimination. The results of this essay's models indicate that discrimination is significant and appears to be of the type that Kain discusses with regard to the White sections. On the other hand there does not appear to be very much reverse discrimination taking place.

Another interesting result concerns the poverty variable. On an overall basis, it was found that an increase in the proportion of families below the poverty line has a negative and significant impact on the unemployment rate. This may imply that many people have left the labor force either because they are retired or have become discouraged and no longer look for work. The possibility that some workers engage in street activities should not be overlooked. Offner argues that the street activity is widespread, particularly in the lower income ghetto areas. This would have the effect of reducing the measured labor force and thus possibly distorting the unemployment statistics.

On an overall basis the results of this paper generally agree with the findings of Kain and Meyer. They feel that it is not one particular factor that should be blamed, but rather a combination of several factors. They stress

such elements as education, retraining, and improved transportation facilities. These measures are generally designed to improve the unemployment situation from the supply side. It may be that more possibly needs to be done from the viewpoint of demand. Perhaps certain tax advantages should be given to some employers to help insure that they remain in the city where many people have access to the jobs they offer.

Still, it appears that low taxes alone may not be enough of an incentive to keep or attract firms in the city. Apparently the quality of municipal services needs to be upgraded. Better police, fire fighting, health care and other services must be provided so as to indicate to employers that the land merits its high value. It may no longer be the case that New York City itself is enough to lure businesses to move or stay here. Today many areas actively compete for firms, and New York City must engage itself in this market to insure a high level of demand for labor.

A great deal of work remains to be done on this problem and the changes of recent years can perhaps yield better explanations for the causes of unemployment in New York City. Three particular areas can be examined to see how they explain changes in the rate of unemployment; affirmative action programs, open enrollment in the City University system, and the rising cost of energy. The 1980 census should provide significant information that is likely to further increase the knowledge of this problem by reflecting many of the changes which have taken place in recent years.

In particular it would be interesting to examine whether government programs in the areas of affirmative action and upgrading educational levels have significantly reduced the rate of unemployment. The energy should figure in on both sides of the model. It would be especially interesting to see whether rising energy costs have caused a substantial number of workers to relocate in the city and if this movement has had a major impact on unemployment.

Rising energy costs can also be a factor in where firms choose to locate. In particular, will the increase in this area of cost for firms help to stop the outflow of jobs from the city? Recent statistics show that the tide of jobs moving out of the core has slowed somewhat. Although it seems unlikely that the city can regain the status it enjoyed during the 1950s and 1960s it appears the city will continue as a viable entity.

Change appears to be the order of the future, but what the final result will be is difficult to say. A city the size and importance of New York City does not just disappear. A different face is likely to emerge, but New York City has been changing through much of its history. The labor market will be part of that change and no doubt will help shape the future of the city.

APPENDIX I

This part of the paper presents the job distributions by specific industry for the years 1946-1976. As was stated in Chapter III, the distributions are expressed in terms of the share held by the suburbs. All data in this appendix is derived from various issues of County Business Patterns for all years available.

TABLE A1.1

SUBURBAN SHARE OF

AGRICULTURAL JOBS

	Total Jobs In The Region	Share Located In the Suburbs
1946	3,906	79.8%
1947	4,094	78.2
1948	4,367	79.4
1951	7,558	79.4
1953	5,881	83.9
1956	5,643	81.7
1959	5,437	83.2
1962	7,016	82.8
1964	7,444	86.0
1965	7,985	88.0
1966	8,876	88.1
1967	8,488	87.8
1968	9,647	86.0
1969	9,204	86.7
1970	9,785	85.1
1971	9,687	86.3
1972	9,960	87.2
1973	10,814	87.5
1974	9,673	87.4
1975	8,616	93.7
1976	9,418	93.9

TABLE A1.2

SUBURBAN SHARE OF

MINING JOBS

	Total Jobs In The Region	Share Located In the Suburbs
1946	4,863	59.8%
1947	5,837	56.5
1948	6,314	61.9
1951	7,408	46.3
1953	7,525	45.7
1956	7,188	58.5
1959	6,315	69.4
1962	6,379	51.9
1964	5,847	56.9
1965	6,319	54.0
1966	6,847	53.6
1967	6,788	44.8
1968	6,208	54.4
1969	6,056	52.5
1970	6,188	49.0
1971	5,834	45.4
1972	5,277	50.4
1973	5,407	50.5
1974	5,318	29.6
1975	6,602	35.2
1976	6,246	37.2

TABLE A1.3

SUBURBAN SHARE OF

JOBS IN THE CONTRACT

CONSTRUCTION SECTOR

	Total Jobs In The Region	Share Located In the Suburbs
1946	121,651	41.7%
1947	163,568	39.3
1945	171,961	39.4
1951	237,628	52.6
1953	201,458	47.3
1956	218,507	49.2
1959	209,918	46.9
1962	233,770	46.7
1964	240,689	50.5
1965	234,616	55.0
1966	235,796	56.8
1967	221,080	55.5
1968	229,991	57.2
1969	237,155	57.3
1970	241,030	56.3
1971	239,002	55.5
1972	240,868	56.6
1973	250,654	58.7
1974	258,720	60.0
1975	210,086	60.2
1976	191,438	60.4

TABLE A1.4

SUBURBAN SHARE OF

JOBS IN THE

MANUFACTURING SECTOR

	Total Number of Jobs in Region	Share Located In the Suburbs
1946	1,588,238	35.9%
1947	1,721,932	38.6
1948	1,716,465	38.4
1951	1,830,875	41.9
1953	1,917,396	44.2
1956	1,828,226	45.0
1959	1,751,165	47.3
1962	1,801,625	47.3
1964	1,782,486	50.8
1965	1,809,860	50.8
1966	1,876,010	51.6
1967	1,906,235	53.2
1968	1,925,292	52.8
1969	1,936,200	53.9
1970	1,878,011	54.4
1971	1,699,939	54.4
1972	1,659,695	54.8
1973	1,684,695	55.9
1974	1,659,020	59.0
1975	1,499,633	60.8
1976	1,530,190	60.0

TABLE A1.5

SUBURBAN SHARE OF

JOBS IN THE TRANSPORTATION

AND PUBLIC UTILITIES SECTOR

	Total Number of Jobs in Region	Share Located In the Suburbs
1946	318,161	23.6%
1947	376,458	22.6
1948	373,256	23.6
1951	356,591	27.5
1953	353,850	30.2
1956	359,924	31.3
1959	371,579	31.5
1962	392,224	31.4
1964	385,289	35.6
1965	435,520	30.3
1966	457,092	32.5
1967	475,147	32.3
1968	492,123	32.0
1969	491,376	32.4
1970	527,591	33.2
1971	527,329	33.9
1972	514,380	34.6
1973	510,786	35.2
1974	490,240	36.4
1975	475,625	36.4
1976	454,062	39.7

TABLE A1.6

SUBURBAN SHARE OF JOBS

IN THE WHOLESALE

TRADE SECTOR

	Total Number of Jobs in the Region	Share Located In the Suburbs
1946	352,397	15.3%
1947	395,806	15.3
1948	415,527	16.3
1951	421,639	15.7
1953	425,023	19.2
1956	433,122	22.7
1959	423,789	24.8
1962	451,017	26.8
1964	452,126	23.3
1965	470,354	33.6
1966	481,707	33.2
1967	487,104	34.0
1968	495,087	36.5
1969	505,356	38.0
1970	518,923	39.1
1971	504,575	40.6
1972	504,214	42.3
1973	505,535	43.0
1974	486,774	49.3
1975	461,401	50.4
1976	455,286	48.4

TABLE A1.7

SUBURBAN SHARE OF JOBS

IN THE RETAIL

TRADE SECTOR

	Total Number of Jobs in the Region	Share Located In the Suburbs
1946	581,736	28.6%
1947	647,566	28.8
1948	670,724	29.6
1951	719,631	33.9
1953	717,367	35.6
1956	728,943	38.5
1959	742,912	42.9
1962	781,703	45.1
1964	827,975	48.4
1965	850,791	49.9
1966	808,818	47.9
1967	889,543	51.1
1968	929,468	52.3
1969	956,491	54.1
1971	973,603	54.8
1972	973,082	56.0
1973	986,219	57.2
1974	948,791	59.8
1975	931,548	60.6
1976	936,805	61.7

TABLE A1.8

SUBURBAN SHARE OF FINANCE, INSURANCE

AND REAL ESTATE JOBS

	Total Number of Jobs in the Region	Share Located In the Suburbs
1946	358,177	15.5%
1947	378,722	16.6
1948	369,894	13.3
1951	391,925	17.3
1953	446,612	22.3
1956	451,666	19.2
1959	474,647	20.3
1962	516,390	21.5
1964	513,120	23.4
1965	518,225	24.5
1966	528,407	24.8
1967	534,815	25.0
1968	563,392	25.0
1969	592,939	24.3
1970	608,654	25.1
1971	596,532	26.1
1972	602,055	27.2
1973	603,984	28.5
1974	651,007	28.8
1975	630,716	30.2
1976	625,198	30.1

TABLE A1.9

SUBURBAN SHARE OF JOBS

IN THE SERVICE SECTOR

	Total Number of Jobs in the Region	Share Located In the Suburbs
1946	456,383	22.5%
1947	481,997	22.1
1948	490,146	22.8
1951	511,037	24.4
1953	526,976	25.3
1956	562,428	26.5
1959	786,689	30.8
1962	906,899	32.9
1964	980,076	33.4
1965	1,007,738	34.9
1966	1,055,200	36.1
1967	1,119,671	36.5
1968	1,181,100	37.1
1969	1,230,342	37.6
1970	1,272,883	38.4
1971	1,254,763	39.6
1972	1,255,814	41.8
1973	1,302,410	42.0
1974	1,354,313	43.7
1975	1,368,160	44.0
1976	1,387,319	45.2

APPENDIX II

In this section the areas of the core are detailed. Again it should be noted that two areas in each of the four boroughs are considered. One area is predominantly Black and the other is mainly White.

Brooklyn White:

North along Coney Island Avenue from Avenue X to Church Avenue east to 36th Avenue, south on 14th Avenue to 40th Avenue, south on 16th Avenue to 54th St. then east to Bay Parkway then south along Stillwell Avenue to Avenue U, then south along 86th St. to Hill Rd. to Boynton Place to Avenue X.

Bronx White:

Bronx Park East, along Tremont Avenue east to Williamsbridge Rd., north along Sackett Avenue (Railroad Yards) to Stillwell Avenue north then west along Gun Hill Road to Bronx Park East then south to Tremont Avenue.

Queens White:

At Rodman Street east along the Horace Harding Expressway to the Clearview Expressway north to the Cross Island Parkway, then east to 14th Avenue, south to the Whitestone Expressway, east along 20th Avenue to Parsons Blvd. (south) then south along Union Street to 36th Avenue, then west to Northern Blvd., then south along Rodman Street to Horace Harding Expressway.

Manhattan White:

From First Avenue to Fifth Avenue from 14th Street to 96th Street.

Brooklyn Black:

At Ocean Avenue east along Lefferts Avenue to East New York Avenue, east to Broadway north to Park Avenue, west to Tompkins Avenue then south to Myrtle Avenue, west to Prince Street, then north to Johnson Avenue, east to Bridge Street, south to Fulton Street, then south along Flatbush Avenue to 6th Avenue, south to Sterling Place, east to Vanderbuilt Avenue south along Washington Avenue to Ocean Avenue.

Bronx Black:

At 170th Street South along Morris Avenue to 151st Street, east to 3rd Avenue then south to 149th Street, west to Prospect Avenue north to 163rd Street, east to Union Avenue, west along 165th Street to Tiffany Street, north to Prospect Avenue, north to Crotona Pk. east to 3rd Avenue, north to 171st Street, south along Clay Avenue to 170th Street, west to Morris Avenue.

Queens Black:

At 136th Avenue east along Conduit Avenue to Springfield Blvd., north to 140th Avenue, west to Southgate then north to 137th Avenue east to Springfield Blvd., north to Linden Blvd. east to Francis Lewis Blvd. north to Jamaica Avenue west to the Van Wyck Expressway south to 136th Avenue then south to Conduit Avenue.

Manhattan Black:

At Cathedral Pkway north along Amsterdam Avenue to 159th Street east to St. Nicholas Avenue north to 165th St. east to Edgecombe Avenue south to 156th St. then east to Harlem River Drive north to the Franklin Delano Roosevelt Drive south to 134th St. south to 110th St. then east to Amsterdam Avenue and Cathedral Pkway.

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