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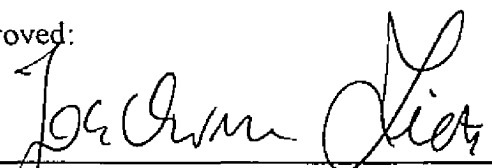
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Factors Narrowing Interethnic Occupational Differences. How Important is
Education?

Annabel Antoniou Droussiotis

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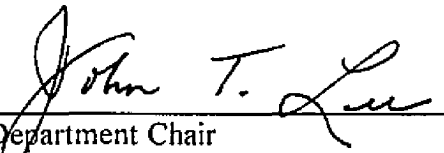
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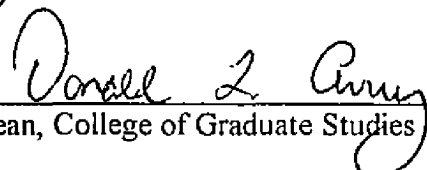
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ABSTRACT

FACTORS NARROWING INTERETHNIC OCCUPATIONAL DIFFERENCES: HOW IMPORTANT IS EDUCATION?

By Annabel Antoniou Droussiotis

The purpose of this study is to determine which factors assist in narrowing interethnic occupational differences. Particular attention will be paid to the role of education. Two educational variables are examined: the educational level of minorities relative to the educational level of whites, and the overall educational level of the civilian labor force. Education is particularly important since it can be controlled and monitored by the government with more ease than other policy variables.

The data consist of a cross section of 183 U.S. Economic Areas. Independent and explanatory variables reflect certain characteristics of the Economic Areas. The explanatory variables can be categorized into five groups: educational level, human capital accumulation, social status, government action, and other general characteristics of an Economic Area. Occupational attributes are used to aggregate all occupations. Occupational attributes have been constructed in an effort to reflect prestige and satisfaction level of each occupation. This aggregation seems more suitable. The minority groups tested are African-American, Asian-American, and Hispanic-American, and all groups are compared to non-Hispanic whites. Males and females are tested separately. Ordinary least squares (OLS) is employed to describe the associations between independent and dependent variables. Based on t-statistics, restrictions are placed and insignificant variables are dropped from the final model. After correcting standard errors

for heteroskedasticity, the coefficients are standardized for direct comparison of the influence of each explanatory variable.

The results of this study indicate that the educational level of minorities relative to the educational level of whites is the most significant and influential factor in narrowing interethnic occupational attributes. The overall educational level of the civilian labor force is of less importance.

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CHAPTER 1 INTRODUCTION

Interethnic occupational differences are a problem in the United States. These differences bring about inefficiency and unfairness. The root of these interethnic occupational differences is discrimination.¹ Discrimination is the seed of unequal opportunities for those who are affected by it, and the lack of opportunities produces occupational differences, which generate further discrimination.

Many studies have tried to measure the effects of discrimination. The results show that discrimination induces wage differentials between minority groups² and the dominant group, and also division of occupations into those predominantly held by the dominant group or by the minority group. Discrimination is not something that can be ignored. Studies suggest that discrimination can be attributed with 25 percent of interethnic earnings differences. The remaining 75 percent of the earnings differentials can be explained by differences in human capital³ (Amacher and Ulbrich, 1989). These differences in human capital, though, could themselves be attributed to discrimination, since members of ethnic minorities may face restricted access to education, training, and entry-level jobs.

¹ Discrimination is defined as "action carried out by members of the dominant group, or their representatives, which have a differential and harmful impact on members of subordinate groups. Minority and majority groups suggest racial and ethnic hierarchy" (Feagin, 1984).

² A minority group is a group that: a. suffers discrimination and subordination within a society, b. that is set apart in terms of physical or cultural traits disapproved by the dominant group, c. that is a unit with a sense of collective identity and common burdens, d. whose membership is determined by the socially invented rule of descent, and e. that is characterized by marriage within a group. The existence of a minority group, marks the dominance of a majority group which declares the existence of racial and ethnic stratification; a hierarchical system within the society (Feagin, 1984).

³ Human capital is made up of the educational level, the training level, and the job experience of the individual (Kimenyi, 1995).

Discrimination in the labor market channels workers by race or sex into occupations that are considered appropriate for the particular group. For example, females are often directed into nursing, primary and secondary education teaching, and secretarial jobs. Many personal service occupations are primarily held by certain minority groups. Blacks are concentrated in low-paying service and blue collar occupations (Amacher and Ulbrich, 1989).

The existence of discrimination has many drawbacks for society. Discrimination brings about inefficiency and misallocation of resources. Myrdal (1944) believes that by discrimination the entire society suffers. Denial of decent education and job training, and discrimination in employment hurt the whole society. When job positions are filled with white males who are not best-fitted for the jobs, society suffers inefficiency; as a result, some people are placed in occupations for which they are not qualified and others remain unemployed or underutilized. Many potential gains available through specialization according to comparative advantage are lost and the total value of output is less than it would be if performance alone was the prime employment criterion (Amacher and Ulbrich, 1984). When the labor force is utilized to its full potential, the whole society gains. Productivity increases, people derive more satisfaction from their work, and profits are maximized (Myrdal, 1944).

With discrimination, there is also an issue of fairness. Race and gender discrimination restrict opportunities for minorities and women. These subgroups are not able to apply their full human capital (Kimenyi, 1995). In past societies, such as aristocratic societies, people were born into different classes and castes, and their

socioeconomic status was given to them by birth. Their position in the society was ascribed. An aristocrat was always an aristocrat and would never become a peasant no matter how he/she performed or how much he/she achieved in his/her lifetime. The same was the case for peasants. Once born into the peasant caste, no matter how productive, intelligent or innovative, one could not change classes and become aristocratic. As the systems moved from closed, caste, or aristocratic, to a more open, industrial, modern, or capitalistic society, people were able to move from one socioeconomic level to the next based on their achievements. In modern societies, socioeconomic level is based on an individual's achieved characteristics rather than ascribed characteristics. Therefore, it seems reasonable that modern societies have the potential of erasing discrimination (Gilbert and Kahl, 1982).

However, discrimination still exists even in modern economies. This is due to gender and ethnic subgroups not being offered equal opportunities. Geographical segregation in public schooling (mandatory attendance zones for example) restricts the opportunities of those born in poor neighborhoods for a competitive education. Therefore, access to good quality education is not available to all. For some, inequality in opportunities for education results in ethnic differences even before entering the labor market (Kimenyi, 1995). Because of this division in education, some subgroups are unable to maximize their potential.

Poverty is also a problem that derives from discrimination. Kimenyi (1995) suggests that discrimination is a credible reason for poverty among minority groups. With poverty, opportunities are restricted and investment in human capital is limited. As a

result, restricted opportunities beget more poverty, more poverty diminishes investment in human capital, and the inability to compete in the labor market causes more discrimination.

Could the interethnic occupational differences be attributed to reasons other than discrimination or productivity? Myers (1989) suggests that for some blacks unemployment is voluntary. He suggests that individuals make rational choices, i.e., individualistic, self-interested decisions. For example, according to Myers, many blacks choose to collect unemployment benefits rather than work. The benefits are larger and easier to collect than work.

These preferences, though, may be attributed to discrimination. When opportunities for upward mobility are restricted or more difficult to achieve, nontraditional workers may be discouraged from seeking employment or even unable to find access to a starting point. The existing discrimination has a negative effect on self-esteem, and on the self-actualization process for those who are affected by it. It may be easier, or even preferred, for minorities to choose a career which is not challenging, rather than be faced with discrimination and difficulties throughout their education and/or career.

Capitalism

Capitalism, which enables the individual to reach any socioeconomic level, might tend to erase interethnic differences. However, some authors view capitalism as a system ruled by greed through which discrimination arises. The effect of capitalism is controversial.

Becker (1971) is one of the authors who strongly believes in the ability of capitalism to remove discrimination. He believes that all discrimination will cease when racial groups are left alone to be influenced by market forces. First, he suggests that intense close contact in the market place will allow people to become familiar with each other, and each group will come to appreciate more of their own physical and social characteristics once they are exposed to other groups. Second, discrimination might persist through utility maximization but not profit maximization since there is a social, psychic, and monetary cost to discrimination.

Employers will maximize profits by turning to cheap labor, regardless of its ethnicity. Even the arrival of the first Asian immigrants was the result of high demand for cheap labor (Feagin, 1984). Producers turned outside of the U.S. economy in order to meet their demand without taking into consideration social or ethnic criteria. Therefore, some economists refuse to accept that discrimination can persist if market forces are left alone, because they believe that in a competitive market profit maximization would be the sole objective. In competitive markets, producers and consumers are numerous. Under the Neoclassical model, the prices of products and the quantity produced (in this case, the wages and the quantity of the labor force) are all determined by the market. No single individual can influence the prices in perfect competition, whether in product or labor markets (Darity, 1989). Profit motivated entrepreneurs would hire nontraditional workers when demand for goods increases. Therefore, profit would work as a instrument to narrow discrimination. Profit seeking is vigorous, ensuring that people are uniformly paid the amount that their labor is worth (Byrns and Stone, 1992).

On the other hand, some thinkers suggest that discrimination does occur under capitalism. They believe that some distinctions cannot easily be erased, even in a capitalistic society. Authors such as Gilbert and Kahl (1982) suggest that competition for the same resources between different ethnic groups helps to develop stratification within an economy. A stratified system divides the people based on economic differences within societies. A stratified society is characterized by inequality, and people within the society are considered as being on a higher level or lower level (Gilbert and Kahl, 1982). The United States is an example of a stratified society, in that, it places people into classes based on their socioeconomic level.

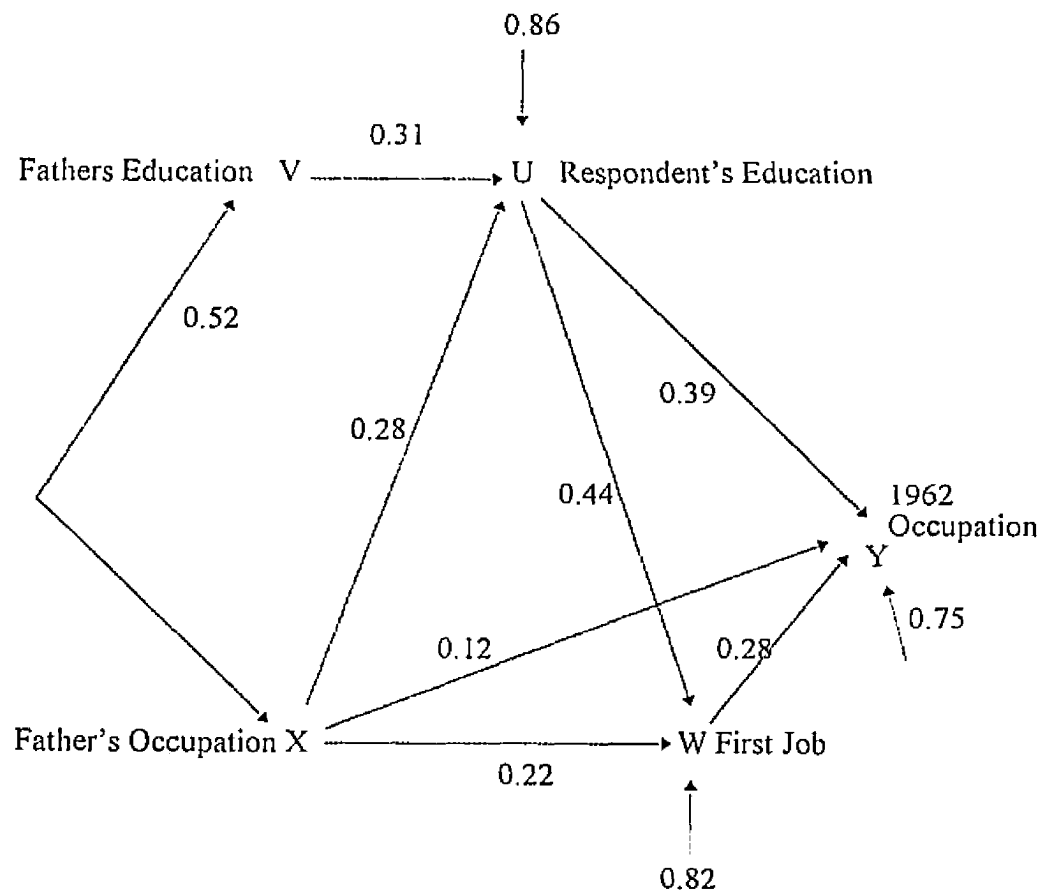
One of the reasons why differences among ethnic groups cannot be easily erased is because the educational levels of each group differ. Ethnic groups have experienced unequal access to education. During the 19th century, teaching slaves was prohibited. When access to education was finally allowed, inferior facilities were available as a result of segregation. Even today, as mentioned earlier, segregation exists due to the establishment of mandatory attendance zones. Students from a particular neighborhood can choose from only a few schools, usually those close to their neighborhood. This promotes segregation (Kimenyi, 1995). The existence of unequal access to education surfaces in modern societies in the form of occupational differences. Thus occupational differences may not be attributed just to employment discrimination, but also to the inability of minorities to acquire competitive levels of education.

Another reason why differences among ethnic groups cannot easily be erased is the influence of family background on the educational level and the occupation of the child.

Blau and Duncan (1967) tried to measure how many people followed their father's occupation. They found that 19 percent of managers' sons also became managers. For 1973, Featherman and Hauser (1978) found that 25 percent of the managers' sons became managers, and 26 percent became professionals. So 50 percent of the managers' sons gained top positions (Figure 1). The majority of the sons whose fathers had a nonmanual occupation followed their parents path, as did the sons of fathers whose jobs required manual labor (Blau and Duncan, 1967). Twenty percent of factory workers' sons stayed at the same level, 38 percent of factory workers' sons rose to a higher level in the blue-collar world and 35 percent achieved white-collar positions. Only seven percent slipped below their fathers' levels. Overall, 49 percent of the sons moved up, 23 stayed at the same level as their father, and 19 percent moved to a lower level. Blau and Duncan's results indicate that seventeen percent of the variance of the occupational status of sons can be accounted for by the occupational status of the father. Father's status explains 19 percent of the son's educational achievement. Father's education and occupation had equal influence on son's education (Gilbert and Kahl, 1982). Further research on the subject shows little change in the decade following Blau and Duncan's study. Therefore, even though an economy may be capitalistic, there is still a large influence from the socioeconomic level of the family. These interethnic occupational differences may not be attributed solely to discrimination and differences in human capital, but also to the influential factor of the parents' occupation and education.

Even Becker (1971) suggests that discrimination may persist under capitalism, arguing that this is due to utility maximization. Some employers may derive utility from

Figure 1
Path Coefficients among Five Variables,
Fathers and Sons



Source: Blau and Duncan (1967): p. 170.

Note: Arrows represent direction of causality; arrows without previous ties indicate unexplained influences up to that point; numbers are correlation coefficients.

discriminating when they believe in the inferiority of other ethnic groups. Therefore, employers may choose to hire traditional employees in order to maximize utility, even if they are not best-fitted for the job or as cost-efficient.

The Effect of Circular and Cumulative Causation

Finally, interethnic differences may be hard to erase since the existing occupational distinctions reinforce racism which reinforces further occupational distinction. Myrdal (1957) believes that if an economy is left without government intervention, inequalities will begin to increase. He does not believe that, if left to market forces, the labor market will reach equilibrium without discrimination. He bases his belief on the process of cumulative causation, that is, the impact of two variables on each other. As an example, Myrdal (1957) explains the effect of poverty and disease. Poverty breeds disease. The sick become poorer from lack of work. The malnutrition, living conditions, etc., resulting from poverty, stimulate further disease, creating a vicious circle. Myrdal suggests that the cumulative process presses levels downwards. As a result of this cumulative causation, the social system does not have the tendency to stabilize itself. On the contrary, desirable outcomes become further removed from reality.

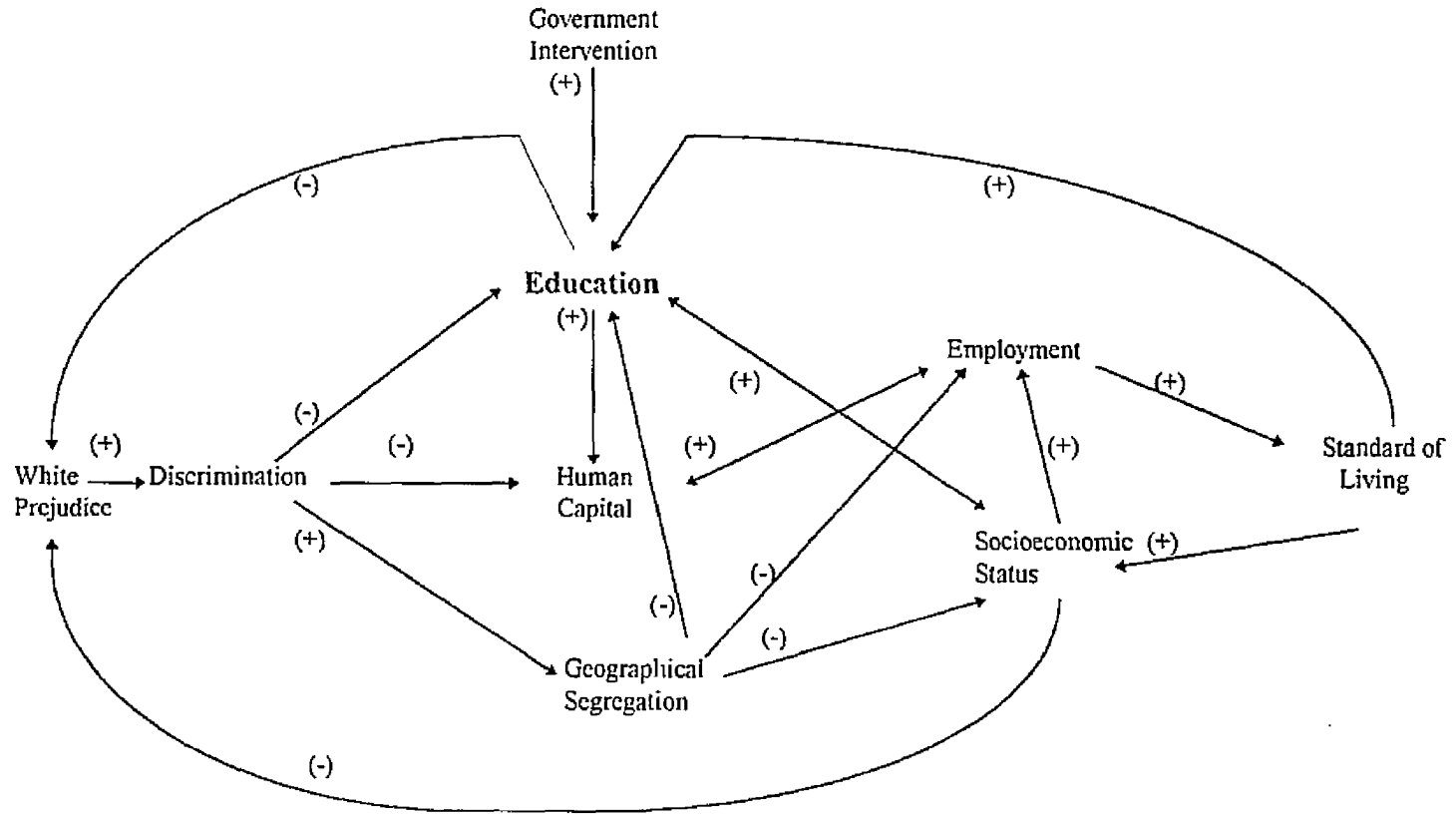
Myrdal himself offers that "white prejudice" gives rise to discrimination against blacks. This produces a low standard of living. The low standard of living engenders lower levels of education, ignorance, superstition, poor family relations, and criminal behavior. These, in turn, strengthen white prejudice. This is the result of cumulative causation: white prejudice and low standards of living for blacks contribute to each other, making the gap larger and larger. Myrdal (1944) proposes that through government

intervention, an increase in the income level of blacks would enable them to acquire higher levels of education and this in turn would diminish discrimination, helping interethnic differences to narrow eventually. A necessary key to success, according to Myrdal (1944), is government intervention. An increase in the employment level of blacks, for example, would increase their standard of living. An improved standard of living would provide the springboard to advancement. This advancement will change the view of whites towards blacks, and so on.

Figure 2 attempts to summarize some of the arguments of this chapter. The system of circular and cumulative causation depicted can be seen as beginning with white prejudice. Prejudices are “fixed ideas in other people’s mind -ideas *with which* they think without being aware they are doing so” (Schumacher, 1973). Discrimination, as mentioned earlier, is “action carried out by members of the dominant group....” (Feagin, 1984). Therefore, prejudice exists even before discrimination is expressed. Discrimination causes: geographical segregation (whites may not want minorities in their neighborhood); unequal access to competitive levels of education; and low levels of human capital, as a result of unequal access to opportunities. When the educational level and human capital accumulation of a group is low, this will have a negative effect on their employment. Also, low levels of education, noncompetitive human capital, and segregated neighborhoods create an inferior socioeconomic status for the minorities.

The socioeconomic status of the present minorities will be the family background of the existing young generation. As a result of low employment, income levels become

Figure 2
The Effect of Education Under Circular and Cumulative Causation



Notes: Arrows represent direction of causality. The signs represent the direction of influence: (+) means an increase in the affected node; (-) shows a decrease in the affected node, for an increase in causing node.

lower. Low employment and inferior socioeconomic status lower the standards of living of minorities. Low standards of living lie at the root of “ignorance, superstition, health deficiencies, dirty appearance, disorderly conduct, unstable family relations, criminal behavior,” and so on (Myrdal, 1957). All these characteristics, which result from low standards of living, will be the next generation’s family background and socioeconomic status. In addition, these characteristics provoke antipathy for minorities which will be expressed in the form of discrimination. A lower standard of living will result in less education which in turn will inflate discrimination. So, finally, the circle has been completed and the minorities are once more faced with discrimination and low levels of education which generate more prejudice.

Myrdal (1957) is convinced that if minorities are left without any government intervention, the cycle will continue to inflate the differences between the white group and the minority groups. He states that “there is no such tendency towards automatic self-stabilization in the social system”. Myrdal suggests that opposing forces will balance each other and this will keep the system at equilibrium. The high interdependence of all the variables on each other will assist the government in pulling the whole system into the desirable direction. The change of one variable will induce a change in the rest of the system. Exogenous changes have the ability to direct the system towards development.

Let’s take education as the variable to change. If government enforces easier access to education for minorities through the provision of scholarships and financial aid or subsidies, education will influence the other variables. In figure 2, a rise in education increases human capital. Higher levels of human capital and education ensure that

minorities are competitive in the labor market and, as a consequence, employment will grow. At the same time, higher levels of education and human capital contribute to higher socioeconomic status (which is the essence of the next generation's family background). Higher socioeconomic status fosters higher levels of employment which effectuates improved standards of living and higher income. In addition, higher socioeconomic status reduces prejudice. Education, as just mentioned, increases human capital, and both raise the employment level and the socioeconomic status of minorities, which consequently increases the standard of living for minorities and their income, resulting overall in less discrimination and even higher levels of education. Education also has an effect on the initial causes of discrimination. As mentioned earlier, prejudice induces discrimination. "Prejudice is generally applied to ideas that are patently erroneous and recognizable as such by anyone except the prejudiced man" (Schumacher, 1973). Education, according to Schumacher (1973) "is the transmission of ideas which enable man to chose between one thing and another". Therefore, education not only can help minorities achieve competitive human capital and socioeconomic status, but also can influence the dominant group's false image of minority groups and decrease discrimination. The outcomes of less discrimination can be derived from Figure 2.

This study focuses on the importance of education in narrowing interethnic occupational differences. Education is a major determinant of human capital which kindles productivity. In addition, accumulated human capital (as a result of higher educational levels), eventuates in equality of opportunities. As a result, employment of minorities escalates. Furthermore, higher educational levels increase the overall

productivity of the labor force and society becomes more efficient as the returns to production increase (Kimenyi, 1995).

The increased status of minorities will give rise to social gains for the whole society (Myrdal, 1957). Human capital accumulation is an individual benefit which, however, spills over to the whole society. Even though the individuals with high human capital can enjoy the fruits of their education, education will in turn reflect on the whole society. Education is considered a public good. When the educational levels increase, the public is more informed and able to vote more objectively, there is greater political participation; research and development can be more elaborate and extended, antisocial activities are reduced, and crime may be avoided (Amacher and Ulbrich, 1992).

Education is particularly suitable as a policy variable since it can be monitored and controlled by the government. Government can easily intervene in matters that affect education. Education is a major share of government spending (U.S. Census, 1994), therefore, the influence of education is a major concern to the government. Increasing the educational levels of minorities does not disturb the allocative efficiency of labor markets, therefore markets can continue to run smoothly. Increasing the level of education for minorities will result in equal opportunities for employment, housing, and overall socioeconomic status of minorities. The increased socioeconomic status of minorities will eventually result in better family background for future generations. Finally, education can reduce prejudice. Education, therefore, is an intelligent starting point in attempting to narrow interethnic occupational differences.

Chapter 2 outlines the empirical procedure taken to determine the importance of education on interethnic occupational differences. Chapters 3, 4, and 5 discuss the results of the empirical work. Chapter 3 focuses on African-Americans, Chapter 4 discusses Asian-Americans, and chapter 5 discusses Hispanic-Americans. Chapter 6 summarizes the overall importance of education in narrowing interethnic occupational differences.

CHAPTER 2

DATA PREPARATION AND RESEARCH METHODOLOGY

2.1 Data Preparation and Sources

This Chapter will introduce the data used for this study, the model, and a detailed explanation of the importance of each variable used. As mentioned in Chapter 1, the purpose of this study is to determine the factors that help narrow interethnic occupational differences. Interethnic differences in occupational attributes are used as the dependent variables in the empirical work. Occupational attributes are constructed by Clymer and McGregor (1992) in an effort to display all the occupations in a more aggregate and comprehensive way. The independent variables used are variables that have been determined by other studies to be significant in explaining interethnic or intergender occupational differences. Particular attention will be paid to the role of education. The data set consists of a cross section of 183 U.S. Economic Areas. Therefore, the independent and explanatory variables reflect certain characteristics of the Economic Areas since each observation relates to an Economic Area. The following sections describe in some detail the concept of occupational attribute, the nature of Economic Areas, and the variables used in the model.

Economic Areas

This study focuses on the occupational attributes of racial groups for the 183 U.S. Economic Areas (EA). Each Economic Area is defined by the Bureau of Economic Analysis (United States Department of Commerce 1990), and consists of an important urban county surrounded by rural counties. The boundaries of each EA are determined by the population who drives to work: e.g., downtown New York City and all the surrounding counties containing commuters to that area. The reason for choosing EAs versus counties or Metropolitan Statistical Areas (MSAs), is because there is almost no inter-EA mobility. On the other hand, at the county level there is a lot of intercounty

mobility; for example, many of the people that live in a rural county are probably working in a nearby urban county. As a consequence, county-level data presents problems, since counties are very open economies, with important links to adjacent counties. This study aggregates the 3,100 U.S. counties into 183 EAs. The Bureau of Economic Analysis defines EAs as relatively self-contained local economies. Therefore, due to the nature of the EA border division, the place of residence and the place of work are the same. This allows a wide range of data to be applied, including both demographic information (based on place of residence) and economic information (based on place of work). Variables in the regressions consist of both demographic and economic information.

Ethnic Groups

Minority ethnic groups are evaluated against white non-Hispanics. Minority groups used here are non-Hispanic blacks, non-Hispanic Asians, and Hispanics. Each group is compared to the non-Hispanic white group since non-Hispanic whites are the dominant group. Males and females are tested separately. Non-Hispanic black males will be tested against non-Hispanic white males, non-Hispanic Asian males versus non-Hispanic white males, and Hispanic males versus non-Hispanic white males. In addition, non-Hispanic black females will be tested against non-Hispanic white females, non-Hispanic Asian females versus non-Hispanic white females, and Hispanic females versus non-Hispanic white females. The term blacks and African Americans will be used interchangeably referring to non-Hispanic blacks. In addition, Asians is used to refer to non-Hispanic Asians, and whites refers to non-Hispanic whites.

By finding the differences in occupational attributes of the different racial groups, this study will determine what factors may narrow interethnic occupational differences. The reason why the comparisons of ethnic differences compares all minority groups to whites, is because whites are considered to be the least discriminated-upon group. Comparison against this group should therefore show existing patterns of discrimination

or differences. In addition, the males and females are tested separately due to possible ethnic differences in gender discrimination.

Occupational Attributes

Occupational attributes are constructed by Anne Clymer and Elizabeth McGregor (1992). The original data give the number of workers in 512 occupations by ethnic group. Obviously, some aggregation is needed to condense this information into a comprehensible measure of interethnic differences. The classification into attributes is borrowed from work directed at high school career guidance counselors (Clymer and McGregor, 1992). These attributes emerge as meaningful dimensions in which to describe occupations to young Americans concerned about issues such as work satisfaction and prestige. Clymer and McGregor (1992) assign 18 general job characteristics in a manner that each job displays one or more of the 18 characteristics. For example, "accountants and auditors" perform 3 of the 18 characteristics: "research and compiling", "analyzing and evaluating" and "troubleshooting". The occupational attributes are described in Appendix A. This study will only use 16 of the 18 attributes. The ones excluded are "educational level" and "geographical concentration". Clymer and McGregor (1992) arranged the occupational attributes in this manner by questioning BLS experts in each occupational area. The categorization of the 512 occupations into occupational attributes might be better than the most obvious alternative aggregation scheme, which would simply sum occupations into gross categories such as managerial, service, crafts, etc. Each of these categories would conceal a great deal of variation in occupational attributes (e.g. some service jobs would involve supervising, some professional jobs would require physical stamina).

By focusing on occupational attributes, it will be easier to see what kinds of differences exist among the demographic groups. Are blacks predominantly working in occupations which require repetition, and part-time, or involve physical stamina? Are whites predominant in jobs that require public contact, artistic talent, research and

compiling? Using the occupational attributes would give a more detailed picture of the differences of the racial groups in their job activities.

Details of Data Construction

The Equal Employment Opportunity Files (EEOF) provide data for the Civilian Labor Force (CLF), by sex and major ethnic groups in each occupational category. The EEOF lists 512 occupational categories for the U.S., states, MSAs and counties. Since the occupational attributes created by Clymer and McGregor were drawn from the Bureau of Labor Statistics (BLS) which lists only 200 occupational categories, the 200 occupational categories had to be adjusted to match the 512 occupational categories of the EEOF. In most cases, the BLS's categories were more general and included 2 or 3 of EEOF's categories in one. This methodology has been introduced by Eff (1994).

The result of this adjustment is a 512X16 matrix. The 512 rows represent each occupational category and the 16 columns each occupational attribute. Dummy variables were used to represent the occupational attributes possessed by each occupation. For example, in the case of the "accountants and auditors" the value of one is given for each attribute that accountants and auditors possess and the value of zero for all other attributes.

A second matrix was created from the EEOF having 512 rows and 183 columns. The rows represent the occupational categories and the columns represent the 183 EAs. Each number represents the number of employees from each EA that work in a particular occupation. This matrix was made separately for white males, black males, Asian males, Hispanic males, white females, black females, Asian females, and Hispanic females.

By premultiplying the first matrix (512x16) with the transpose of the second matrix (512X183), a third matrix is created (183X16) in which each row represents an EA and each column an occupational attribute. The first cell of the matrix shows how many people from Bangor, Maine (Economic Area 1) are engaged in an occupation which requires research and compiling (occupational attribute 1). This final matrix was adjusted

to show a percentage instead of an absolute value. In other words, the percentage of people who were engaged in a job with a particular attribute in the related EA. For that, each number is divided by the total number of the racial/ethnic group represented in the labor force (Eff, 1994).

Further modification is necessary for the variation in occupational attributes among demographic groups to be shown. The variation is calculated using the following formula:

$$A_{KSi} = \frac{\frac{e_{KSi}}{E_{Ki}} - \frac{e_{wSi}}{E_{wi}}}{\frac{e_{wSi}}{E_{wi}}} \quad (1)$$

e_{KSi} = number of members of ethnic group K in occupations with attribute S in Economic Area i

e_{wSi} = number of whites in occupations with attribute S in Economic Area i

E_{Ki} = number of members of ethnic group K in civilian labor force in Economic Area i

E_{wi} = number of whites in civilian labor force in Economic Area i

This matrix is a 183X16 matrix, each number representing the percentage deviation between two racial groups.

Comparing the variation in occupational attributes among the different demographic groups shows whether an attribute is predominantly black, white, Asian or Hispanic. So the final result consists of 6 matrices (183X16) for the variation in occupational attributes between the following groups: Hispanic versus white males, black versus white males, and Asian versus white males; also the above variations are calculated for the females.

Table 1 shows the percent deviation of each ethnic group compared to whites for the U.S. as a whole. When the value is negative, the attribute is predominantly white. As can be seen from equation 1, when the value is positive the attribute is predominantly performed by the ethnic group tested.

	Hispanic Males	Black Males	Asian Males	Hispanic Females	Black Females	Asian Females
Research and Compiling	-53	-48	37	-32	-29	5
Analyzing and Evaluating	-52	-50	12	-36	-28	0
Troubleshooting	-32	-29	-7	-22	-21	-5
Artistic Expression	-48	-57	-9	-43	-68	-22
Instructing	-54	-45	14	-41	-26	-14
Treating and Advising	-57	-36	18	-39	3	-11
Supervising	-43	-46	-23	-31	-35	-22
Persuading	-49	-52	-25	-31	-38	-26
Public Contact	-30	-24	-1	-21	-16	-14
Mechanical Ability	-1	-16	-29	80	55	85
Operating a Vehicle	27	20	-54	30	3	-55
Repetitious	52	71	10	29	22	17
Mobility	4	-10	-51	20	6	-36
Physical Stamina	28	16	-46	44	39	9
Part Time	29	39	46	6	17	6
Irregular Hours	5	3	5	10	12	10

Source: U.S. Bureau of the Census. 1990 Census of Population and Housing: Equal Employment Opportunity File. Washington, DC: Government Printing Office, January 1994.

It is easy to see which attributes are predominantly held by a minority group or predominantly held by whites. Hispanics and blacks seem to be predominant in attributes that do not require high levels of education. Whites, in comparison with blacks and Hispanics, are predominant in white-collar jobs. Asian groups, both male and female, behave quite differently from blacks and Hispanics. For example, in "research and

compiling" Asians are predominant (especially the male group by a large difference), whereas blacks and Hispanics are far less numerous than whites for the same attribute.

2.2 The Model

In this study, Economic Areas' characteristics are tested on how they affect occupational differences between ethnic/racial groups and gender. The main emphasis is to determine how education affects interethnic differences.

2.21 The Hypotheses:

1. *Ceteris paribus*, places with narrower interethnic educational differentials would have narrower interethnic occupational differentials.
2. *Ceteris paribus*, places with higher overall educational levels would have narrower interethnic occupational differences

To test these hypotheses, the following regression model is used:

$$A_{KSi} = \beta_{S0} + \sum_{j=1}^{18} \beta_{Sj} * X_{Sji} + e_{Si} \quad (2)$$

where:

- A_{KSi} = Percent deviation of the tested ethnic group K from the white group in occupations with attribute S in Economic Area i
 X_{Sji} = Explanatory variable j for occupational attribute S in Economic Area i

There are 16 attributes which would make 16 regressions for each ethnic group for both male and female groups. Regressions will be made for Hispanic males versus white males, black males versus white males, and Asian males versus white males. In addition, regressions will be made for Hispanic females versus white females, black females versus white females, and Asian females versus white females.

The regressions use 1990 levels, not time series. This model cannot use time series since data from earlier censuses cannot be compared. The explanatory variables were chosen to reflect factors within Economic Areas that may influence the occupational characteristics of the ethnic groups. Table 2 briefly explains the explanatory variables X_{sji} and their sources.

The first two variables are used to test the two hypotheses above. The remaining variables represent the *ceteris paribus* of the hypotheses.

Table 2 Explanatory Variables		
Explanatory Variables	Description	Source
EDDIF_K	Percent difference between the percent of ethnic group K and the percent of whites who have 4 or more years of college education	EEOF
ECLF	Percent of civilian labor force with four years or more of college education	EEOF
DIF40_K	Percent difference between 1) the college-educated percent of ethnic group k's workers who are over 39 years of age; 2) the college-educated percent of over 39 white workers	EEOF
POC_K	Percent of all workers in ethnic group K over 39 years of age with college degree	EEOF
MFC_K	Percent of ethnic group K's households consisting of married couples with children	STF3
PDEM_k	Percent of civilian labor force that belongs to ethnic group K	EEOF
POTH_K	Percent of CLF consisting of other nonwhite ethnic groups	EEOF
PSAME	Percent of over age 5 population living in the same house from 1985 to 1990	STF3
CP	Serious crimes per 1000 population (average 1980-84)	USAC
GP	Growth rate of private sector employment 1969-89 (equivalent years in the business cycle)	REIS
XX_S	Percent of civilian labor force in occupations possessing attribute S	EEOF
PG90	Percent of 1990 employment in government civilian jobs	REIS
GG	Growth rate of government civilian employment 1969-89 (equivalent years in the business cycle)	REIS
EF88	Average number of employees per firm, 1988	USAC
PMIL90	Percent of labor force in the military	EEOF
CLF	Civilian labor force	EEOF
NORTH	Dummy variable for the Northeast region of the U.S.	Dummy
SOUTH	Dummy variable for the Southeast region of the U.S.	Dummy

Sources: REIS: U.S. Bureau of Economic Analysis: Economics and Statistics Administration. Regional Economic Information System 1992. Washington DC: Government Printing Office, May 1994.

EEOF: U.S. Bureau of the Census. 1990 Census of Population and housing: Equal Employment Opportunity File Washington DC: Government Printing Office, January 1994.

STF3: U.S. Bureau of the Census. 1990 Census of Population and Housing Summary Tape File 3C Washington DC: Government Printing Office, May 1993.

USAC: U.S. Bureau of the Census. USA Counties. Washington DC: Government Printing Office, June 1992.

2.3 Explanatory Variables

Following are the formulas for each explanatory variable and a detailed explanation describing each. In the equations the following symbols are used:

E	=	employment
w	=	whites
i	=	Economic Area
K	=	ethnic group
40<	=	39 years or older
C	=	college-educated civilian labor force
CLF	=	civilian labor force

$$EDDIF_K = \frac{(C_{K,i,90} / CLF_{K,i,90}) - (C_{w,i,90} / CLF_{w,i,90})}{(C_{w,i,90} / CLF_{w,i,90})}$$

$EDDIF_K$ is one of the two most important variables in this study, since one of the hypotheses tests whether smaller educational differences would narrow interethnic occupational differences. For attributes which are traditionally represented by the ethnic group tested, A_{KSi} would be positive. In this case, if the coefficient of $EDDIF_K$ is negative, it means that an increase in the educational level of the ethnic group K would reduce the percent deviation of the occupational attribute between the ethnic group and the white group. If the $EDDIF_K$ coefficient is positive, it would imply that an increase in the educational level of the ethnic group K would increase the percent deviation between the ethnic group and whites. In the case where the occupational attribute is predominantly white and therefore A_{KSi} is negative, an increase of $EDDIF_K$ for a positive coefficient would narrow the percent deviation whereas an increase of $EDDIF_K$ for a negative coefficient would increase the percent deviation. For convergence, then, the coefficient should have the opposite sign from the percent deviation. This variable is expected to be the most significant in most of the regressions. For attributes that do not require a high educational level such as mechanical ability or operating a vehicle, $EDDIF_K$ may not be an important determinant of interethnic occupational differences. However, for other attributes such as research and compiling or analyzing and evaluating, $EDDIF_K$ should be

very important. Research has produced conflicting results on the effect of education on interethnic occupational differences.

Some studies show the importance of education on narrowing interethnic occupational differences. Fuller and Shoenberger (1991) test gender differences. They find that as females achieve higher levels of education, take more internships, and select college majors in high paying areas, the earnings differential has narrowed. Christofides and Swidnisky (1994) find that almost 30 percent of the affected wage differentials between white males and other groups can be attributed to productivity related factors (education is a productivity related factor). Bonke (1992) finds that 25 percent of the wage differential between males and females is attributed to different human capital resources. Feagin (1984) states that Hispanics suffer discrimination mainly as a result of their low levels of formal education. He states that Hispanics are penalized more for their lack of fluency in the English language than whites at the same level of fluency. These studies reinforce the theory that as education increases, interethnic and intergender differences should narrow.

Other studies show that education does not narrow interethnic occupational differences. Cotton (1990) finds that in upper level white-collar occupations whites earn substantially higher salaries than blacks, suggesting that even when educational levels are comparable, interethnic differences continue to occur. Cotton's findings show that racial earnings differences within occupational categories cannot be entirely explained by human capital differences. Vertugo (1992) also finds that non-Hispanic white males receive larger marginal returns to their human capital than either blacks or Mexican Americans. Therefore, it seems reasonable to assume that whites have more incentive to acquire education, and would be expected to have higher levels of education. Gyimah, Fichtenbaum, and Willis (1992) find labor market structure to be more important than college education in explaining the intergender wage gap. Cotton's, Vertugo's, and

Gyimah, Fichtenbaum, and Willis's contradict the predictions of this study and Fuller and Schoenberger's, Christofides and Swidnisky's and Bonke's findings reinforce them.

$$ECLF = \frac{C_{i,90}}{CLF_{i,90}}$$

ECLF: This is the second most important variable in this study, testing the second hypothesis: whether the overall level of education should lower interethnic differences. Schumacher (1973) considers the first and foremost task of education to be the transmission of values. He suggests that the essence of education is to transmit values which become part of the people's mental make up. Since people think with ideas, education can provide the ideas with which people think. Schumacher (1973) suggests that some fixed ideas are evident in people's minds which can be noticed in actions that people are not even aware of doing. These actions he calls prejudices. He claims that "prejudice is generally applied to ideas that are patently erroneous and recognizable as such by anyone except the prejudiced man" (Schumacher, 1973). He believes that the way people experience and interpret the world depends very much on the kind of ideas that fill peoples' minds. Education, therefore, would fill the minds of people with ideas that do not include prejudice and that enable man to choose between one thing and another. As Oretaga put it: "to live a life which is something above meaningless tragedy or inward disgrace" (Schumacher, 1973). Education is believed to provide societies with real values. It is reasonable to assume at this point that places with a more educated labor force, would experience fewer interethnic differences. The coefficient should have a sign opposite to the percent deviation for each attribute. The more educated the people in the EA are, the less discrimination there should be.

$$DIF40_k = \frac{(CLF_{K, i, 90, 40 \leq} / CLF_{K, i, 90}) - (CLF_{W, i, 90, 40 \leq} / CLF_{W, i, 90})}{(CLF_{W, i, 90, 40 \leq} / CLF_{W, i, 90})}$$

$DIF40_k$ reflects the percent difference between the ethnic group tested and the white group in the percent of the labor force which is forty years or older. It therefore tests the role of experience in determining occupational differences between the groups. Vertugo (1992), Sexton and Olsen (1994), Christofides and Swindinsky (1994), and Bonke (1992) all find that women and minority groups do not utilize their human capital to the extent that white males do. Sexton and Olsen (1994) find that previous training acquired by whites tends to increase earnings in their current job. On the other hand, previous training acquired by blacks has no significant impact on their current earnings. They also find that human capital explains most of the wage gap between blacks and whites. Vertugo (1992) also finds that blacks and Mexican Americans do not utilize as much of their human capital as whites. Both experience and education are part of human capital. When $DIF40_k$ is a large negative number, then attributes that require high levels of experience should be predominantly white, and the coefficient should have a sign opposite to the percent deviation. However, attributes that require lower levels of education and experience should be predominantly held by the demographic group tested, and the coefficient for these attributes should not be as significant. When $DIF40_k$ is low, the two ethnic groups tested should not behave much differently from each other since they possess similar levels of experience.

$$POC_k = \frac{C_{K, i, 90, 40 \leq}}{CLF_{K, i, 90, 40 \leq}}$$

POC_k attempts to capture the effect of parent's occupation on the next generation. This is one of the variables testing family background and socioeconomic status. It also shows the human capital accumulation of these groups. Blau and Duncan (1967) show a very large effect of the father's occupation and education on the son's occupation (refer to figure 1). Gilbert and Kahl (1984) also suggest that family

background and socioeconomic status strongly affect the careers of the children. The coefficient should have a sign opposite to the percent deviation in white-collar occupations, showing that highly educated minorities would experience narrower interethnic differences. In blue-collar occupations, POC_K should not be as significant.

$$MFC_K = \frac{\text{\#married families with children in ethnic group K}}{\text{\#households in ethnic group K}}$$

MFC_K : Hersch (1991) suggests that the presence of children has a positive effect on the wages of both men and women. Korenman and Newmark(1991) find that married workers tend to be located in higher-paying jobs and married men tend to receive higher performance ratings than single men; therefore, they are more likely to be promoted. The coefficient should have a sign opposite to the percent deviation, especially for attributes of white-collar jobs. The Hispanic group is expected to be influenced by this variable. In 1990, 84 percent of Hispanic households were family households (Billingsley, 1992). The higher the MFC_K the lower the percent deviation should be.

$$PDEM_K = \frac{CLF_{K,i,90}}{CLF_{i,90}}$$

$PDEM_K$ reflects the density of a demographic group in a particular area. $PDEM_K$ can influence occupational segregation in two ways. A priori, it is not clear which of these two influences would be more important.

First, it is possible that interethnic differences may narrow in areas with a large minority population. In EAs where the number of minorities is high, firms may employ minorities in positions with attributes such as "supervising", "instructing", "treating and advising" in order to supervise, instruct, or advise people who also belong to the same minority group. Gill (1989) finds that much of the under representation of blacks in

managerial, sales and clerical, and craft occupations can be attributed to employment discrimination. The case will not be the same when $PDEM_k$ is high because subordinates will also be minorities. In this case, the coefficient would have a sign opposite to the percent deviation. Also, minorities would do well in occupations with attributes such as "persuading" and "public contact" because they deal with people of the same group. A white person in a black neighborhood may not do as well in sales as a black person. Customers would trust a person that they can identify with. The coefficient would again have a sign opposite to the percent deviation. In addition, when $PDEM_k$ is high, people tend to stereotype other groups. Feagin (1984) suggests that stereotyping African Americans and Hispanics is a brutal reality in today's world. This stereotyping dates back to the 1700s and still exists in various ways (Feagin, 1984). Stereotyping restricts blacks or Hispanics from being hired on the basis of human capital alone and also restricts them from having access to equal education (Feagin, 1984, and Gill, 1989). In cases where stereotyping influences occupational differences, the percent deviation will have a sign equal to the percent deviation. For example, traditionally black occupations will continue to be held by blacks. Ethnic minorities will find it hard to enter a predominantly white occupational field as a result of being stereotyped with the rest of the ethnic group they to which they belong.

Second, it is conceivable that interethnic differences may narrow in regions with a very small minority population. Myrdal (1944) suggests that blacks should migrate from the South in order to improve their socioeconomic status and avoid racial discrimination which has passed on from one generation to the next. He suggests that blacks could do

better in an environment which is not influenced by discrimination. In some areas, most racial/ethnic minorities may be recent immigrants. These recent immigrants may be professional or other skilled workers. The sign of the coefficient would be the opposite of the percent deviation in attributes such as "research and compiling", "analyzing and evaluating," and "troubleshooting."

$$POTH_{black} = PDEM_{Asian} + PDEM_{Hispanic}$$

$$POTH_{Hispanic} = PDEM_{Asian} + PDEM_{black}$$

$$POTH_{Asian} = PDEM_{black} + PDEM_{Hispanic}$$

$POTH_K$ should reflect the effect on one minority group of the presence of other minority groups. There are two ways that the presence of other ethnic groups could affect minorities. First, Gilbert and Kahl (1984) suggest that the increasing number of immigrants improves the socioeconomic status of locals, allowing them to move up to higher-status jobs. In attributes such as "supervising", "instructing", "persuading", and "treating and advising", the coefficient should have a sign opposite to the percent deviation. Second, the presence of other minority groups may worsen the position of the ethnic group tested, pushing them out of particularly desirable occupations. Daneshvary and Weber (1991) find that immigrants face less discrimination than blacks. In addition, some observers in California, report that the presence of Hispanics worsens the job opportunities of blacks (Davis, 1992). Which of these two effects exerts more influence is an empirical question.

$$PSAME = \frac{\# \text{ persons living in same house since } 1985_{i,90}}{\text{Population}_{i,90}}$$

PSAME: A region experiencing a great deal of change in population seems reasonably to be one in which traditional ways of assessing people -including prejudice-

are less important. Places where PSAME is high are more conservative. This variable tries to see if a high incidence of migration improves or worsens the occupational differences of minorities.

$$CP = \frac{\# \text{serious crimes}_{i,90}}{\text{Population}_{i,90}} * 1000$$

CP: The importance of a high crime rate in an area may not be as obvious at first. In areas where crime is high, the traditional white labor force would not be willing to work. Therefore, one may observe higher numbers of minorities working in those areas. For example, in attributes such as "public contact", or "operating a vehicle", where workers are exposed to situations that may involve danger (e.g. convenience store employees), employers will be willing to employ minorities due to lack of supply from whites. If the percent deviation in these categories is positive (predominantly held by minority groups), the coefficient of CP would have a sign similar to the percent deviation. In attributes such as "mobile", which is in most cases predominantly white, high CP would discourage white workers. Therefore, the sign of the coefficient of such attributes would be the opposite of the percent deviation.

$$GP = \frac{E_{i,89} - E_{i,69}}{E_{i,69}}$$

GP is the growth rate of private sector employment. For **GP** to reduce interethnic occupational differences it should have a coefficient that has a sign opposite to the average percent deviation for each attribute. When the labor market is tight, employers are willing to hire nontraditional workers. Eff (1994) showed that private sector employment growth was the most important factor narrowing intergender occupational differences. Asher and

Asher (1990) test whether excess labor demand is directly related to earnings and the effect of the excess labor demand on gender wage differentials. The authors find that excess labor demand is directly related to earnings and that females are mainly found in occupations with excess labor demand. Since tight labor markets reduce the intergender wage gap, it seems reasonable to assume that in EAs where the growth rate of private sector employment is high, interethnic differences in occupational attributes may also be reduced. So in EAs where demand for labor is high the coefficient of GP should have a sign opposite to the percent deviation. As labor demand increases, nontraditional workers will be hired to meet the demand, reducing occupational differences.

$$XX_s = \frac{CLF_{s,i,90}}{CLF_{i,90}}$$

XX_s shows whether an EA specializes in occupations that involve a certain attribute. This variable deals with an EA having a comparative advantage over other areas due to specialization. In an area where competition is high and specialization is required, the cost of discrimination is high; therefore, it may be less effective for that area to be discriminative. Also, in an area of specialization, demand for labor for the attributes of specialization would be high and employers would be eager to employ nontraditional workers in order to meet the demand. Asher and Asher (1990) find that females are mainly found in occupations with excess labor demand since earnings prove to be directly related to excess labor demand. It appears that tight labor markets reduce intergender wage differences, and it seems reasonable that they may also narrow interethnic differences in occupational attributes. Therefore, in an EA where demand for certain attributes is high, nontraditional workers will be hired. Those occupations with the particular attribute will not be segregated since competition places a high cost on discrimination. The coefficient of XX_s should thus have a sign opposite the average percent deviation for each attribute and should narrow the differences.

$$PG90 = \frac{E_{i, gov' t, 90}}{E_{i, 90}}$$

$$GG = \frac{E_{i, gov' t, 89} - E_{i, gov' t, 69}}{E_{i, gov' t, 69}}$$

PG90 and **GG** should show whether government employment practices reinforce occupational differences or reduce them. The importance of government employment practices is essential for policy implementation. Research has been done to determine the effectiveness of affirmative action planning. Shackett and Trapani (1987) test, among other things, the wage level of government organizations compared to other industries. They find that for males, government organizations pay average wages compared to privately owned unregulated industries. For females, however, government organizations appear to pay higher wages than the privately owned unregulated industries. It appears that government employment reduces intergender wage differences, and it seems reasonable that it may also narrow interethnic differences in occupational attributes. In addition, the treatment of Asian college graduates has improved in federal institutions. In federal service, Asian-Americans are treated as whites, even though their earnings are not quite as high as their white counterparts. (Kim and Lewis, 1994).

$$EF88 = \frac{E_{i, 88}}{\# \text{ firms}_{i, 88}}$$

EF88: This is the number of employees per firm. The importance of this variable is that large firms are more likely to conform to equal employment opportunity regulations (Schoepfle, Perez-Lopez, and Giengo, 1992) and therefore may employ a higher share of the nontraditional labor force. Gyimah, Fichtenbaum, and Willis (1992) find that labor-market "structure" can explain a large portion of the male-female wage gap. The existence of large firms is a component constituting labor-market structure. Since this is proven to explain much of the male-female wage differentials, it seems reasonable that it may also explain interethnic differences in occupational attributes. In this case, in EAs

where the number of large firms is high, equality among the ethnic groups should be more pronounced. The coefficient of this variable should have the opposite sign of the average percent deviation for each attribute, narrowing the occupational difference between ethnic groups.

$$PMIL90 = \frac{\text{MilitaryPersonnel}_{i,90}}{E_{i,90}}$$

PMIL90: The percent of employment in the military should reflect less discrimination. Since there is little or no discrimination in hiring, the Armed Forces are considered a good career for many minorities. (Philips, et al, 1992). Particularly for African-Americans, the military represents an institution that will reward merit in a relatively even-handed fashion (Billingsley, 1992). Hispanics are only a third of the black military labor force, seven percent and twenty-two percent respectively, due to their lack of proficiency in the English language. Nevertheless, the military is considered a great career by both blacks and Hispanics (Philips et al, 1992). In EAs where there are military bases, the whole community may be affected by its presence. In this study, it is the effect of military on the community that is being considered. The people enrolled in the Armed Forces take their families with them. Since there is a high percentage of minorities in the military, their children and spouses will be interacting in the community. Therefore, where there are military bases, there are larger numbers of minorities. The spouses need to work, the children need to go to school. So discrimination may be less in a community where minorities in the military hold positions of influence and power. Unlike whites, both black and Hispanic veterans earn higher levels of income compared to nonveterans (Philips et at, 1992). The military offers minorities an advantageous environment to assist them in later entering the civilian labor force (Billingsley, 1992). The coefficient should have a sign opposite to the percent deviation.

CLF = # of persons in Civilian Labor Force ^{i,90}

CLF reflects the density of the population in an area. In areas where concentration of humans into a city is high, people tend to perceive others more objectively and become emotionally distant. The constant close contact with strangers reinforces the anonymity of people in a large city and discrimination is expected to be less (Simmel, 1950). Becker also suggests that close contact between whites and blacks would eliminate discrimination as the two groups would become more aware of the presence of the other (Becker, 1973).

NORTH = 1 for EA in Northeastern U.S.
 0 otherwise
 SOUTH = 1 for EA in Southeastern U.S.
 0 otherwise

NORTH and **SOUTH**: These variables test the effect of migration. Myrdal (1944) and Smith and Welch (1989) suggest that the migration of blacks from the South would improve their status. Much literature suggests that blacks migrating to regions other than the South can be very advantageous to them. According to these studies, discrimination and segregation in the South was worse than in other regions. Therefore, blacks leaving the South and rural areas would increase their socioeconomic status (Smith and Welch, 1989). Fifty-two percent of African-Americans currently reside in the South (U.S. Census, 1994). The Hispanic group also faces greater discrimination in the South (Feagin, 1984). Feagin (1984) suggests that the further north Hispanics migrate, the higher their earnings. In California, the earnings of Hispanics are substantially higher than in Texas. Currently 30 percent Hispanics reside in the South, and 45 percent in the West

(U.S. Census, 1994). Asian-Americans mostly live in the West: 56 percent of the Asians reside there (U.S. Census, 1994). These dummy variables attempt to pick out which region of the U.S. -East/West/North- is the best at narrowing interethnic occupational differences.

2.4 Modeling Procedure

The regression analysis is conducted in LIMDEP. The first step is to adjust the data for missing values. In areas where the minority group tested is nonexistent, the observations are ignored.

The initial ordinary-least-squares (OLS) regression will use all the explanatory variables (Table 2). Employing the results of this regression, the variables are ranked from lowest t-statistic to highest. The t-statistics are corrected for heteroskedasticity (refer to discussion below). The variable which has the lowest t-statistic is dropped first. The regression will be run with all the variables but the one which was dropped. An F-test determines if dropping this variable was suitable: if the p-value of the F-statistic is greater than 0.10, then the variable with the next lowest t-statistic will be dropped. The process is repeated until the p-value of the F-statistic drops below 0.10. When the p-value drops lower than 0.10, the last variable which was dropped is added back into the model. The final specification should include no irrelevant variables.

Heteroskedasticity is likely to occur when using cross-sectional data as in this study. The Breusch-Pagan test is used to determine whether heteroskedasticity is a problem in these data. As the results have shown (see Chapters 3, 4, and 5), heteroskedasticity does indeed prove to be a problem. Heteroskedasticity does not bias the estimated parameters but does bias the standard errors, causing the t-statistics to be unreliable. To correct for heteroskedasticity, White's procedure is used to reestimate the standard errors (Greene, 1993 and Pindyck and Rubinfeld, 1991). The result of this adjustment will be reliable t-statistics.

After the model is corrected for heteroskedasticity, the coefficients will be standardized. Rescaling the estimated coefficients into standardized coefficients enables the reader to compare each variable directly. This cannot be done with the original coefficients because the independent variables are in different units with different variances. Standardized coefficients (B_j^*) can be calculated by multiplying the estimated coefficients ($\hat{\beta}_j$) by the ratio of the standard deviation of the independent variable ($S_{X_{Sj}}$) to the standard deviation of the dependent variable (S_{AKS}) (Pindyck and Rubinfeld, 1991).

$$B_j^* = \hat{\beta}_j \frac{S_{X_{Sj}}}{S_{AKS}}$$

From this, it will be possible to sort the variables on the basis of how influential they are in the regression. This is important for this analysis, since an attempt is made to see if education is the most influential variable narrowing interethnic occupational differences.

Due to the nature of the data used, high levels of multicollinearity are expected. The explanatory variables used display high intercorrelations. For example, the percent of all workers in the ethnic group tested who are 39 years of age or older ($DIF40_K$), will be related to the percent of the households of the ethnic group tested who are married with children (MFC_K). When multicollinearity exists, it is hard to disentangle the separate effects of each of the explanatory variables on the dependent variable (Maddala, 1992). Multicollinearity does not bias the estimated coefficients nor their variances, but standard errors will be high and t-statistics will be low; nevertheless the F-statistic may suggest that all variables belong in the model. Thus the presence of multicollinearity often explains why insignificant variables are in the final model. To test for multicollinearity, the condition number is used. As a rule of thumb, values above 20 suggest multicollinearity (Greene, 1993).

The empirical results will be shown separately for each ethnic group.

CHAPTER 3 AFRICAN-AMERICANS

3.1 Historical Events

During the period 1890-1980, African-Americans have experienced tremendous change. In 1890, more than 90 percent of African-Americans lived in the rural South. After that date, blacks began to migrate to the North and to urban areas. By 1980, nearly 90 percent of blacks lived in urban areas in all regions of the United States (Billingsley, 1992).

The economy of the United States has also changed radically in the past century. Initially, the U.S. economy was primarily agricultural. As time passed, the economy made a transition to an industrial-manufacturing economy. In the past few decades, the economy experienced another transition and shifted its emphasis away from manufacturing to services industry. Blacks, like all other groups, were greatly affected by these changes (Billingsley, 1992).

Up until 1910, most blacks were farm workers. The unskilled working class constituted 39 percent of the black workforce. The black skilled working class, in 1910, was only eight percent. During the years of World War I, the black industrial working class was established. Between 1915 and by 1924, the numbers of black nonfarm workers increased tremendously (Billingsley, 1992).

From the time of World War I until World War II, blacks had a stable blue-collar work environment. After World War II, the position of blacks in the labor force worsened. Prior to 1954, the unemployment rate of blacks had never been as high as twice that of whites. After 1954, blacks experienced joblessness and high levels of

poverty. In the 1950s, the society as a whole, however, moved from an industrial-manufacturing economy to a service-oriented economy. For the first time in American history, more people were employed in white-collar jobs than in blue-collar jobs (Feagin, 1984).

In the 1960s, 38 percent of blacks were employed in the blue-collar sector and only 13 percent in the white-collar sector. A total of 71 percent of the black population was employed. Forty-five percent belonged to the unskilled working class and 26 percent to the skilled working class (U.S. Census, 1990).

In 1970, 37 percent of blacks were employed in blue-collar occupations and 24 percent in white-collar. Overall, the employment of blacks rose by just one percent during this decade, but the important fact is that blacks were beginning to move up the corporate ladder (Billingsley, 1992). Simms (1989) suggests that from 1940 to 1975, the manufacturing sector was the means by which blacks could move into the middle-income bracket. The black middle class doubled from 13 percent in 1960 to 24 percent by the year 1980. Most remarkable was the movement of women into the white-collar sector, which was faster than for black men (Baldwin and Bishop, 1991).

Black employment fell from 72 percent in the 1970s to 61 percent in the 1980s, and continued to drop to 51 percent by the year 1990. Forecasts suggest that black employment will continue to decline and by the turn of the century, only 43 percent of blacks will be employed (U.S. Census, 1990).

In a broader view, in the 1950s the economy was expanding but at that time there was no affirmative action. The black middle class during those years did not expand

sufficiently. In the 1960s, there was both an expanding economy and affirmative action policies. During this decade, the black middle class expanded enormously and nearly doubled from 13 percent to 25 percent (Barts, 1987). In the 1970s, the economy experienced stagnation; affirmative action, however, continued to be regulated. The black middle class remained the same. By the 1980s, the economy started growing again but affirmative action was now hindered by public and political tension. As a result, not only did the black middle class decline but also the black underclass continued to expand (Barts, 1987). Based on these events, Barts (1987) concluded that affirmative action was very significant for the advancement of the black group.

The black urban underclass is a serious concern for American society. The black underclass is a result of two massive migrations of blacks. The first large migration took place between the 1940s and 1970s. Millions of blacks moved from the rural South to the urban North in pursuit of better opportunities. In the 1960s the civil-rights movement lifted many discriminatory laws against minorities. The end of employment discrimination enabled blacks to move into higher level occupations (see more detailed discussion below), and the easing of housing discrimination gave blacks the freedom to move to better areas. This resulted in the second large migration of blacks out of the ghettos. At that time, most institutions and leaders left the ghettos. The ghettos emptied, leaving behind chaos and disorganization. Crime and illegitimate birth increased, and by the 1970s the black underclass had flourished (Lehman, 1986).

Studies of the African-American group find that three of the most important factors contributing to the betterment of the socioeconomic levels of blacks are: migration

from the South, affirmative action, and education. The effect of migration of the blacks to the North has its advantages and disadvantages. Smith and Welch (1989) recognize migration as a means for blacks to avoid discrimination and therefore to improve their socioeconomic level. The influence of slavery continued to have negative effects in the South even after laws prohibited it. Between 1940-1970, one and a half million blacks migrated to the North searching for better opportunities. Blacks in the South earn 30 percent less than elsewhere (Smith and Welch, 1989). However, this migration has provoked the development of the urban black underclass (Barts, 1987).

Barts (1987) and Smith and Welch (1989) interpret the effect of affirmative action as very effective for the improvement of African-American citizens. In 1941, the Fair Employment Practices Commission (FEPC) was established to ensure that employment discrimination ceased. FEPC was not very successful, though, because employers refused to conform. In 1964, the Civil Rights Act was passed in order to forbid employment discrimination and the Equal Employment Opportunity Commission (EEOC) was established to administer the Act. By 1982, the EEOC had accomplished great results by suing companies which exercised discrimination. In addition, segregation in the military came to an end in 1948 (Feagin, 1984).

Finally, Smith and Welch (1989) suggest that it is education which has enabled blacks to climb the corporate ladder and gain competitive human capital. In 1890, 61 percent of black adults were illiterate. In 1954, the U.S. Supreme Court outlawed school segregation and by 1961 the number of black illiterates had dropped to four percent (Billingsley, 1992). In 1940, two percent of blacks had a baccalaureate degree. By 1975,

the number rose to 11 percent. The overall college enrollment of blacks has risen sharply since the 1960s. In 1960, 141,000 thousand blacks were enrolled in college. In the 1970s, this number more than tripled. In 1980, 755,000 thousand blacks were enrolled in college and the number rose to 855,000 one year later (Billingsley, 1992).

Today blacks are divided into three main social groups. There are those who have managed, despite the many obstacles, to climb the socioeconomic ladder and reach middle or upper-class status. Then there are blacks who are still in low-pay, low-skill jobs but who are productive citizens, though at low incomes. Finally, there are those who are unemployed and who face prospects of staying this way. This is the mainly urban black underclass which has been growing and is very much a concern to the whole society.

3.2 African-American males: Empirical Results

Table 3 shows the results of the restricted regressions for black males. Most of the results are as expected. Table 4 shows the variables which are significant and cause convergence or divergence in occupational differences between the African-American group and the white group. Some generalizations can be made at this point. $EDDIF_K$ and $ECLF$ both cause convergence of the occupational differences between the two ethnic groups. Also, $POTH_K$ fosters convergence for most of the attributes for which this variable is significant. This reflects that the presence of other minority groups almost always improves the socioeconomic status of blacks. On the other hand, $PDEM_K$ almost always acts so as to widen interethnic differences in occupational attributes, reflecting that stereotyping often influences the hiring decisions of employers in favor of whites. In

addition, when $PDEM_K$ is high, minorities are engaged in occupations at all skill levels. Blacks who have the highest human capital will move to areas where demand for their skills is needed, so that areas with a small black population will contain a disproportionate number of high-skill blacks. Likewise, POC_K and $DIF40_K$, when significant, always cause interethnic divergence. $PSAME$ is not significant for any attribute, indicating that this variable explains nothing about white/black differences.

Research and Compiling

In this regression, the only variables which prove to be significant are $EDDIF_K$, $PDEM_K$, and CLF . $EDDIF_K$ and CLF narrow interethnic occupational differences. $EDDIF_K$, as mentioned in the introductory section of this Chapter, narrows the percent deviation as expected. CLF also performs as expected: in more urbanized areas, close contact with strangers causes people to perceive others more objectively and withdraw emotionally. People become anonymous and therefore discrimination narrows. Employers would look purely on human capital rather than race. In addition, the more blacks that live in the area ($PDEM_K$), the greater the white-black disparity in the proportion of the workforce in occupations with this attribute.

Analyzing and Evaluating

In this regression the signs of $EDDIF_K$ and $ECLF$ both show that higher education would cause interethnic occupational differences to narrow. $PG90$ also narrows interethnic occupational differences. The government would focus on increasing the level of education of blacks and could also increase government employment. $PDEM_K$ and XX_S have the effect of increasing black-white occupational differences. XX_S signifies that

the more of the civilian labor force in occupations requiring analyzing and evaluating, the greater the occupational difference between whites and blacks. This may reflect that discrimination is higher in areas where blacks are high in number and labor demand is high.

Troubleshooting

EDDIF_K, ECLF, and POTH_K narrow the occupational differences between blacks and whites. EDDIF_K and ECLF show again the importance of education of both the minority group and the whole civilian labor force, in narrowing interethnic occupational differences. The results for POTH_K show that the presence of other minorities does not push blacks into traditionally black jobs, but rather helps them move into new niches. Location in the South (SOUTH) increases the percent deviation. For this attribute, anyway, blacks may face more discrimination in the South.

Artistic Expression

ECLF worsens the percent deviation for occupations that require artistic expression. This is surprising because one would expect that the more educated the civilian labor force, the less prejudiced the local population would be. People with higher levels of education would be expected to have fewer problems accepting nontraditional workers. PDEM_K also widens the percent deviation. This is expected since the more blacks there are in an area, the easier it is to stereotype. The more blacks in the area, the harder it would be for customers to break the image of the stereotype and trust the few that work in these occupations. PG90 and CLF narrow the percent deviation. This is expected. It seems reasonable that government employment would be less discriminatory and that more urbanized EAs would have less pronounced interethnic differences. The

more military personnel employed in an area (PMIL90), the worse the percent deviation. This is surprising since blacks hold high positions in the Armed Forces and one would expect that the presence of the military would reduce discrimination.

Instructing

EDDIF_k and POTH_k both diminish interethnic occupational differences. In occupations which require instructing, blacks do better in areas where other minorities are present. This can be expected because blacks may be more likely to influence and instruct subordinates who also identify themselves as minority. On the other hand, MFC_k and CLF increase the percent deviation. The results for both of these variables are surprising. One would expect that the more black men that are married with children, the more they would be considered as reliable employees and the percent deviation would narrow. In addition, as mentioned above, CLF should decrease discrimination since in places where population density is high, nontraditional workers would not be discriminated against.

Treating and Advising

EDDIF_k and ECLF again prove to narrow interethnic occupational differences as expected. In areas where other minorities are high in number (POTH_k), occupations possessing the attribute "treating and advising" would also narrow the difference between blacks and whites. This is because blacks would be better at influencing people who also belong to minorities. CLF again increases the percent deviation. This is surprising, but consistent with the results for the attribute "instructing".

Supervising

EDDIF_K, ECLF, and GP narrow interethnic occupational differences. This is expected. GP would narrow the percent deviation because when the private sector is growing, labor demand increases and there is no space for discrimination. Employers are willing to employ nontraditional workers to meet the growth. XX_S would decrease the percent deviation. This is expected because the greater the labor force working in occupations requiring supervising, the greater the labor demand. Therefore, employers feel compelled to hire nontraditional workers. EF88 promotes divergence, a result which is surprising. It would seem reasonable that the more large organizations that exist in an area, the more they would comply to equal employment opportunity regulations. The dummies for both NORTH and SOUTH regions widen the interethnic gap, indicating that location in the west narrows interethnic differences for the attribute "supervising."

Persuading

EDDIF_K, and ECLF narrow the percent deviation between the two groups. EF88, surprisingly, increases the percent deviation. As mentioned above, it would seem reasonable to assume that at places where large firms operate, more equality between the groups should be observed due to Equal Employment Opportunity regulations.

Public Contact

EDDIF_K and ECLF behave as expected. The percent of the civilian labor force that is African-American (PDEM_K), again acts to increase the interethnic occupational differences. It is surprising that the experience factor (DIF40_K) also increases the gap. It would seem reasonable to assume that people who are engaged in occupations with this

attribute, such as plumbing or selling, would be in an advantageous position the older they are. POC_K also increases the differences. XX_S narrows the percent deviation. As expected, places with a high demand for a particular attribute tend to employ more nontraditional workers. $POTH_K$ narrows the percent deviation. Apparently, the presence of other minorities makes blacks more suitable for occupations involving public contact. The dummy variable NORTH increases the percent deviation. Finally, a surprising fact is that GG increases the percent deviation. Government employment should decrease interethnic occupational differences.

Mechanical Ability

For this attribute neither $EDDIF_K$ nor $ECLF$ are significant. This not surprising since occupations that require mechanical ability do not require high levels of education. College education for this attribute is irrelevant. $PDEM_K$ narrows interethnic occupational differences. Therefore, the more blacks in an area, the more blacks who will be channeled into this line of occupation; as a result, the percent deviation would narrow (currently predominantly white). For the same reasons the presence of other minority groups narrows the percent deviation. The more nonblacks in an area, the more blacks who are chosen for occupations that require mechanical ability. $PG90$ increases the percent deviation. This is surprising since government institutions would be expected to narrow the percent deviation. $PMIL90$ narrows the percent deviation. Perhaps skilled-ex soldiers tend to settle near military bases, or perhaps discrimination is less for skilled blue-collar jobs in areas with a strong military presence. Finally, SOUTH increases the percent

deviation. It seems reasonable that in the southern region the existence of discrimination increases interethnic differences between blacks and whites.

Operating a Vehicle

EDDIF_K, PG90, XX_S, and EF88 all narrow the percent deviation between African-Americans and whites. Government policy helps to narrow the differences for this attribute. When the demand for labor for occupations requiring the operation of a vehicle is high (XX_S), the percent deviation narrows because employers are pressured to hire anybody who can fill the job. ECLF, PDEM_K, POTH_K, GP, and NORTH all increase the interethnic occupational differences. This attribute is predominantly black. Therefore, the presence of other minorities in an area would push blacks even more into occupations requiring this attribute. In addition, the higher the percentage of blacks in an area, the more who would be directed into these occupations.

Repetitious

Education again narrows interethnic occupational differences. The significance of POC_K reflects a situation where the more highly educated the older generation is, the more blacks are pushed into repetitious jobs. This is surprising because it would be expected that the more educated the older minority group, the more current labor would be directed into higher level occupations. PDEM_K increases the percent deviation. This attribute is predominantly black and the higher the percent of the population which is African-American, the greater the population who goes into occupations with this attribute. XX_S narrows differences. The stronger the labor demand, the more pressure felt by employers

to employ a wide variety of people, and not only workers from one particular ethnic group.

Mobility

Government action seems to increase interethnic occupational differences. The higher the number of people that belong to the demographic group and the other minority groups, the less the interethnic occupational difference between blacks and whites. In occupations that require mobility (such as sales representatives or plumbers) blacks may be more accepted in areas with large nonwhite populations. Prejudice by customers against black workers would certainly be greater in Economic Areas which are predominantly white.

Physical Stamina

In areas where all minority groups are large in numbers, more blacks enter occupations that require physical stamina and therefore the percent deviation would become even larger (predominantly black). $EDDIF_K$ narrows the percent deviation. This is reasonable because as blacks acquire more education, they choose occupations that require less physical stamina. The higher the crime rate, the greater the percent deviation. Crime rate can influence employers to be more cautious of who they hire, therefore, relying on the black stereotype as a shortcut. As a result, discrimination may ensue.

Part Time

$DIF40_K$ increases the occupational gap between the two ethnic groups for this attribute. This attribute is primarily held by African-Americans. Experience should not be a crucial requirement for occupations that are part-time. In addition, such occupations do

not offer benefits to employees. Therefore, the older the black labor force, the more blacks would be in occupations that are part-time. $POTH_K$ narrows the percent deviation. It seems reasonable that the presence of other minority groups would increase the competition for part-time jobs and therefore fewer blacks would be involved in these occupations. $EF88$ narrows the interethnic differences. This is reasonable because large firms are more likely to comply with Equal Employment Opportunity regulations.

Irregular Hours

The percent deviation is not very large for this attribute. Interethnic differences for occupations requiring irregular hours are quite small.

3.3 African-American Females: Empirical Results

Table 5 shows the results of the regressions for the African-American females. Table 6 shows an overall picture of which variables are significant in diminishing the interethnic occupational differences and which variables are significant in inflating the differences. Even more so than for black males, $PDEM_K$ (black females as a percentage of the civilian labor force) increases the percent deviation between black females and white females for most of the occupational attributes. The presence of other minority groups seems to increase the percent deviation for all the attributes in which the variable is significant. The educational levels of the demographic group and the whole civilian labor force do not show as much significance as for black males. The dummy variable $SOUTH$ is significant in widening the percent deviation for some attributes. The crime rate is also

significant and widens the percent deviation in more attributes for black females than for black males.

Research and Compiling

EDDIF_K helps narrow interethnic occupational differences, as expected. XX_S shows that as an area specializes in occupations that require research and development, that area will employ more nontraditional workers (since labor demand will be high relative to labor supply) and therefore the percent deviation between blacks and whites will narrow. EF88 also narrows the differences since large firms are more likely to comply to Equal Employment Opportunity regulations and hire nontraditional workers. PDEM_K, as expected, increases interethnic occupational differences. It seems reasonable to assume that the more blacks that live in an area, the stronger would be the tendency to stereotype. As a result, employers would be more discriminatory in employment practices.

Analyzing and Evaluating

It is surprising that the educational levels of black females and the whole civilian labor force are not significant for these occupations. Analyzing and evaluating require high levels of education, therefore it is surprising that education does not influence black-white differences. CLF narrows the interethnic occupational differences. As explained earlier, areas with higher population densities are more exposed to diversity and therefore are less discriminatory. SOUTH increases the occupational gap. Many studies have suggested that there is higher discrimination towards blacks in the South. This may be reflected in their occupations. PDEM_K increases the percent deviation. The more African-American females in an area, the easier it may be for employers to stereotype and

be discriminatory against those who have the qualifications. Also, when $PDEM_K$ is high, the black civilian labor force is comprised of workers of all educational levels. The ones who are highly specialized may move to areas where labor demand for highly skilled workers is high.

Troubleshooting

This regression shows quite surprising results. Seven variables remained significant after setting restrictions. However, after correcting for heteroskedasticity, only one remained significant. SOUTH was the only variable which was significant, and as expected, it increases the percent deviation.

Artistic Expression

Highly dominated by the white group, artistic expression is one of the occupational attributes that is very segregated and for which barriers of entry are hard to break. Education, as suspected, narrows the interethnic differences for this attribute. The more educated black females become, the easier it is to get into occupations that require artistic expression. Also, as expected, $DIF40_K$ (experience level), plays an important role. The more experienced black females there are in occupations that require this attribute, the easier it is to enter the field. $PDEM_K$ increases the percent deviation. Again, this behavior is expected. This attribute requires innovation, imagination, and forward vision. In areas where $PDEM_K$ is high and stereotyping is possible, the percent deviation will increase.

Instructing

The more educated black females are, the narrower the percent deviation between them and white females. $EDDIF_K$ was the only significant variable in this regression.

Treating and Advising

This attribute is predominantly black. The percent deviation in this case is not very high (three percent), therefore not much needs to be done to narrow the interethnic occupational differences for this attribute. Crime rate, as expected, increases interethnic occupational differences. Apparently, the more people who work in occupations with this attribute, the more likely employers are to hire blacks. So XX_s tends to increase the differences. PSAME reflects the conservatism of an area. Therefore, in this case, it would influence the percent deviation to decrease and more whites would enter into occupations with this attribute.

Supervising

CP, as expected, increases the percent deviation. At places where the crime rate is high, employers will continue to hire white females for these occupations. SOUTH, as expected, increases the percent deviation. Particularly in southern regions African-American females are less likely to be hired for occupations requiring supervising.

Persuading

The educational level of the ethnic group helps narrow the interethnic occupational differences, as expected. $PDEM_K$ increases the occupational differences between the two groups, signifying again how stereotyping the black subgroup widens the percent deviation.

Public Contact

The overall educational level of an area helps narrow the interethnic occupational differences for occupations that require public contact. $PDEM_K$, as a result of

stereotyping, increases the differences. However, in areas where the population of black women is high, and therefore more customers are blacks, it would seem reasonable to assume that more black females would be preferred to perform occupations that require public contact. EF88 increases the percent deviation. This is surprising, since large firms would be expected to comply with government regulations and hire larger numbers of nontraditional workers.

Mechanical Ability

This attribute is predominantly held by black females. The black/white difference in educational level is not significant for this attribute. This is not surprising as most of the occupations that require mechanical ability do not require higher education. It seems reasonable that the overall educational level would reduce the percent deviation, because as the educational level of an area increases, prejudice should diminish. PDEM_K, as expected, increases the percent deviation. Blacks would continue to find employment in traditionally black occupations in areas where the black population group is high.

Operating a Vehicle

The percent deviation for this attribute is quite low. EDDIF_K narrows the percent deviation. This makes sense as one would expect to find fewer black females in occupations requiring the operating of a vehicle, the higher their educational level. Crime rate increases the percent deviation. The higher the crime rate, the more black females would be willing to work in these occupations compared to white females. The higher the labor demand for this attribute, the less the percent deviation. This is expected since employers would be willing to hire workers from any ethnic group to fill the demand.

Repetitious

This attribute is predominantly black. For occupations requiring repetition only $PDEM_k$ and GP are significant. Both increase the percent deviation. When $PDEM_k$ is high, stereotyping is common. Black females will continue to go into traditionally black occupations. In addition, as the labor demand increases (due to the growth of the private sector), traditional and nontraditional workers are employed to meet the higher demand.

Mobility

$PDEM_k$ and $POTH_k$ are both significant in this regression. Mobility is primarily a trait of black females, but only by a small difference. When the population of an area has a high percentage of black females, then occupations that require mobility would continue to be filled by this group. In addition, the presence of other minority groups facilitate the entry of black females into occupations with the attribute mobility.

Physical Stamina

This attribute is largely held by black females. $PDEM_k$ and $POTH_k$ behave the same way as for mobility. In an area where black females are dominant in occupations that require physical stamina, as their number increases more will be entering these occupations due to stereotyping. This is a conservative area, therefore, stereotyping may be more common. In addition, the presence of other minority groups would continue to push blacks into predominantly black occupations. The overall educational level of the CLF seems to narrow the percent deviation. Finally, $PSAME$ narrows interethnic occupational differences.

Part Time

PDEM_k, POTH_k, and SOUTH are the significant variables. All behave as expected, increasing occupational differences between African-American females and white females.

Irregular Hours

Interestingly this regression ended with a lot of significant variables. DIF40_k, PDEM_k, POTH_k, GG, PMIL90, and SOUTH all increase the percent deviation. Only EF88 narrows the interethnic occupational differences. This attribute is predominantly black. Therefore, all variables reflect that the more minority groups there are in an area, (including blacks), the more black females who will be pushed into traditionally black female occupations. The influence of EF88 is surprising. However, it shows that discrimination is low toward this group.

Table 3A Black versus White Males					
	Research and Compiling	Analyzing and Evaluating	Trouble- shooting	Artistic Expression	Instructing
Constant	-0.166 (0.36)	0.158 (0.21)	-0.305 (0.00)	-0.673 (0.05)	0.635 (0.28)
EDDIF _K	0.475 (0.02)	0.672 (0.00)	0.305 (0.00)	0.155 (0.36)	0.728 (0.00)
ECLF	0.048 (0.31)	0.708 (0.00)	0.111 (0.02)	-0.152 (0.03)	0.132 (0.13)
DIF40 _K			-0.118 (0.57)	-0.051 (0.67)	
POC _K				-0.028 (0.84)	-0.159 (0.46)
MFC _K				0.175 (0.25)	-0.226 (0.06)
PDEM _K	-0.173 (0.01)	-0.228 (0.00)		-0.213 (0.00)	
POTH _K			0.177 (0.00)		0.152 (0.08)
PSAME _K					0.029 (0.67)
CP	-0.063 (0.27)				
GP					
XX _s		-0.654 (0.00)			
PG90		0.104 (0.01)		0.343 (0.01)	
GG					
EF88	-0.002 (0.97)				-0.106 (0.16)
PMIL90				-0.318 (0.01)	0.0762 (0.30)
CLF	0.053 (0.05)			0.103 (0.02)	-0.067 (0.07)
NORTH					
SOUTH			-0.194 (0.00)		
Percent Deviation	-48	-50	-29	-57	-45
R-squared	0.374	0.609	0.203	0.194	0.394
F-test [final model]	[6, 176] 17.59758	[5, 177] 55.32367	[5, 177] 9.037761	[9, 173] 4.655592	[9, 173] 12.54518
P-value [final model]	0.00000	0.00000	0.00000	0.00001564	0.00000
Breusch-Pagan	543.094	105.109	119.564	156.864	222.998
Condition Number	21.7408	57.2922	13.6301	21.2521	51.5635
F-test [restricted]	1.52453	1.38648	1.36707	1.45087	1.46880
P-value [restricted]	0.120021	0.170819	0.180543	0.171993	0.163767

Notes: Variables defined in Table 2; numbers in parentheses reflect p-values; coefficients are standardized; F-test [restricted] determines suitability of restrictions; F-test [final] tests the final model, numbers in brackets reflect numerator degrees of freedom and denominator degrees of freedom, respectively.

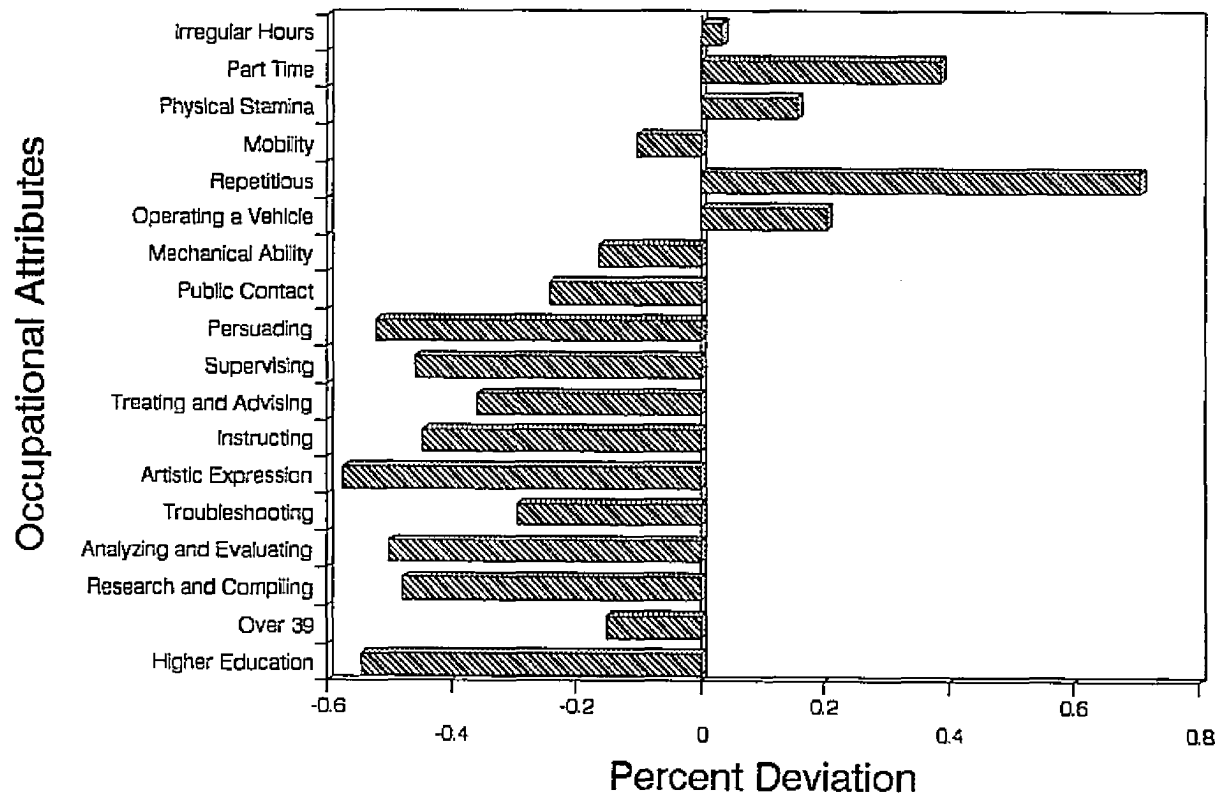
Table 3B Black versus White Males					
	Treating and Advising	Supervising	Persuading	Public Contact	Mechanical Ability
Constant	-0.290 (0.66)	0.458 (0.00)	0.047 (0.79)	-0.415 (0.00)	-0.182 (0.08)
EDDIF _K	0.677 (0.02)	0.476 (0.00)	0.772 (0.00)	0.695 (0.00)	-0.214 (0.18)
ECLF	0.160 (0.08)	0.465 (0.00)	0.230 (0.00)	0.201 (0.00)	0.031 (0.64)
DIF40 _K	-0.218 (0.21)			-0.262 (0.00)	-0.139 (0.41)
POCK	-0.313 (0.17)	-0.401 (0.00)	-0.268 (0.12)	-0.407 (0.00)	0.178 (0.19)
MFC _K	-0.216 (0.15)				
PDEM _K		-0.165 (0.00)		-0.254 (0.00)	0.284 (0.00)
POTH _K	0.193 (0.02)			0.070 (0.08)	0.210 (0.00)
PSAME _K	0.110 (0.14)				
CP					-0.010 (0.91)
GP		0.256 (0.00)			
XX _s		-0.599 (0.00)		0.119 (0.01)	
PG90			-0.074 (0.13)		-0.445 (0.00)
GG		-0.067 (0.27)		-0.108 (0.00)	
EF88		-0.203 (0.01)	-0.146 (0.03)	-0.031 (0.55)	
PMIL90	0.110 (0.22)	0.031 (0.51)			0.271 (0.00)
CLF	-0.084 (0.0)				
NORTH		-0.159 (0.00)		-0.064 (0.08)	
SOUTH		-0.222 (0.00)	-0.071 (0.23)		-0.139 (0.04)
Percent Deviation	-36	-46	-52	-24	-16
R-squared	0.387	0.481	0.480	0.704	0.211
F-test [final model]	[9, 173] 12.16362	[11, 171] 14.43126	[6, 176] 27.12447	[10, 172] 41.00160	[10, 172] 45.99849
P-value [final model]	0.00000	0.00000	0.00000	0.00000	0.0000056245
Breusch-Pagan	280.968	117.242	259.876	154.604	78.0665
Condition Number	49.1723	59.1180	23.8760	73.3995	20.7922
F-test [restricted]	0.862601	0.61748	1.20338	0.370994	1.62558
P-value [restricted]	0.560015	0.538192	0.284803	0.934669	0.121363

Table 3C Black versus White Males						
	Operating a Vehicle	Repetitious	Mobility	Physical Stamina	Part Time	Irregular Hours
Constant	0.832 (0.02)	2.721 (0.00)	0.842 (0.01)	-0.396 (0.00)	1.433 (0.00)	1.288 (0.01)
EDDIF _K	-0.113 (0.02)	-0.715 (0.00)	0.036 (0.71)	-0.137 (0.08)	0.068 (0.46)	-0.020 (0.88)
ECLF	0.089 (0.02)	-0.293 (0.00)	0.018 (0.78)	0.065 (0.17)	0.019 (0.67)	0.018 (0.84)
DIF40 _K	0.035 (0.61)		0.095 (0.52)	-0.007 (0.96)	0.488 (0.07)	0.360 (0.00)
POCK		0.217 (0.00)				
MFC _K	-0.613 (0.24)					-0.111 (0.20)
PDEM _K	0.656 (0.00)	0.285 (0.00)	0.727 (0.00)	0.457 (0.00)	-0.357 (0.00)	-0.081 (0.22)
POTH _K	0.179 (0.00)		0.209 (0.00)	0.095 (0.02)	-0.163 (0.00)	
PSAME _K						
CP		-0.068 (0.35)		0.232 (0.00)		
GP	0.141 (0.01)		0.211 (0.00)	0.065 (0.22)		
XX _s	-0.360 (0.00)	-0.557 (0.00)	-0.489 (0.00)			-0.436 (0.04)
FG90	-0.220 (0.00)		-0.225 (0.01)			
GG	0.075 (0.13)			0.137 (0.00)		
EF88	-0.317 (0.00)		-0.432 (0.00)		-0.206 (0.03)	-0.307 (0.00)
PMIL90						
CLF						
NORTH	0.090 (0.01)					
SOUTH						
Percent Deviation	20	71	-10	16	39	3
R-squared	0.798	0.639	0.537	0.649	0.373	0.311
F-test [final model]	[12, 170] 56.09530	[6, 176] 51.99805	[9, 173] 22.32814	[8, 174] 40.34955	[6, 176] 17.51002	[7, 175] 11.29359
P-value [final model]	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Breusch-Pagan	58.9301	120.259	161.051	95.3780	449.942	193.289
Condition Number	67.7265	71.7518	95.5452	18.3936	18.5278	119.060
F-test [restricted]	1.74530	1.52980	1.58836	0.850724	1.30751	0.749468
P-value [restricted]	0.113678	0.118046	0.122563	0.580699	0.218530	0.689659

Table 4 Black versus White Males Variables Significantly Working for Convergence (X) or Divergence (O)																			
Regression	US% Dev	E D D I F _k	E C L F	D I F 40 _k	P O C _k	M F C _k	P D E M _k	P O T H _k	P S A M E	C P	G P	X X _k	P G 9 0	G G	E F 8 8	P M I L 90	C L F	N O R T H	S O U T H
Research and Compiling	-48	X					O										X		
Analyzing and Evaluating	-50	X	X				O					O	X						
Trouble-shooting	-29	X	X					X											O
Artistic Expression	-57		O				O						X			O	X		
Instructing	-45	X				O		X									O		
Treating and Advising	-36	X	X					X									O		
Supervising	-46	X	X		O		O				X	O			O			O	O
Persuading	-52	X	X												O				
Public Contact	-24	X	X	O	O		O	X				X		O				O	
Mechanical Ability	-16						X	X					O			X			O
Operating a Vehicle	20	X	O				O	O			O	X	X		X			O	
Repetitious	71	X	X		O		O					X							
Mobility	-10						X	X			X	O	O		O				
Physical Stamina	16	X					O	O		O				O					
Part Time	39			O			X	X							X				
Irregular Hours	3			O								X			X				

Graph 1

Black versus White Males



Source: Refer to source in Table 1.

Table 5A Black versus White Females					
	Research and Compiling	Analyzing and Evaluating	Trouble- shooting	Artistic Expression	Instructing
Constant	-0.988 (0.00)	-0.948 (0.07)	-0.585 (0.09)	-0.327 (0.25)	-0.243 (0.06)
EDDIF _K	0.339 (0.01)	0.073 (0.67)	0.001 (0.99)	0.249 (0.08)	0.376 (0.00)
ECLF	-0.325 (0.08)	-0.422 (0.23)	-0.000 (0.99)	0.039 (0.44)	0.029 (0.49)
DIF40 _K	-0.230 (0.0)			0.282 (0.07)	
FOCK					
MFC _K				0.073 (0.57)	
PDEM _K	-0.445 (0.00)	-0.015 (0.00)	-0.015 (0.78)		
POTH _K			-0.020 (0.57)	0.012 (0.83)	
PSAME _K	0.113 (0.10)				
CP		-0.165 (0.18)	-0.118 (0.34)	-0.156 (0.04)	
GP					
XX _s	0.520 (0.01)	0.556 (0.17)	0.106 (0.26)		
PG90				-0.030 (0.68)	
GG					
EF88	0.151 (0.03)				0.016 (0.85)
PMIL90	0.021 (0.67)			-0.011 (0.88)	
CLF		0.061 (0.09)			
NORTH					
SOUTH		-0.119 (0.07)	-0.240 (0.00)		
Percent Deviation	-29	-28	-21	-68	-26
R-squared	0.466	0.182	0.837	0.140	0.142
F-test [final model]	[9, 173] 16.79117	[7, 175] 5.572316	[7, 175] 2.285007	[8, 174] 3.549076	[3, 179] 9.919596
P-value [final model]	0.00000	0.000008236	0.02986185	0.0007818905	0.00000439
Breusch-Pagan	246.781	677.164	388.249	323.004	108.680
Condition Number	79.0676	59.0114	82.7587	20.6210	14.8301
F-test [restricted]	1.21905	1.22942	1.05384	1.64818	1.12278
P-value [restricted]	0.286698	0.266960	0.402054	0.108092	0.340121

Notes: Refer to notes in Table 3.

Table 5B Black versus White Females					
	Treating and Advising	Supervising	Persuading	Public Contact	Mechanical Ability
Constant	0.834 (0.19)	3.580 (0.12)	-0.204 (0.00)	-0.009 (0.92)	0.348 (0.47)
EDDIF _K	0.260 (0.10)	-0.118 (0.35)	0.369 (0.01)	0.038 (0.76)	-0.144 (0.10)
ECLF	-0.126 (0.12)	0.016 (0.75)	0.058 (0.21)	0.213 (0.00)	-0.143 (0.00)
DIF40 _K					
POC _K					
MFC _K	-0.195 (0.29)	-0.173 (0.48)			
PDEM _K			-0.305 (0.00)	-0.375 (0.00)	0.488 (0.00)
POTII _K	0.088 (0.10)				
PSAME _K	-0.391 (0.00)	0.296 (0.14)			
CP	0.248 (0.00)	-0.205 (0.06)			
GP	-0.347 (0.00)	0.203 (0.23)			
XX _s	0.208 (0.03)	0.272 (0.24)			
PG90	-0.112 (0.09)	0.052 (0.63)			-0.025 (0.70)
GG	0.064 (0.33)			-0.031 (0.66)	
EF88	-0.032 (0.85)			-0.221 (0.02)	0.043 (0.65)
PMIL90					
CLF					
NORTH		-0.119 (0.10)			
SOUTH		-0.208 (0.02)			0.046 (0.46)
Percent Deviation	3	-35	-38	-16	55
R-squared	0.155	0.184	0.285	0.277	0.323
F-test [final model]	[11, 171] 2.861365	[11, 171] 3.518730	[3, 179] 23.81677	[5, 177] 13.61535	[6, 176] 13.99027
P-value [final model]	0.001807088	0.0001835113	0.00000	0.00000	0.000000
Breusch-Pagan	238.105	1321.71	103.812	308.007	75.0413
Condition Number	84.1574	83.9901	11.7104	17.3864	25.9729
F-test [restricted]	0.349920	0.444801	1.10254	1.09531	0.841494
P-value [restricted]	0.929449	0.872558	0.358169	0.366487	0.607709

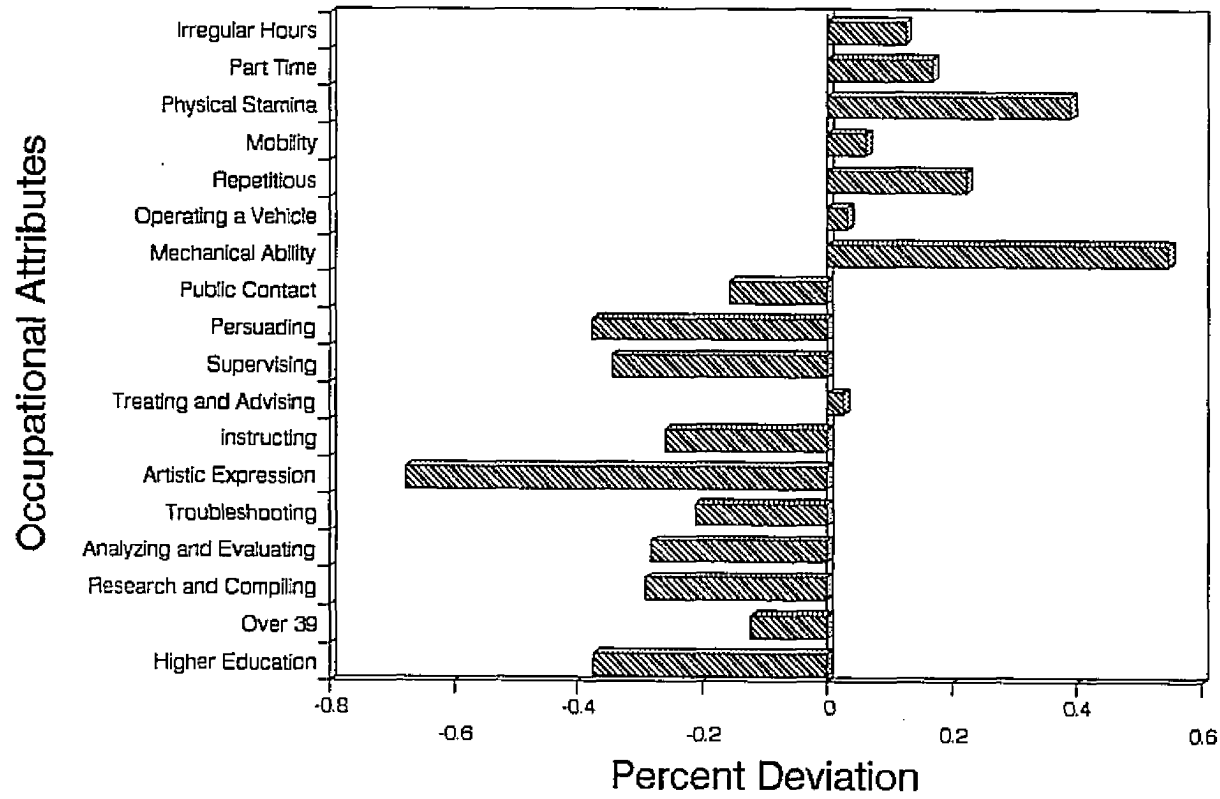
Table 5C Black versus White Females						
	Operating a Vehicle	Repetitious	Mobility	Physical Stamina	Part Time	Irregular Hours
Constant	-0.492 (0.05)	0.024 (0.57)	-0.316 (0.47)	1.593 (0.00)	0.003 (0.53)	-0.002 (0.99)
EDDIF _K	-0.209 (0.00)	-0.054 (0.63)	0.105 (0.47)	-0.024 (0.80)	0.113 (0.44)	-0.081 (0.47)
ECLF	-0.012 (0.83)	-0.001 (0.97)	0.034 (0.64)	-0.125 (0.00)	0.039 (0.39)	0.066 (0.52)
DIF40 _K	-0.100 (0.36)					0.266 (0.09)
POC _K			-0.168 (0.05)			
MFC _K			0.053 (0.80)	-0.083 (0.47)		-0.048 (0.76)
PDEM _K	0.248 (0.00)	0.552 (0.00)	0.334 (0.00)	0.669 (0.00)	0.366 (0.00)	0.523 (0.00)
POTII _K			0.168 (0.05)	0.148 (0.05)	0.315 (0.00)	0.216 (0.00)
PSAME _K			0.090 (0.23)	-0.234 (0.00)		
CP	0.320 (0.00)					-0.051 (0.58)
GP		0.181 (0.00)				
XX _s	-0.200 (0.02)					0.085 (0.55)
PG90	-0.002 (0.95)		-0.112 (0.16)	-0.110 (0.12)		-0.110 (0.25)
GG	0.058 (0.30)			0.069 (0.28)		0.164 (0.00)
EF88				-0.070 (0.50)		-0.211 (0.02)
PMIL90			0.082 (0.33)			0.148 (0.09)
CLF						-0.112 (0.13)
NORTH						
SOUTH	-0.048 (0.36)				0.253 (0.00)	0.144 (0.01)
Percent Deviation	3	22	6	39	17	12
R-squared	0.488	0.352	0.121	0.491	0.254	0.445
F-test [final model]	[9, 173] 17.58672	[4, 178] 24.18061	[9, 173] 2.653517	[9, 173] 1.855349	[5, 177] 12.06287	[14, 168] 9.628391
P-value [final model]	0.00000	0.00000	0.00662256	0.00000	0.00000	0.00000
Breusch-Pagan	279.250	130.393	170.015	114.398	39.4394	547.741
Condition Number	25.9658	13.2218	48.9230	62.3349	13.0610	158.600
F-test [restricted]	1.41594	1.35528	1.49127	1.13672	1.30067	0.430200
P-value [restricted]	0.187328	0.180979	0.155345	0.339960	0.217228	0.786673

Table 6
Black versus White Females

Variables Significantly Working for Convergence (X) or Divergence (O)

Regression	US% Dev	E D I F Ek	E C L F	D I F 40k	P O Ck	M F Cx	P D E Mk	P O T Hk	P S A M E	C P	G P	X Xs	P G 9 0	G G	E F B B	P M I L 90	C L F	N O R T H	S O O U T H
Research and Compiling	-29	X	O	O			O					X			X				
Analyzing and Evaluating	-28						O										X		O
Trouble-shooting	-21																		O
Artistic Expression	-68	X		X					O										
Instructing	-26	X																	
Treating and Advising	3							X	O	O	X	O	X						O
Supervising	-35									O									
Persuading	-38	X					O												
Public Contact	-16		X				O								O				
Mechanical Ability	55		X				O												
Operating a Vehicle	3	X					O			O		X							
Repetitious	22						O				O								
Mobility	6						O	O											
Physical Stamina	39		X				O	O	X										
Part Time	17						O	O											O
Irregular Hours	12			O			O	O						O	X	O			O

Graph 2 Black versus White Females



Source: Refer to source in Table 1.

CHAPTER 4 ASIAN-AMERICANS

4.1 Historical Events

The first movement of immigrants from Asia took place in the 1850s. At that time, large numbers of laborers were welcomed to the United States. In 1882, the federal government created the Chinese Exclusion Act in an attempt to ban Chinese laborers from immigrating. This Act, however, did not affect students and merchants from entering the country (Daniels, 1988). After the Chinese immigration, the Japanese followed, then Filipinos and Koreans along with Indians and other Asians. By the beginning of the 20th century, the large number of immigrants from all parts of the world began to stimulate movement toward immigration control. The Immigration Acts of 1917 and 1924 greatly reduced the number of Asians entering the U.S. in the next four decades.

By 1965, the United States lifted its anti-Asian immigration restraints and many Asians began immigrating to the U.S. again (U.S. Commission on Civil Rights, 1992). In addition, laws became more flexible towards Southeast Asia after the Vietnam War (Kim and Lewis, 1994).

In the 1960s, Asian-Americans increased by fifty-five percent. However, due to the Vietnam War, the 1970s was the most favorable decade for Asian immigration. The numbers increased by 141 percent. In the 1980s, Asian-Americans continued growing and increased by 76 percent. By 1990, the U.S. Asian and Pacific Islander population had reached 7,300,000. Of these, 95 percent were Asian. Asian-Americans comprised three percent of the American population by 1990. They are the fastest growing minority group

in the United States (Kim and Lewis, 1994). The U.S. Census Bureau (1992b) has assessed that Asian-Americans may in fact comprise seven percent of the U.S. population.

Asian-Americans primarily settle in metropolitan areas. In 1990, 94 percent of this group lived in metropolitan areas. (Kim and Lewis, 1994). In addition, almost fifty-six percent of the Asian-Americans are settled in the West (U.S. Census, 1994).

General opinion holds that Asians do not face high levels of discrimination compared to other minorities such as African Americans or Hispanic Americans. However, this opinion does not hold true. The false perception may be attributed to the high Asian family income, which was larger than the U.S. average by about 28 percent in 1985. The reason for these high earnings, though, seems to be the larger family size of Asian households and not higher earnings in comparison with others (Kim and Lewis, 1994). Asian-Americans face discrimination, as do other minority groups. It is proven that Asian male college graduates earn only 90 percent of what white males with comparable college degrees earn. Asian females are better off, earning 95 percent of their white counterparts (U.S. Census, 1992b).

Discrimination is evident, also, in the types of occupations Asian-Americans perform. Asian-American males and females hold more professional positions, rather than administrative or managerial. Kim and Lewis (1994) test to find the reasons for this. They suggest that this may result from discrimination by subordinates. Workers prefer to be under the supervision of white, rather than minority managers.

Less-educated Asians face even more discrimination than the college-educated. A large majority of the less-educated Asian females are concentrated in textile and

electronics industries, performing assembly line duties (Mason, 1986). Employers in these industries prefer Asian females because Asian women have always been considered quiet, obedient, and easily managed labor (Lutz, 1988,). This fact may explain why the occupational attribute “mechanical ability” is dominated by Asian females (a percent deviation of 85 percent).

4.2 Asian-American males: Empirical Analysis

The results for Asian-Americans differ substantially from the results of African Americans. $EDDIF_K$ and $ECLF$, even if significant in most attributes, do not always narrow interethnic occupational differences. This can be expected in the case of the Asian group because Asians are more educated than the rest of the population. When $EDDIF_K$ is high, and the percent deviation positive, this variable would increase the percent deviation because the Asians would have even higher levels of education. Only in a few occupational attributes do they narrow interethnic occupational differences. In the case of “troubleshooting” and “public contact” these attributes are predominantly white. On the other hand, for “repetitious,” $EDDIF_K$ narrows the percent deviation, signifying that the more educated Asians are, the fewer will be performing occupations that require repetition. $PDEM_K$, unlike the case of African-Americans, works to narrow the percent deviation. In addition, the higher the number of other minority groups in the area ($POTH_K$), the better it is for this group in narrowing the differences. The reason is that the presence of other minority groups dilutes the differences between the Asians and the whites. Blacks and Hispanics would probably concentrate in some occupations, therefore

the Asians and the whites would become more like each other compared to the other groups. The geographical regions North and South do not seem to be very significant for the Asian males. The other variables do not show an overall uniformity.

Research and Compiling

Research and compiling is predominantly held by the Asian group 37 percent, since Asians are predominant in professional areas. Therefore, even higher levels of education by the Asian group would make them increase even more in number for occupations that require research and compiling. $EDDIF_K$ supports this fact. $POTH_K$ in all attributes decreases the percent deviation. This is expected because the larger the number of other minority groups, the larger the labor competition, and therefore the less the percent deviation. The presence of other minority groups would diminish differences between the Asian and white groups. Blacks and Hispanics would probably concentrate in some occupations, therefore Asians and whites would become more like each other compared to the other groups. GG and $EF88$ narrow interethnic occupational differences. This again is expected. This attribute is predominantly Asian, as average firm size increases. The percent deviation should converge, reflecting the greater compliance of large institutions to Equal Employment Opportunity regulations. $NORTH$ also decreases the percent deviation.

Analyzing and Evaluating

Again, $EDDIF_K$, and $ECLF$ increase the percent deviation. $DIF40_K$ also increases the percent deviation. The more experienced the Asian group is, and the higher their educational level, the more who are employed in occupations with this attribute, and

therefore the percent deviation increases even more. $PDEM_k$ narrows the percent deviation. This is as expected based on selective migration. In areas where an ethnic group is large, there would be people of all skill-levels in the ethnic group's population. When $PDEM_k$ is low, though, these are the areas where the most specialized and highly skilled labor has been pulled by labor demand. The crime rate narrows the interethnic occupational differences, while PG90 increases the percent deviation. This latter may be because Asians face less discrimination in government institutions or prefer to be employed in the government sector. Finally, PMIL90 narrows the percent deviation. The effect of a strong military presence is expected to narrow interethnic occupational differences.

Troubleshooting

This occupational attribute is predominantly white, but the difference between Asians and whites is not very large. $EDDIF_k$, ECLF, and $DIF40_k$ are significant and narrow the percent deviation. This is reasonable because the higher the educational level and the experience level of Asians, the more who would be hired for occupations requiring this attribute, and therefore, the percent deviation would narrow.

Artistic Expression

Not much can be explained for this attribute. The significant variables are ECLF and EF88. The occupations requiring artistic expression are predominantly white. The more educated the civilian labor force is and the more large firms that operate in the area, the more employment that would be given to whites.

Instructing

EDDIF_k and ECLF increase the interethnic occupational difference. This attribute is predominantly Asian, so the two variables behave as they did for the previous attributes. The more educated the Asians are, the more they are preferred in occupations that require instructing. POTH_k is also significant in narrowing the percent deviation. As explained earlier, the presence of other minority groups creates more competition for employment. Therefore, positions are distributed among all the groups. Another reason may be the nature of this attribute. In occupations that require “instructing,” Asians may not be as effective in instructing African or Hispanic-Americans as members of these groups. Therefore, fewer positions will be given to them. PSAME increases the percent deviation. This variable indicates that an area is conservative and changes occur slowly. EF88 also narrows the percent deviation, indicating that larger firms are less likely to employ Asians for this attribute.

Treating and Advising

This occupational attribute is predominantly held by the Asian group. EDDIF_k and XX_s amplify the interethnic occupational difference. For EDDIF_k this makes sense, because the higher the educational level of the Asian group, the more who will be employed, and therefore the percent deviation would increase even more. XX_s and POTH_k contradict each other. XX_s shows that as the people who work in occupations with this attribute increase, the more who will be employed from the Asian group and the percent deviation will widen. POTH_k narrows the percent deviation; which means that the

more workers from other minority groups in the area, the more jobs that will be given to those other groups. Finally, EF88 diminishes the percent deviation, which is expected.

Supervising

EDDIF_k, XX_s, and POTH_k behave the same way as for the treating and advising attribute. This attribute, though, is predominantly white. The higher the educational level of Asians, the fewer who will go into occupations which require supervising. In addition, it is surprising that the higher the share of the labor force working in occupations with this attribute (XX_s), the greater the percent deviation. POTH_k behaves as expected, the more other minority groups in the area, the narrower the percent deviation. Finally, the dummy variable for SOUTH increases the percent deviation. This makes sense since the South region is considered to be the most discriminatory. Therefore, jobs would continue to be given to whites and the percent deviation would increase.

Persuading

ECLF and SOUTH both widen the percent deviation. POTH_k and CLF narrow the percent deviation. This is as expected. SOUTH always inflates the percent deviation for this group when it is predominantly white, due to higher discrimination. The higher the number of other minority groups, and the higher the labor force density in an area, the narrower the percent deviation. This attribute is predominantly white. As minorities increase in an environment where discrimination is low (CLF), positions will be distributed to workers from all minority groups, inducing the percent deviation to narrow.

Public Contact

The occupations that require this attribute are not dominated by either the Asian or the white group (minus one percent). Since the percent deviation is so small not much need be said about this attribute.

Mechanical Ability

This occupational attribute is predominantly white. ECLF, as has been shown many times, narrows the percent deviation. This makes sense because the higher the educational level in an area, the fewer whites would work in occupations involving mechanical ability (which requires in most cases low levels of education).

Operating a Vehicle

This occupational attribute is by a large margin white-dominated. Operating a vehicle is an attribute that does not require education, so an increase in $EDDIF_K$ would tend to increase white dominance. $PDEM_K$ narrows the interethnic occupational differences. The more Asian workers in an area, the more would enter occupations that require this attribute. The experience level of the Asian group narrows the differences. This is surprising because high experience should not matter for occupations that require this attribute. $PSAME$ increases the percent deviation. This is expected because in more conservative areas, people prefer to continue hiring traditional workers. XX_S narrows the percent deviation as expected. The higher the labor demand for these occupations, the less the percent deviation should become. Positions are filled with nontraditional workers.

Repetitious

EDDIF_K and POC_K narrow the percent deviation. These are the only significant variables. This attribute is predominantly Asian, and higher educational levels enable Asians to move out of these occupations.

Mobility

This is an attribute which is predominantly held by the white group. EDDIF_K is the only variable that increases interethnic occupational differences. The reason for this is that most occupations that require mobility do not require higher education. PDEM_K and XX_S narrow interethnic occupational differences. When PDEM_K is high, the Asian group is composed of people from all skill-levels. Also, as labor demand increases, positions will be given to the Asian group.

Physical Stamina

The educational level variables widen the occupational differences between Asian and white males. Physical stamina is a predominantly white attribute, and does not require high levels of education for most of the occupations (messengers, athletes, maids, gardeners, mechanics). Higher levels of education for Asians reduce their presence in occupations with this attribute. POC_K, for similar reasons, increases the percent deviation. PDEM_K narrows the differences. This is expected because with more Asians in an area, their skill levels will vary; therefore, the Asians with lower skills will be channeled into occupations that require physical stamina. Finally, the crime rate again narrows the percent deviation. It seems reasonable that as the crime rate increases, whites will not

want to engage in some occupations, and as the white labor supply falls, jobs will be given to nontraditional workers.

Part Time

The only significant variable is DIF_{40K} . Not much can be explained from this regression.

Irregular Hours

Even if this regression appears to have a good fit, the only significant variable is $EDDIF_K$. It promotes increased interethnic occupational differences but the percent deviation between the two ethnic groups is very small. Therefore, no further discussion is needed.

4.3 Asian-American females: Empirical Results

The results for Asian females differ from those for Asian males. $EDDIF_K$ almost always narrows the percent deviation, quite unlike the pattern for Asian males. $ECLF$, when significant, always increases interethnic occupational differences. $PDEM_K$, in all cases but one, narrows the percent deviation. This makes sense because the more Asians there are in an area the more their occupational distribution resembles the white population. When $PDEM_K$ is small, Asians are likely to be in an area due to selective immigration, and to be of much higher skill levels than whites.

Research and Compiling

The percent deviation is low (five percent). It is therefore not very meaningful to discuss how the variables narrow or increase the interethnic occupational differences for this attribute.

Analyzing and Evaluating

There is no occupational difference between the Asian females and the white females. The percent deviation is zero.

Troubleshooting

This attribute has very little interethnic difference: only five percent. Therefore the need to explain how the variables narrow the interethnic occupational difference is not too important. The only significant variable in this regression is $EDDIF_K$. It narrows the percent deviation.

Artistic Expression

$ECLF$, $DIF40_K$, $EF88$, $NORTH$, and $SOUTH$ all increase interethnic occupational differences. One would expect that all the above variables would help narrow the percent deviation. Occupations requiring artistic expression are predominantly white and barriers to entry are high. Therefore, regardless of the educational level of the civilian labor force or the existence of large firms in an area, the positions for these occupations would continue to be given to white females. It seems that the western region would be more suitable for Asian females in these occupations. However, it is surprising that $PSAME$, which reflects some conservatism in an area, would narrow the percent deviation.

Instructing

The variables for this regression all narrow the interethnic occupational differences. Only $EDDIF_K$ and XX_S are significant and perform as expected. The more educated the Asian females are, the more are hired in occupations that require this attribute. In addition, XX_S (the percent of the labor force who work in occupations that require this attribute) helps narrow the differences. As more people work in this attribute, it seems reasonable to assume that employers would hire from all ethnic groups, narrowing the predominance of the white group.

Treating and Advising

$EDDIF_K$ and XX_S behave the same way as they did for the attribute "instructing." In addition, $POTH_K$ also helps narrow the interethnic occupational differences. The presence of other minority groups pushes Asians into occupations that require treating and advising. Also, $PDEM_K$ narrows the percent deviation. The more Asian females in an area, the more who would be hired for these occupations. $PSAME$, GP , and $PG90$ all increase the percent deviation. It seems reasonable that at a place where $PSAME$ is high, and people are not used to change, the Asian group would not be as easily accepted and, therefore, the occupations possessing this attribute would continue to be predominantly white. For GP and $PG90$ (government action), though, it would seem reasonable to expect the interethnic occupational gap to narrow. It is surprising that government employment does not help narrow the percent deviation.

Supervising

EDDIF_K and POTH_K, as expected, narrow interethnic occupational differences. Again Equal Employment Opportunity regulations do not seem to be effective (EF88). This attribute shows the North to be significant and increase the percent deviation. This is surprising. Finally, the crime rate increases the occupational difference between the ethnic groups.

Persuading

The only significant variables for this attribute are EDDIF_K and ECLF. EDDIF_K, as expected, narrows the interethnic occupational difference. However, ECLF increases the percent deviation. As mentioned above, the reason why ECLF increases the percent deviation is not easily understood. This, though, is the way ECLF affects the percent deviation of all the attributes which are significant for this ethnic group.

Public Contact

EDDIF_K and ECLF behave the same way for this attribute as for most attributes for this group. The greater the presence of other minority groups and the more people working in occupations that require this attribute, the narrower the percent deviation. The reason being that as the demand for labor increases, nontraditional workers enter the labor force and the predominance of the white group lessens. The crime rate increases the percent deviation. The attribute is predominantly white; as areas become more dangerous, employers apparently prefer to hire white people to perform occupations that require public contact.

Mechanical Ability

EDDIF_K, ECLF, and PDEM_K behave as they usually do. PMIL90 is significant. The more labor force there is in the military, the more Asian females would be involved in occupations that require mechanical ability. Apparently, a higher share of Asian women are engaged in blue-collar occupations in the vicinity of military bases. Compared to the white female group, this attribute is, by a large margin, held by the Asian group (85 percent). This is a substantial difference. Asian females tend to be involved in occupations that require this attribute, especially in factory positions. EF88 narrows the difference. For the previous attributes, Equal Employment Opportunity regulations do not appear to assist Asian females. In the same manner, for this attribute it narrows the percent deviation. CLF increases the percent deviation. This is very surprising. Finally, the northern region narrows interethnic occupational differences.

Operating a Vehicle

This attribute is predominantly white. PDEM_K and ECLF behave as always. GG is important for this attribute in narrowing the percent deviation. As expected, government employment assists in narrowing interethnic differences for this attribute, even though, overall it has not assisted this particular group.

Repetitious

EDDIF_K, DIF40_K, and PDEM_K are the significant variables for this attribute. Both EDDIF_K and PDEM_K narrow the percent deviation. DIF40_K, though, increases the interethnic occupational differences. Older Asian females are apparently more likely to engage in repetitious occupations.

Mobility

Not much can be said about this attribute. The model does not show a good fit. The only variable that shows significance is $PDEM_k$ and it narrows the percent deviation.

Physical Stamina

The percent deviation for occupations requiring physical stamina is very small for these two groups (nine percent). $EDDIF_k$ helps narrow the gap. $DIF40_k$, MFC_k , $POTH_k$, and $SOUTH$ all inflate the percent deviation. The more other minority females there are in an area, the more preferred Asians would be for occupations that require physical stamina. The Asian group would be pushed into occupations that require physical stamina by the other minority groups and the percent deviation would become even higher. Finally, $PG90$ and $EF88$ narrow the percent deviation. Government employment practices protect all labor from discrimination and are expected to narrow the percent deviation. In addition, large firms are more likely to conform to regulation, therefore, labor employed by these firms represent all ethnic groups and the percent deviation narrows.

Part Time

The percent deviation is very small for the two groups tested. Only three variables show significance: $PDEM_k$, $POTH_k$, and XX_s . $PDEM_k$ narrows the percent deviation, showing that as the number of Asian females in an area increases, this group is less likely to go into jobs that are part-time. $POTH_k$ increases the percent deviation, which shows that the presence of other minority groups in the area would push the Asian females into part-time jobs. Positions in other occupations would be filled with workers from other

minority groups, therefore, Asian females would settle for part-time positions. This variable contradicts $PDEM_K$. Finally, XX_S has exactly the same effect as $POTH_K$. As the labor demand increases, more Asians will be employed in occupations that require part time. This is surprising.

Irregular Hours

$EDDIF_K$, $POTH_K$, and $PMIL90$ all increase the percent deviation. $EDDIF_K$ is surprising because, as the educational level of this group increases, it would seem reasonable to assume that fewer would choose occupations that require irregular hours. $PDEM_K$ reflects the fact that the more Asian females there are in an area, the fewer go into occupations with irregular hours. $POTH_K$ increases the percent deviation because other minorities would take other jobs away from this group, and therefore Asian females would be pushed into irregular hour occupations. Finally, the effect of the military on employment would be similar to the presence of other minority groups.

Table 7A Asian versus White Males					
	Research and Compiling	Analyzing and Evaluating	Trouble- shooting	Artistic Expression	Instructing
Constant	0.720 (0.09)	0.460 (0.07)	-0.437 (0.00)	2.711 (0.00)	-0.877 (0.06)
EDDIF _K	0.848 (0.00)	0.800 (0.00)	0.740 (0.00)	0.110 (0.35)	0.828 (0.00)
ECLF	0.045 (0.06)	0.360 (0.00)	0.179 (0.00)	-0.266 (0.00)	0.082 (0.02)
DIF40 _K		0.167 (0.00)	0.172 (0.02)		
POC _K					
MFC _K			0.084 (0.14)		
PDEM _K		-0.041 (0.00)			
POTH _K	-0.112 (0.00)				-0.087 (0.00)
PSAME _K					0.149 (0.00)
CP		-0.122 (0.00)			
GP					
XX _S		-0.296 (0.00)			
PG90		0.120 (0.00)			
GG	-0.099 (0.01)				
EF88	-0.122 (0.00)			-0.310 (0.00)	-0.179 (0.00)
PMIL90		-0.105 (0.02)			
CLF					
NORTH	-0.045 (0.02)				
SOUTH					
Percent Deviation	37	12	-7	-9	14
R-squared	0.771	0.885	0.622	0.204	0.800
F-test [final model]	[6, 175]	[8, 174]	[4, 178]	[3, 143]	[5, 177]
P-value [final model]	98.28599	167.4910	73.31263	12.21859	142.1089
	0.00000	0.00000	0.00000	0.00000036	0.00000
Breusch-Pagan	192.443	99.4302	29.8669	57.9894	56.1203
Condition Number	18.7119	69.2598	20.3428	15.0637	37.8275
F-test [restricted]	1.34520	0.527431	1.02636	1.06817	1.38554
P-value [restricted]	0.197855	0.869036	0.429760	0.392277	0.171112

Notes: Refer to notes in Table 3.

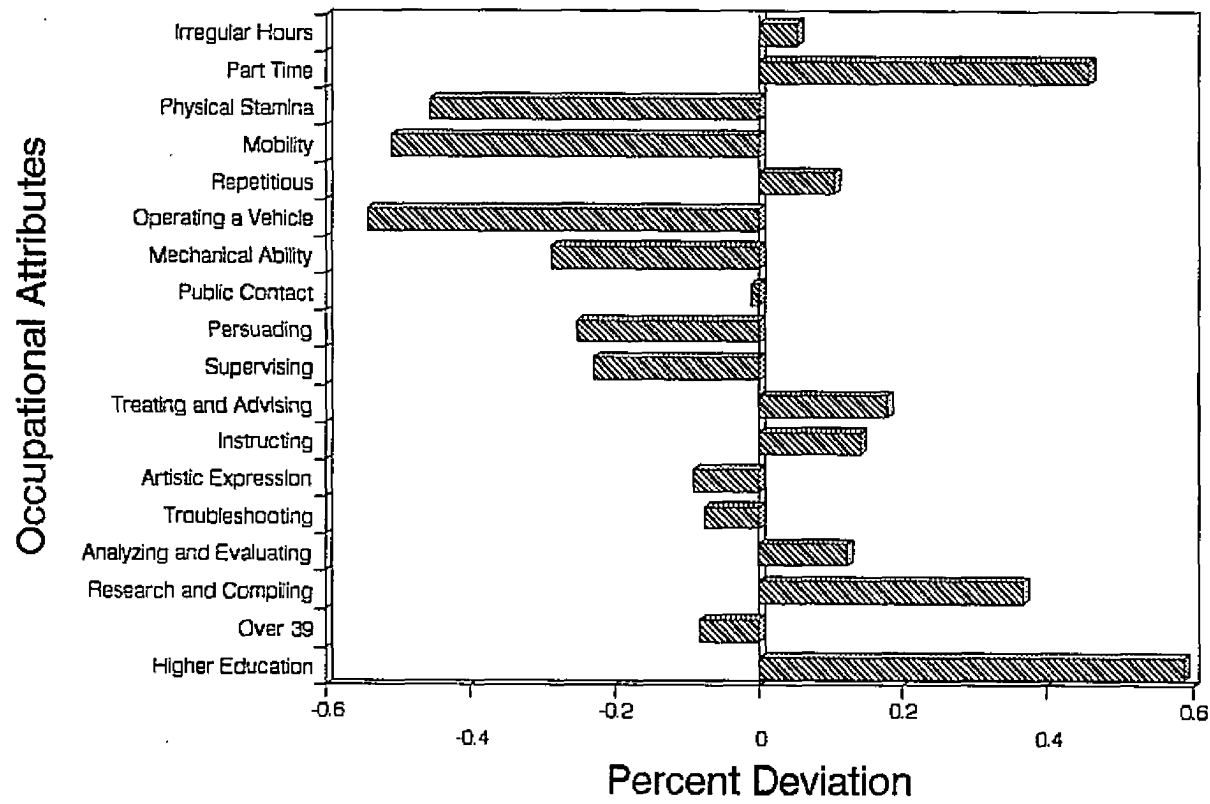
Table 7B Asian versus White Males					
	Treating and Advising	Supervising	Persuading	Public Contact	Mechanical Ability
Constant	-1.596 (0.02)	0.767 (0.00)	-0.287 (0.00)	-0.225 (0.40)	-0.360 (0.05)
EDDIF _K	0.836 (0.00)	-0.156 (0.07)	0.031 (0.68)	0.294 (0.00)	-0.049 (0.66)
ECLF	-0.057 (0.1)	-0.034 (0.58)	-0.185 (0.00)	-0.410 (0.00)	0.182 (0.01)
DIF40 _K				0.175 (0.03)	
POCK					-0.428 (0.00)
MFC _K					0.269 (0.01)
PDEM _K					
POTH _K	-0.088 (0.00)	0.229 (0.00)	0.260 (0.03)		
PSAME _K					
CP					
GP					
XX _s	0.158 (0.00)	-0.417 (0.00)		0.214 (0.00)	
PG90				-0.153 (0.00)	
GG					
EF88	-0.06 (0.07)				-0.131 (0.20)
PMIL90					
CLF			0.127 (0.00)		
NORTH					
SOUTH		-0.267 (0.00)	-0.150 (0.01)		
Percent Deviation	18	-23	-25	-1	-29
R-squared	0.788	0.282	0.151	0.354	0.320
F-test [final model]	[5, 177] 131.6343	[5, 176] 13.87611	[5, 170] 6.059210	[5, 177] 19.47989	[5, 176] 16.57928
P-value [final model]	0.00000	0.00000	0.000034461	0.00000	0.00000
Breusch-Pagan	69.8175	28.0727	30.9825	22.0670	192.427
Condition Number	46.0316	39.3782	16.7319	58.4207	23.1791
F-test [restricted]	1.24607	1.10915	0.900658	1.34443	1.42914
P-value [restricted]	0.251398	0.354701	0.553818	0.192283	0.150875

Table 7C Asian versus White Males						
	Operating a Vehicle	Repetitious	Mobility	Physical Stamina	Part Time	Irregular Hours
Constant	-0.125 (0.54)	0.719 (0.00)	-0.935 (0.00)	-0.127 (0.07)	0.549 (0.00)	0.136 (0.08)
EDDIF _K	-0.283 (0.00)	-0.508 (0.00)	-0.471 (0.00)	-0.232 (0.02)	0.046 (0.60)	0.261 (0.00)
ECLF	0.023 (0.72)	-0.020 (0.72)	0.031 (0.62)	-0.196 (0.00)	-0.080 (0.26)	-0.059 (0.32)
DIF40 _K	0.415 (0.00)		0.308 (0.00)		-0.398 (0.00)	
POC _K		-0.352 (0.00)		-0.424 (0.00)		
MFC _K						
PDEM _K	0.293 (0.00)		0.213 (0.00)	0.257 (0.00)		
POTH _K						
PSAME _K	-0.330 (0.00)					
CP				0.191 (0.00)		
GP						
XX _s	0.361 (0.00)		0.304 (0.00)			
PG90						
GG						
EF88						
PMIL90						
CLF						
NORTH						
SOUTH						
Percent Deviation	-54	10	-51	-46	46	5
R-squared	0.496	0.660	0.410	0.576	0.143	0.082
F-test [final model]	[6, 165] 27.12891	[3, 179] 116.2785	[5, 175] 24.37609	[5, 177] 48.16903	[3, 179] 10.02280	[2, 180] 8.127616
P-value [final model]	0.00000	0.00000	0.00000	0.00000	0.00000386	0.000437458
Breusch-Pagan	81.8020	40.5099	71.9932	43.4073	52.9953	19.8656
Condition Number	36.6989	1437267	32.1099	16.7985	12.8808	11.9520
F-test [restricted]	0.988262	1.48253	0.724010	1.04035	0.613615	1.28160
P-value [restricted]	0.462674	0.116895	0.737723	0.415509	0.861005	0.214392

Table 8 Asinan versus White Males Variables Significantly Working for Convergence (X) or Divergence (O)																			
Regression	US% Dev	E D D I F _x	E C L F	D I F 40 _k	P O C _k	M F C _k	P D E M _k	P O T H _k	P S A M E	C P	G P	X X _e	P G 9 0	G G	E F 8 8	P M I L 90	C L F	N O R T H	S O U T H
Research and Compiling	37	O					X							X	X			X	
Analyzing and Evaluating	12	O	O	O			X			X			O			X			
Trouble-shooting	-7	X	X	X															
Artistic Expression	-9		O												O				
Instructing	14	O	O					X	O						X				
Treating and Advising	18	O						X				O			X				
Supervising	-23	O						X				O							O
Persuading	-25		O					X									X		O
Public Contact	-1	X	O	X								X	O						
Mechanical Ability	-29		X																
Operating a Vehicle	-54	O		X			X		O			X							
Repetitious	10	X			X														
Mobility	-51	O		X			X					X							
Physical Stamina	-46	O	O		O		X			X									
Part Time	46			X															
Irregular Hours	5	O																	

Graph 3

Asian versus White Males



Source: Refer to source in Table I.

Table 9A Asian versus White Females					
	Research and Compiling	Analyzing and Evaluating	Trouble- shooting	Artistic Expression	Instructing
Constant	-0.845 (0.00)	-0.422 (0.00)	-0.178 (0.01)	-0.985 (0.16)	-1.275 (0.00)
EDDIF _K	0.681 (0.00)	0.851 (0.00)	0.608 (0.00)	-0.154 (0.25)	0.770 (0.00)
ECLF	-0.080 (0.57)	0.095 (0.01)	-0.002 (0.96)	-0.184 (0.04)	-0.030 (0.41)
DIF40 _K				-0.286 (0.08)	
POC _K					
MFC _K					
PDEM _K	0.029 (0.01)				
POTH _K	-0.124 (0.00)				
PSAME _K				0.367 (0.00)	
CP	-0.146 (0.00)				
GP	-0.155 (0.00)				
XX ₅	0.331 (0.03)				0.196 (0.00)
PG90	0.198 (0.00)				
GG					
EF88				-0.162 (0.06)	
PMIL90	-0.211 (0.00)				
CLF					
NORTH				-0.239 (0.02)	
SOUTH				-0.219 (0.09)	
Percent Deviation	5	0	-59	-22	-14
R-squared	0.723	0.716	0.371	0.278	0.651
F-test [final model]	[9, 172] 49.94098	[2, 180] 227.9559	[2, 180] 53.06313	[7, 137] 7.567197	[3, 177] 110.1173
P-value [final model]	0.00000	0.00000	0.00000	0.000000105	0.00000
Breusch-Pagan	36.3079	32.5419	37.7711	227.824	32.1826
Condition Number	66.7282	10.5230	10.5230	38.3917	37.5679
F-test [restricted]	1.03249	1.06479	0.889737	1.08533	1.20193
P-value [restricted]	0.371092	0.392835	0.581953	0.378297	0.275028

Notes: Refer to notes in Table 3.

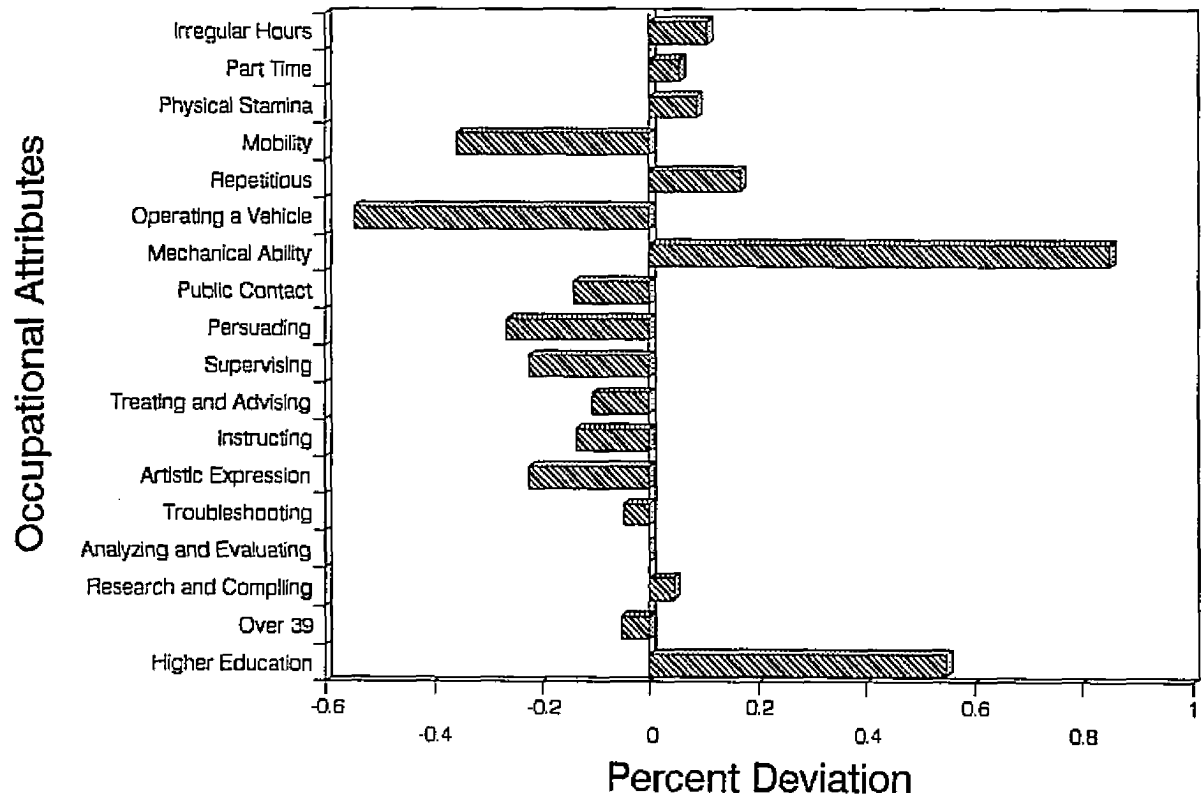
Table 9B Asian versus White Females					
	Treating and Advising	Supervising	Persuading	Public Contact	Mechanical Ability
Constant	-0.241 (0.44)	-0.407 (0.06)	-0.177 (0.05)	-0.504 (0.00)	1.213 (0.18)
EDDIF _K	0.783 (0.00)	0.417 (0.00)	0.171 (0.17)	0.343 (0.00)	-0.035 (0.79)
ECLF	0.006 (0.89)	-0.042 (0.57)	-0.135 (0.01)	-0.408 (0.00)	0.361 (0.00)
DIF40 _K					
POC _K					-0.216 (0.22)
MFC _K					0.138 (0.02)
PDEM _K	0.062 (0.00)				-0.134 (0.00)
POTH _K	0.211 (0.00)	0.213 (0.00)		0.371 (0.00)	
PSAME _K	-0.233 (0.00)	0.0761 (0.26)			
CP		-0.117 (0.09)		-0.247 (0.01)	
GP	-0.135 (0.04)				
XX ₅	0.227 (0.00)			0.294 (0.00)	
PG90	-0.248 (0.00)				-0.218 (0.05)
GG					0.079 (0.21)
EF88		-0.213 (0.09)			-0.286 (0.00)
PMIL90					0.462 (0.07)
CLF					0.113 (0.00)
NORTH		-0.07439613 (0.09)			-0.101 (0.07)
SOUTH					0.057 (0.44)
Percent Deviation	-11	-22	-26	-14	85
R-squared	0.658	0.270	0.054	0.249	0.367
F-test [final model]	[8, 173]	[8, 174]	[2, 178]	[5, 177]	[12, 162]
	41.78924	8.058798	5.150426	11.79507	73849161
P-value [final model]	0.00000	0.00000	0.00691554	0.00000	0.00000
Breusch-Pagan	40.2967	168.031	32.9291	26.7797	57.6834
Condition Number	64.2359	46.4617	10.5230	62.6135	37.3560
F-test [restricted]	1.45786	1.46112	1.18050	1.15081	0.150094
P-value [restricted]	0.159688	0.158315	0.288658	0.320640	0.988814

Table 9C Asian versus White Females						
	Operating a Vehicle	Repetitious	Mobility	Physical Stamina	Part Time	Irregular Hours
Constant	0.119 (0.56)	0.479 (0.00)	-0.316 (0.00)	0.239 (0.33)	-0.987 (0.00)	0.122 (0.08)
EDDIF _K	-0.043 (0.68)	-0.683 (0.00)	0.070 (0.33)	-0.182 (0.00)	0.080 (0.29)	0.202 (0.01)
ECLF	-0.321 (0.00)	0.049 (0.42)	-0.077 (0.33)	0.093 (0.11)	0.078 (0.18)	-0.065 (0.28)
DIF40 _K		0.130 (0.01)		0.179 (0.00)		
POC _K		-0.145 (0.20)				
MFC _K				0.221 (0.00)		
PDEM _K	0.174 (0.00)	-0.033 (0.03)	0.059 (0.00)		-0.069 (0.00)	-0.132 (0.00)
POTH _K				0.532 (0.00)	0.498 (0.00)	0.472 (0.00)
PSAME _K						
CP			-0.604 (0.39)			
GP						
XX _s					0.309 (0.00)	
PG90				-0.191 (0.00)		
GG	0.204 (0.00)					
EF88				-0.303 (0.00)		
PMIL90						0.314 (0.00)
CLF						
NORTH						
SOUTH				0.160 (0.00)		
Percent Deviation	-55	17	-36	9	6	10
R-squared	0.152	0.635	0.021	0.458	0.337	0.379
F-test [final model]	[4, 135] 6.080538	[5, 177] 61.59180	[4, 168] 0.9294328	[8, 173] 18.30596	[5, 177] 18.00778	[5, 177] 21.65960
P-value [final model]	0.000157449	0.00000	0.4482749	0.00000	0.00000	0.00000
Breusch-Pagan	33.4132	23.9780	27.1002	40.0698	25.8614	18.0095
Condition Number	12.2435	14.6040	12.6788	30.3081	40.2458	13.4497
F-test [restricted]	0.904100	10.33551	0.813531	0.741498	0.786474	0.643519
P-value [restricted]	0.556326	0.197141	0.653575	0.684564	0.676954	0.814514

Regression	US% Dev	E D D I F _x	E C L F	D I F 40 _x	P O C _x	M F C _x	P D E M _k	P O T H _k	P S A M E	C P	G P	X X _s	P G 9 0	G G	E F 8 3	P M I L 90	C L F	N O R T H	S O U T H
Research and Compiling	5	O					O	X		X	X	O	O			X			
Analyzing and Evaluating	0																		
Trouble-shooting	-5	X																	
Artistic Expression	-22		O	O					X						O			O	O
Instructing	-14	X										X							
Treating and Advising	-11	X					X	X	O		O	X	O						
Supervising	-22	X						X		O					O			O	
Persuading	-26	X	O																
Public Contact	-14	X	O					X		O		X							
Mechanical Ability	85		O			O	X						X		X	O	O	X	
Operating a Vehicle	-55		O				X							X					
Repetitious	17	X		O			X												
Mobility	-36						X												
Physical Stamina	9	X		O		O		O					X		X				O
Part Time	6						X	O				O							
Irregular Hours	10	O					X	O								O			

Graph 4

Asian versus White Females



Source: Refer to source in Table I.

CHAPTER 5 HISPANIC-AMERICANS

5.1 Historical Events

The Hispanic group is composed of many different cultures. For example, Mexicans, Puerto Ricans, and Cubans are all considered Hispanic. Mexicans constitute 60 percent of the Hispanic population (U.S. Census, 1994); Puerto Ricans constitute 17 percent (Feagin, 1984), and Cubans just five percent. All other subgroups are not documented separately. For the historical description of the Hispanics, this paper documents the facts relating to Mexicans and Puerto Ricans since these two groups make up the majority of the Hispanic population. For the empirical part of the paper, though, all Hispanics are included in the measurements. Hispanics differ in geographical regions (Mexicans are concentrated in the Southwest, Puerto Ricans in New York and urban areas, and Cubans in Florida, mostly in Miami), as well as in human capital accumulation. Therefore, it would have been preferred to study these subgroups separately. Due to the absence of data for Hispanic subgroups, however, all Hispanics are treated as one minority group.

The two decades after 1910 were the prime period in which most Mexicans immigrated to the United States. Mexican immigration varied according to the individual's needs. Five main types of immigration were in effect: 1. those with official visas ("legals"); 2. undocumented immigrants ("illegals"); 3. "braceros" (seasonal farm workers on contract); 4. "Green-card" commuters with official alien visas who lived in Mexico but worked in the U.S.; and 5. "border-crossers" with short-term permits, many of

whom became maids (Martinez, 1975; U.S. Immigration and Naturalization Service, 1975).

During the period of World War I, labor demand drew Mexican workers to the Southwest region where employers were in quest of cheap labor. Flexible immigration regulations made it possible for Mexicans to immigrate. Approximately 70,000 workers immigrated during that period (Feagin, 1984).

In the 1920s, with the expansion of the economy and the high demand for cheap unskilled labor, half a million workers and their households immigrated legally. Mexicans at that time responded to a demand in manufacturing in the Northern region and agriculture in the Southwest. The Immigration Act of 1924 prohibited Mexicans from immigrating because at the time they were the only major source of cheap labor (Feagin, 1984).

During the Great Depression, Mexican labor demand decreased. In the 1930s, the number of Mexican immigrants decreased sharply to 22,000, only five percent of the number a decade earlier. The government regulated the immigration of Mexicans by enforcing literacy tests and by prohibiting poor immigrants from entering.

In the 1940s, the effect of World War II was advantageous for the Mexicans. The U.S. government made an agreement with Mexico in order to be able to import "braceros". This began the era of the undocumented immigrants which is a big problem today. Between the 1920s and 1980s, four to seven million illegal workers crossed the border (Feagin, 1984).

The increase of the illegal labor force forced the U.S. government to take action. The 1965 Immigration Act placed a ceiling and allowed only 120,000 people into the country from within the Western Hemisphere in an attempt to control Mexican immigration. In the 1970s, further legislation made the practice of illegal employment a criminal offense. The unstable political and economic situation of Mexico, though, forced many to enter the U.S. illegally in the 1970s and 1980s. Official estimates calculate that five to ten million Mexicans are undocumented. Many believe that this number is highly exaggerated (Feagin, 1984).

Mexican-Americans have suffered a lot of ethnic discrimination in society, as well as, in the labor force. Because of lower wages, many Mexican-Americans are forced into urban ghettos. Then, too, as a result of accepting lower wages, many unions are against them, since employers often prefer them to whites (Feagin, 1984).

Puerto Ricans, unlike Mexicans, were mostly legal immigrants to the mainland. In 1900, fewer than 2,000 Puerto Ricans had immigrated to the U.S. The numbers increased slowly after World War II when many cultures immigrated. In the 1940s, 70,000 Puerto Ricans immigrated to the U.S., particularly to New York City and later to large urban cities in other regions of the U.S. In the 1950s and 1960s this number increased to 887,000. By 1980, more than two million Puerto Ricans had immigrated to the U.S. Today, this subgroup accounts for 17 percent of all Hispanics. They are the poorest minority group after Native Americans.

In 1980, Hispanic unemployment rose to 16 percent. Teinda (1986) proposes that the color of the skin influences discrimination from one Hispanic subgroup to the next.

For example, poverty rates for Mexicans rose to 22 percent, whereas poverty rates for Puerto Ricans rose to a significant 35 percent.

5.2 Hispanic-American Males: Empirical Analysis

The results for Hispanic males reflect very clearly how important the educational level of the ethnic group is in narrowing interethnic occupational differences. For all attributes, as the educational level of Hispanic males increases, the percent deviation between Hispanic and white males narrows. $PDEM_k$, as in the case of African Americans, increases the percent deviation between the two groups tested. $DIF40_k$, when significant, narrows interethnic occupational differences, reflecting the importance of experience for this group. Government action, surprisingly, does not assist this group in narrowing the interethnic occupational differences. Table 11 shows the results of the regressions for each attribute and Table 12 shows which variables significantly widen or narrow the percent deviation for each attribute.

Research and Compiling

The only significant variable in this regression is $EDDIF_k$. As expected, the educational level of this ethnic group narrows the occupational differences between Hispanic and white males.

Analyzing and Evaluating

$EDDIF_k$, $ECLF$, and $DIF40_k$ narrow the percent deviation. It makes sense that educational level and experience would narrow the differences. XX_s widens the percent deviation. As labor demand increases, more people will work in occupations requiring this

attribute. When labor demand increases, however, employers seem to hire whites or other ethnic groups, pushing the Hispanics out of occupations with this attribute. It is surprising that EF88 increases the percent deviation. It seems, though, that for this group, government action is not very effective. The dummy variable for SOUTH also increases the interethnic occupational differences. This seems reasonable. In the South, especially Texas, Hispanics earn lower wages than any other region. Therefore, it seems reasonable that Hispanics who have the human capital to be employed in occupations requiring analyzing and compiling would migrate from the South looking for better opportunities.

Troubleshooting

Again, EDDIF_K narrows interethnic occupational differences. DIF40_K also narrows the percent deviation. It is reasonable to assume that the more experienced in the ethnic group becomes, the more equal it will be with the white group. Finally, MFC_K decreases the percent deviation. This makes sense, as married people with children are considered to be more responsible employees and receive more promotions than single people.

Artistic Expression

EDDIF_K, as always, narrows the percent deviation. This is as expected. The higher the educational level of the Hispanic group, the less the occupational difference between them and whites. ECLF increases the interethnic occupational difference. Artistic expression is a field with high barriers of entry. One would expect that the higher the educational level of the labor force, the less the percent deviation. It is surprising that the percent deviation increases, but it could be that the more educated the labor force is,

the more difficult it is for nontraditional workers to enter this field. Finally, the dummy variable for NORTH increases the percent deviation. This again is surprising because it seems reasonable to assume that the Hispanic workers who would go to the North would be specialized. On the other hand, this could reflect the Puerto Rican immigrants who are not highly skilled, yet reside in the North.

Instructing

The only significant variable in this regression is $EDDIF_K$ and it narrows interethnic occupational differences. This regression, though, shows a good fit.

Treating and Advising

$EDDIF_K$ again narrows the percent deviation. XX_S also narrows interethnic occupational differences. This attribute is predominantly white, therefore, it seems reasonable that when labor demand increases more nontraditional workers would be hired.

Supervising

$EDDIF_K$, $ECLF$, and $PMIL90$ narrow the percent deviation. XX_S , $PG90$, $EF88$, and $SOUTH$ increase the interethnic occupational differences. For this attribute, the higher the labor demand the more the percent deviation. This shows that as demand for this attribute increases more jobs are given to whites or other ethnic groups and that Hispanics are pushed into other attributes. Government action turns out to be quite ineffective for this group. What is surprising is the effect of the military labor force. It seems that the more military employees an area has, the more Hispanics are employed for occupations requiring supervising. The South, as expected, increases the percent deviation. This is reasonable because the South is where a large percent of Hispanics settle

(30percent) (U.S. Census, 1994). The more educated may seek employment in more specialized areas such as the North but the ones who are not highly educated would stay in the South.

Persuading

$EDDIF_K$ narrows the percent deviation for occupations requiring persuading. When labor demand is high, employers tend to hire more nontraditional workers. The dominance of the white group would be weakened, so to speak. It is surprising that $PSAME$ narrows the percent deviation. $PSAME$ reflects a conservative area, therefore, one would expect that the more conservative the area is, the fewer Hispanics would be hired. MFC_K increases the percent deviation. This is again surprising. Married workers are considered to be more responsible and reliable; therefore, it would seem reasonable to expect that the more Hispanics who are married, the more who should be hired for these occupations. Both $PSAME$ and MFC_K influence Hispanic males in the opposite direction than was expected.

Public Contact

$EDDIF_K$ narrows the interethnic occupational differences. $DIF40_K$ also narrows the percent deviation. In occupations where public contact is required, such as sales, experience helps nontraditional workers, making them more effective. Surprisingly, MFC_K increases the percent deviation. This is not expected since married employees with children are considered to be better, more reliable workers. Finally, the crime rate increases the percent deviation. In occupations that require public contact, it would seem reasonable that in areas where the crime rate is high, nontraditional workers would be

hired due to the unwillingness of whites to perform occupations which expose them to danger. It is, therefore, surprising that the percent deviation increases.

Mechanical Ability

The percent deviation in this case is very small (minus one percent). This attribute is distributed quite equally between the whites and the Hispanics. Therefore, not much discussion is needed.

Operating a Vehicle

This attribute is the first that is predominantly held by the Hispanic group. EDDIF_K and ECLF both narrow the percent deviation as expected. PDEM_K increases the percent deviation. Since this is predominantly Hispanic, the more of the ethnic group in the area, the more who will be employed in occupations requiring this attribute. POTH_K has the same effect. The presence of other minority groups in an area would push Hispanics into occupations that are traditionally held by this group, increasing the percent deviation. PSAME causes the percent deviation to narrow. SOUTH also narrows the percent deviation, which may be a result of Hispanic migration.

Repetitious

EDDIF_K narrows the percent deviation, while ECLF increases the interethnic occupational differences. The more educated the overall labor force, the more occupations requiring repetition are left to the Hispanic group. DIF40_K narrows the percent deviation. The more experienced the Hispanics are, the more who would go into occupations other than those that require repetition. PDEM_K and MFC_K increase the percent deviation. In places where the number of members of minority groups is very low,

these groups are highly skilled professional workers who migrate in quest of pursuing a career. In places where $PDEM_K$ is high, however, Hispanics may not have as much human capital. As a result, they end up in occupations that require lower skill levels or are repetitious. $PSAME$ also increases the percent deviation. This could be attributed to a situation where conservative people do not like change, therefore Hispanics would continue to be channeled into traditionally Hispanic occupations. Occupations requiring repetition may not be as appealing to a more educated labor force. GP increases interethnic occupational differences. This is surprising because it seems reasonable to assume that as the private sector grows and labor demand increases, less discrimination would take place and, therefore, the percent deviation should narrow. $EF88$ reflects how ineffective government action is for this group. CLF signifies how it is that in places where labor density is high, minority workers face less discrimination. Finally, the dummy variable for $NORTH$ narrows interethnic occupational differences. Hispanic immigrants are mainly in the South or the West. Those who migrate to the North may be more likely to have higher levels of education, and therefore, are less likely to be represented in occupations involving repetition.

Mobility

$EDDIF_K$ and $ECLF$ narrow interethnic occupational differences. $PDEM_K$, $POTH_K$, and GG increase the percent deviation. Finally, the dummy variable for $SOUTH$ narrows the percent deviation. The difference between the two groups is very small for this attribute (four percent); therefore, not much explanation is needed.

Physical Stamina

EDDIF_k and POC_k narrow interethnic occupational differences. This is as expected, since if there is a large percentage of the ethnic group who are over 39 with a college degree it is less likely that they would be in occupations requiring physical stamina. PDEM_k, and POTH_k increase the percent deviation. Since this attribute is predominantly Hispanic, the more Hispanics in an area, the more employers will stereotype; therefore, Hispanics would continue to be hired in these occupations. In addition, the presence of other minority groups would push Hispanics into predominantly Hispanic occupations. GG shows that government action is not effective at narrowing interethnic occupational differences for this group. Finally, the dummy variable for SOUTH narrows the percent deviation.

Part Time

All significant variables increase the percent deviation. This is the only attribute for which the educational levels increase the percent deviation. This makes sense because of the nature of part-time occupations. Part-time occupations may be held by highly educated individuals who want only to work part time or by less educated individuals who cannot find full-time employment. The higher the educational level of the CLF, the fewer who would be willing to work in part-time occupations. EDDIF_k is hard to explain. One would think that as Hispanics become more educated, fewer would want to work in part-time occupations. Finally, CLF increases the percent deviation.

Irregular Hours

The percent deviation for this attribute is only five percent, therefore not much explanation is needed.

5.3 Hispanic-American Females: Empirical Analysis

The educational level of Hispanic females helps to narrow interethnic occupational differences. MFC_k , $PDEM_k$, and $POTH_k$ increase the percent deviation for all attributes for which they are significant. MFC_k turns out to be significant for this group. For African-American females it is not significant for any of the attributes and for Asian-American females it is significant only for the attribute “mechanical ability”. This may show that the family structure of Hispanics is different from other ethnic groups. There may be more emphasis on women taking care of children and being a housewife. The rest of the variables are not consistent for all attributes so generalizations cannot be made.

Research and Compiling

The educational level of Hispanic females assists this group in narrowing the difference between them and white females. MFC_k increases the percent deviation. This makes sense because raising children causes women to give up returns from education and to forgo experience. Also women who are expecting children are not likely to invest in human capital. Therefore, the percent deviation will continue to grow with white females filling the positions.

Analyzing and Evaluating

EDDIF_k and DIF40_k narrow the percent deviation. This shows that for occupations requiring analyzing and evaluating, education and experience help the ethnic group catch up with the white group. ECLF and PDEM_k increase the percent deviation. The more educated the labor force is, the more this attribute is dominated by the white group. This is against our expectations, but ECLF does work to increase the percent deviation in most regressions for this group. PDEM_k increases the percent deviation. This shows that where Hispanic females are more numerous, they tend to be employed in predominantly Hispanic occupations. This makes sense because usually more educated and specialized individuals tend to migrate to areas where they have employment opportunities. Thus, areas with small Hispanic populations would have higher numbers of Hispanics with high skill level.

Troubleshooting

The educational level and the experience level of the Hispanic group assist in narrowing the percent deviation. The presence of other minority groups seems to push Hispanics into occupations that are predominantly Hispanic rather than allowing them to enter other fields.

Artistic Expression

The educational level of the Hispanic group assists them in going into occupations that require artistic expression. A high percentage of the labor force consisting of Hispanic females and a high crime rate in an area, push this group into occupations that are predominantly Hispanic.

Instructing

Only $EDDIF_K$ and $POTH_K$ are significant for this attribute. The educational level helps Hispanic females catch up with whites, whereas the presence of other minority groups pushes Hispanics into traditionally Hispanic occupations, and increases the percent deviation.

Treating and Advising

The significant variables for this attribute are the same as for “instructing” plus GP, which increases interethnic occupational differences. GP reflects that even when the private sector grows, it does not mean that new positions will be filled with nontraditional workers. Since the presence of other minority groups pushes Hispanics into traditionally Hispanic occupations, the growth of private sector jobs will probably be met by other minority groups.

Supervising

Experience and educational level help Hispanic females catch up with the white group. The variables in this attribute behave the same way as for “analyzing and evaluating,” and “troubleshooting.”

Persuading

Experience and educational level narrow interethnic occupational differences. In addition, PG90 narrows the percent deviation, showing that, for this attribute, government action helps this group to catch up with the white group. POC_K , CP, and GP all increase the percent deviation. POC_K shows that the educational level of the older generation of Hispanic females does not assist this generation in narrowing the interethnic occupational

differences. The crime rate, as expected, increases the differences between Hispanics and whites. The crime rate appears always to segregate the groups. The growth of the private sector increases the percent deviation, as in the case of “treating and advising”.

Public Contact

For occupations requiring public contact, all variables influence the percent deviation as expected. MFC_K , CP , and $ECLF$ increase the percent deviation. MFC_K reflects the position of Hispanic females in the household when they become mothers. CP reflects how the crime rate increase disparities between minority groups and whites. $ECLF$ shows that when the whole labor force is highly educated, traditional workers are preferred. As always, the educational level of the Hispanic group narrows the percent deviation. It is surprising that in areas where population is high, the interethnic occupational differences continue to increase. It would seem reasonable to assume that in these areas discrimination towards minority groups would diminish.

Mechanical Ability

$EDDIF_K$ narrows the percent deviation. $PDEM_K$, as in the case of other attributes, increases the percent deviation. This occupational attribute is predominantly Hispanic. Therefore, the more Hispanics in the area, the more they tend to go into mechanical occupations predominantly held by the Hispanic group. Even though CLF increases the percent deviation, it may reflect an easing of discrimination since this attribute is predominantly Hispanic, and probably represents the better blue-collar jobs. As discrimination eases, more Hispanics can move into these jobs.

Operating A Vehicle

ECLF narrows the percent deviation for the first time. This is the first attribute that is predominantly Hispanic and for which ECLF is significant. Therefore, the effect of ECLF is again for the benefit of the white group. MFC_K increases the percent deviation. $PMIL90$ decreases the percent deviation. This makes sense since the military offers better career opportunities for minorities. When $PMIL90$ is high, fewer Hispanics will be working in the labor force, and, therefore, the percent deviation will narrow. The dummy variable for $SOUTH$ reflects that location in the South leads to a narrower percent deviation.

Repetitious

The educational level and experience level decrease the percent deviation. Experience assists Hispanics in moving out of occupations that require repetition. Experience is a major part of human capital. Hispanic workers with high human capital would move to occupations that require higher levels of human capital and the percent deviation would narrow. $PDEM_K$, $POTH_K$, $PSAME$, and GP all increase the interethnic occupational differences. This is a predominantly Hispanic attribute. In areas where the number of Hispanics is high, and where there are high numbers of other minority groups, Hispanics tend to be channeled into occupations that are traditionally held by Hispanics. $PSAME$ increases the percent deviation, showing that conservative areas channel Hispanics into predominantly Hispanic occupations.

Mobility

This attribute is predominantly held by the Hispanic group. High levels of ECLF seem to always encourage the white group into nontraditional occupations. In this case, ECLF narrows the percent deviation, therefore, whites are encouraged into occupations requiring mobility. PMIL90 also narrows the percent deviation. The military is regarded as relatively free of discrimination, therefore, the percent deviation would be expected to narrow. CLF increases the percent deviation. One would expect more occupational equality in areas where population density is high.

Physical Stamina

EDDIF_K, POC_K, MFC_K, PMIL90, and CLF all behave as they do for other attributes. DIF40_K, for this attribute, narrows the percent deviation. Experience may not play such a big role for most of the occupations that require physical stamina. PSAME narrows interethnic occupational differences. For this attribute, PG90 increases the percent deviation showing that government action does not visibly help Hispanics.

Part Time

The percent deviation is only six percent. This attribute is pretty well distributed between the two groups. All the variables which are significant behave as expected.

Irregular Hours

EDDIF_K, PSAME, and GP narrow the percent deviation. This is as expected. In addition, PDEM_K and POTH_K increase the percent deviation, but this is expected and consistent with the effect of these variables for the other attributes.

	Research and Compiling	Analyzing and Evaluating	Trouble- shooting	Artistic Expression	Instructing
Constant	0.000 (0.98)	0.374 (0.00)	0.073 (0.42)	0.841 (0.01)	0.075 (0.45)
EDDIF _K	0.917 (0.00)	0.886 (0.00)	0.527 (0.00)	0.560 (0.00)	0.849 (0.00)
ECLF	0.005 (0.84)	0.200 (0.00)	-0.024 (0.69)	-0.113 (0.07)	0.034 (0.12)
DIF40 _K		0.086 (0.01)	0.365 (0.00)		
POC _K					
MFC _K			-0.168 (0.01)		
PDEM _K					
POTH _K					
PSAME _K					
CP					
GP					
XX ₅		-0.231 (0.00)			
PG90					
GG					
EF88		-0.088 (0.00)			
PMIL90					
CLF				-0.008 (0.82)	
NORTH				-0.172 (0.02)	
SOUTH		-0.112 (0.00)			
Percent Deviation	-53	-52	-32	-48	-54
R-squared	0.853	0.871	0.613	0.264	0.717
F-test [final model]	[2, 178] 517.991	[6, 176] 198.5278	[4, 178] 70.57259	[4, 160] 14.35637	[2, 178] 226.5271
P-value [final model]	0.00000	0.00000	0.00000	0.00000	0.00000
Breusch-Pagan	61.6895	31.9501	53.8459	127.976	169.685
Condition Number	10.2861	63.0567	22.2914	13.2270	10.2861
F-test [restricted]	1.23304	1.03964	1.52633	1.31315	1.49254
P-value [restricted]	0.248153	0.415215	0.106648	0.206156	0.107996

Notes: Refer to notes in Table 3.

Table 11B Hispanic versus White Males					
	Treating and Advising	Supervising	Persuading	Public Contact	Mechanical Ability
Constant	-0.460 (0.14)	0.855 (0.14)	-0.635 (0.01)	0.310 (0.18)	-0.557 (0.00)
EDDIF _K	0.846 (0.00)	0.365 (0.00)	0.584 (0.00)	0.387 (0.00)	-0.501 (0.00)
ECLF	-0.045 (0.13)	0.188 (0.02)	-0.107 (0.14)	-0.044 (0.44)	0.327 (0.00)
DIF40 _K				0.168 (0.02)	0.266 (0.00)
POC _K					
MFC _K			-0.185 (0.00)	-0.283 (0.00)	
PDEM _K					0.125 (0.06)
POTH _K				-0.029 (0.61)	-0.076 (0.30)
PSAME _K			0.243 (0.00)	0.059 (0.35)	
CP				-0.196 (0.00)	
GP			0.088 (0.14)		
XX _s	0.126 (0.00)	-0.381 (0.00)	0.153 (0.05)		0.262 (0.00)
PG90		-0.147 (0.09)			-0.211 (0.03)
GG					
EF88		-0.212 (0.00)	-0.173 (0.00)		
PMIL90		0.277 (0.00)			0.186 (0.06)
CLF					
NORTH					
SOUTH		-0.164 (0.00)		0.083 (0.12)	0.135 (0.01)
Percent Deviation	-57	-43	-49	-30	-1
R-squared	0.748	0.398	0.539	0.493	0.394
F-test [final model]	[3, 178] 176.5447	[8, 174] 14.39382	[7, 173] 28.99211	[8, 174] 21.23371	[9, 173] 12.53139
P-value [final model]	0.00000	0.00000	0.00000	0.00000	0.00000
Breusch-Pagan	68.4204	80.0301	111.799	93.8280	14.1614
Condition Number	28.0326	62.9244	77.9750	57.8750	40.4976
F-test [restricted]	0.975958	1.33604	1.06692	1.48417	1.26515
P-value [restricted]	0.482869	0.215222	0.391200	0.149348	0.259566

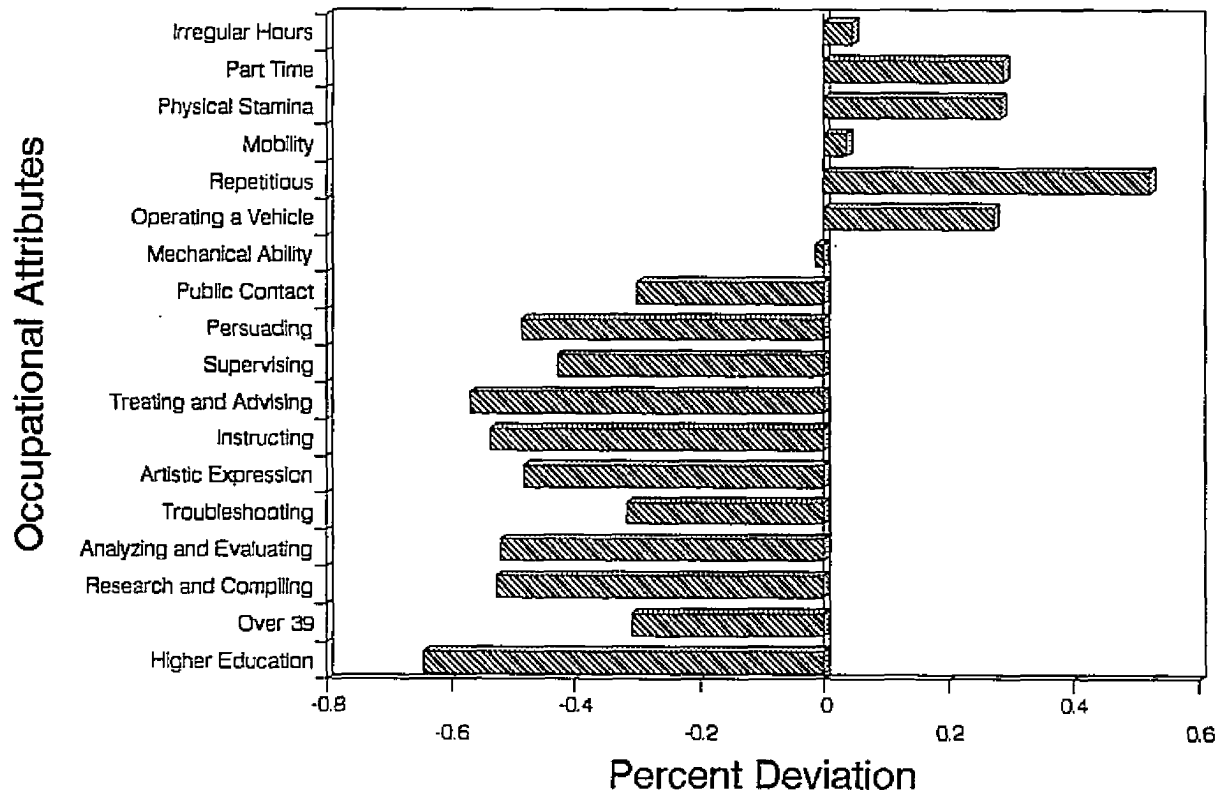
Table 11C Hispanic versus White Males						
	Operating a Vehicle	Repetitious	Mobility	Physical Stamina	Part Time	Irregular Hours
Constant	1.372 (0.00)	-2.134 (0.00)	-0.163 (0.01)	-0.273 (0.00)	-0.174 (0.57)	0.457 (0.00)
EDDIF _K	-0.257 (0.00)	-0.484 (0.00)	-0.324 (0.00)	-0.290 (0.00)	0.311 (0.00)	0.094 (0.45)
ECLF	-0.152 (0.02)	0.382 (0.00)	-0.099 (0.09)	0.163 (0.00)	0.270 (0.00)	-0.102 (0.14)
DIF40 _K		-0.132 (0.00)				
POCK				-0.212 (0.05)		
MFC _K		0.180 (0.00)				
PDEM _K	0.269 (0.00)	0.282 (0.00)	0.271 (0.00)	0.373 (0.00)		
POTH _K	0.319 (0.00)		0.275 (0.00)	0.262 (0.00)		
PSAME _K	-0.220 (0.00)	0.354 (0.00)			0.047 (0.64)	-0.305 (0.00)
CP						
GP		0.196 (0.00)				
XX _s						
PG90						
GG			0.180 (0.00)	0.204 (0.00)		
EF88	-0.063 (0.20)	0.196 (0.00)				
PMIL90						
CLF		0.085 (0.01)			0.109 (0.02)	0.144 (0.01)
NORTH		-0.115 (0.00)			-0.083 (0.23)	0.251 (0.00)
SOUTH	-0.284 (0.00)	0.108 (0.20)	-0.242 (0.00)	-0.132 (0.00)		
Percent Deviation	27	52	4	58	29	5
R-squared	0.469	0.736	0.415	0.700	0.172	0.150
F-test [final model]	[7, 175] 22.14919	[11, 171] 43.45785	[6, 176] 20.84167	[7, 175] 58.88291	[5, 177] 7.353105	[5, 177] 6.262798
P-value [final model]	0.00000	0.00000	0.00000	0.00000	0.000002752	0.00002243
Breusch-Pagan	47.4972	55.5999	19.4820	9.60831	24.4861	18.9092
Condition Number	39.9260	81.8655	13.8445	15.0355	35.1292	35.1292
F-test [restricted]	1.42701	0.38657	1.53886	1.48161	1.38719	1.07855
P-value [restricted]	0.165071	0.214150	0.114971	0.135621	0.170303	0.381019

Table 12
Hispanic versus White Males
Variables Significantly Working for Convergence (X) or Divergence (O)

Regression	US% Dev	E D I F _k	E C L F	D I F _{40k}	P O C _k	M F C _k	P D E M _k	P O T H _k	P S A M E	C P	G P	X X _s	P G 9 0	G G	E F 8 8	P M I L ₉₀	C L F	N O R T H	S O U T H
Research and Compiling	-53	X																	
Analyzing and Evaluating	-52	X	X	X								O			O				O
Trouble-shooting	-32	X		X		X													
Artistic Expression	-48	X	O															O	
Instructing	-54	X																	
Treating and Advising	-57	X										X							
Supervising	-43	X	X									O	O		O	X			O
Persuading	-49	X				O			X			X			O				
Public Contact	-30	X		X		O				O									
Mechanical Ability	-1	X	O	X			X					X	O			X			O
Operating a Vehicle	27	X	X				O	O	X										X
Repetitious	52	X	O	X		O	O	O	O		O				O		O	X	
Mobility	4	X	X				O	O											X
Physical Stamina	28	X	O		X		O	O											X
Part Time	29	O	O														O		
Irregular Hours	5								X								O	O	

Graph 5

Hispanic versus White Males



Source: Refer to source in Table 1.

Table 13A Hispanic versus White Females					
	Research and Compling	Analyzing and Evaluating	Trouble- shooting	Artistic Expression	Instructing
Constant	0.327 (0.03)	0.122 (0.32)	-0.036 (0.68)	1.183 (0.07)	0.001 (0.98)
EDDIF _K	0.483 (0.00)	0.625 (0.00)	0.487 (0.00)	0.233 (0.01)	0.720 (0.00)
ECLF	-0.035 (0.54)	-0.092 (0.06)	-0.101 (0.07)	-0.124 (0.12)	-0.034 (0.41)
DIF40 _K		0.187 (0.09)	0.208 (0.06)		
POC _K					
MFC _K	-0.310 (0.00)			-0.081 (0.48)	
PDEM _K		-0.082 (0.00)		-0.136 (0.00)	
POTH _K			-0.181 (0.00)		-0.134 (0.00)
PSAME _K					
CP				-0.179 (0.02)	
GP					
XX _s					
PG90					
GG					
EF88			0.092 (0.12)		
PMIL90					
CLF					
NORTH					
SOUTH					0.074 (0.19)
Percent Deviation	-32	-36	-22	-43	-41
R-squared	0.450	0.532	0.363	0.221	0.552
F-test [final model]	[3, 178] 48.62006	[4, 178] 50.61395	[5, 177] 20.20093	[5, 155] 8.814576	[4, 176] 28.88997
P-value [final model]	0.00000	0.00000	0.00000	0.0000002204	0.00000
Breusch-Pagan	60.9952	137.727	91.6014	49.2727	89.1288
Condition Number	20.1745	13.1584	18.2846	23.5272	12.1417
F-test [restricted]	1.24883	0.880604	1.14246	1.31194	1.57314
P-value [restricted]	0.240895	0.580949	0.327271	0.212472	0.236433

Notes: Refer to notes in Table 3.

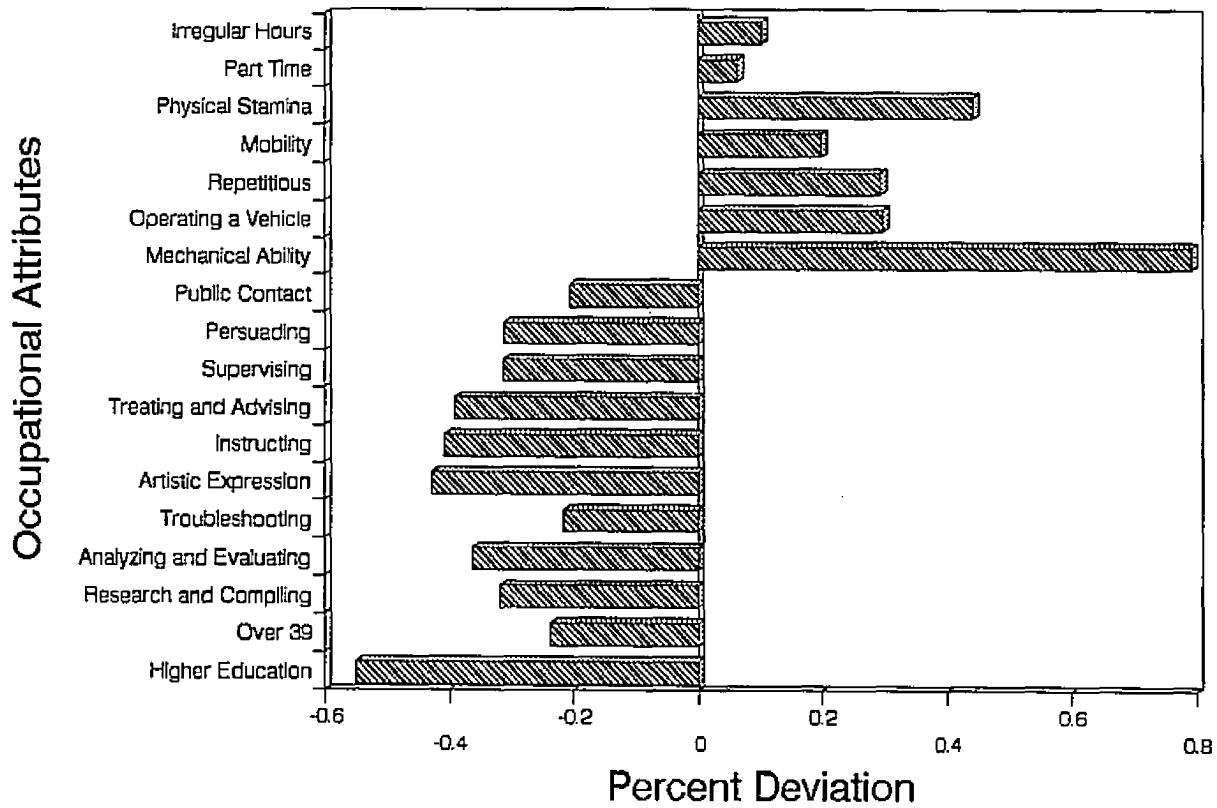
Table 13B Hispanic versus White Females					
	Treating and Advising	Supervising	Persuading	Public Contact	Mechanical Ability
Constant	0.000 (0.99)	0.121 (0.29)	-0.036 (0.88)	0.264 (0.00)	0.1797 (0.40)
EDDIF _K	0.677 (0.00)	0.291 (0.00)	0.742 (0.00)	0.357 (0.00)	-0.371 (0.00)
ECLF	0.025 (0.51)	-0.132 (0.01)	-0.080 (0.36)	-0.128 (0.02)	-0.041 (0.41)
DIF40 _K		0.335 (0.00)	0.204 (0.01)		
POC _K			-0.328 (0.00)		
MFC _K				-0.290 (0.00)	
PDEM _K					0.381 (0.00)
POTH _K	-0.183 (0.00)				
PSAME _K					
CP			-0.173 (0.00)	-0.180 (0.00)	
GP	-0.181 (0.00)		-0.154 (0.00)		
XX _s			0.170 (0.15)		
PG90			0.139 (0.00)		
GG					
EF88					
PMIL90	0.045 (0.25)				
CLF				-0.119 (0.01)	0.327 (0.00)
NORTH					
SOUTH					
Percent Deviation	-39	-31	-31	-21	80
R-squared	0.521	0.266	0.482	0.416	0.590
F-test [final model]	[5, 177] 38.59124	[3, 178] 21.59930	[8, 173] 20.12623	[5, 177] 25.23122	[4, 174] 62.77130
P-value [final model]	0.00000	0.00000	0.00000	0.00000	0.00000
Breusch-Pagan	40.6355	84.4773	133.741	17.4252	32.0584
Condition Number	14.11733	12.5901	69.2188	24.2046	13.3311
F-test [restricted]	0.898171	1.16068	1.17548	1.55592	1.47643
P-value [restricted]	0.556314	0.307622	0.310900	0.102885	0.125314

Table 13C Hispanic versus White Females						
	Operating a Vehicle	Repetitious	Mobility	Physical Stamina	Part Time	Irregular Hours
Constant	-0.997 (0.10)	-0.869 (0.00)	0.343 (0.05)	-0.038 (0.95)	-0.623 (0.00)	0.498 (0.00)
EDDIF _K	-0.158 (0.01)	-0.596 (0.00)	-0.119 (0.14)	-0.305 (0.00)	0.011 (0.87)	-0.187 (0.01)
ECLF	-0.195 (0.00)	0.208 (0.00)	-0.189 (0.02)	-0.007 (0.95)	0.190 (0.01)	-0.034 (0.65)
DIF40 _K		-0.243 (0.00)		0.157 (0.00)		
POC _K				0.141 (0.08)		
MFC _K	0.260 (0.0)			0.423 (0.00)		
PDEM _K		0.263 (0.00)			0.211 (0.00)	0.314 (0.00)
POTH _K		0.157 (0.00)			0.265 (0.00)	0.205 (0.00)
PSAME _K		0.252 (0.00)		-0.340 (0.00)		-0.271 (0.00)
CP						
GP		0.234 (0.00)				-0.185 (0.04)
XX _s				0.088 (0.26)	0.207 (0.00)	
PG90	0.328 (0.00)			0.240 (0.03)		
GG						
EF88						
PMIL90	-0.436 (0.00)		-0.101 (0.05)	-0.366 (0.00)		
CLF			0.067 (0.12)	0.287 (0.00)		
NORTH			0.102 (0.21)			
SOUTH	-0.279 (0.00)					
Percent Deviation	30	29	20	44	6	10
R-squared	0.211	0.674	0.0434	0.512	0.204	0.257
F-test [final model]	[6, 169] 7.570502	[7, 175] 51.68195	[5, 176] 1.596716	[10, 172] 18.06800	[5, 177] 9.093928	[6, 176] 10.15736
P-value [final model]	0.000000332	0.000000	0.1633247	0.000000	0.000000102	0.000000
Breusch-Pagan	57.6825	30.4946	33.7124	14.7877	4.83849	19.2331
Condition Number	27.0542	61.7358	14.1183	72.0245	40.5196	51.9889
F-test [restricted]	1.5396	1.28175	1.05277	1.64096	0.749216	0.920928
P-value [restricted]	0.321128	0.239028	0.404160	0.116862	0.712223	0.527484

Table 14																			
Hispanic versus White Females																			
Variables Significantly Working for Convergence (X) or Divergence (O)																			
Regression	US% Dev	E D D I F _k	E C L F	D I F 40 _k	P O C _k	M F C _k	P D E M _k	P O T H _k	P S A M E	C P	G P	X X _s	P G 9 0	G G	E F 8 8	P M I L 90	C L F	N O R T H	S O U T H
Research and Compiling	-32	X				O													
Analyzing and Evaluating	-36	X	O	X			O												
Trouble-shooting	-22	X	O	X				O											
Artistic Expression	-43	X					O			O									
Instructing	-41	X						O											
Treating and Advising	-39	X						O			O								
Supervising	-31	X	O	X															
Persuading	-31	X		X	O					O	O		X						
Public Contact	-21	X	O			O				O							O		
Mechanical Ability	80	X					O										O		
Operating a Vehicle	30	X	X			O							O			X			X
Repetitious	29	X	O	X				O	O	O		O							
Mobility	20		X														X		
Physical Stamina	44	X		O	O	O			X				O			X	O		
Part Time	6		O					O	O			O							
Irregular Hours	10	X						O	O	X		X							

Graph 6

Hispanic versus White Females



Source: Refer to source in Table 1.

CHAPTER 6 SUMMARY AND CONCLUSIONS

6.1 Conclusions and Implications

The purpose of this study is to determine the importance of education in narrowing interethnic occupational differences. The empirical results show that, without a doubt, education narrows these differences. Two educational variables were tested. The variable $EDDIF_K$ examined whether an increase in the educational level of the ethnic group tested (K), relative to the educational level of whites, would narrow the interethnic differences. The variable $ECLF$ tested whether an increase in the overall educational level of an area would narrow the percent deviation. $EDDIF_K$ measures the human capital accumulation of the ethnic group K , relative to the white group. Education is a major part of human capital. $ECLF$ tests whether the overall levels of education affect the level of prejudice in an Economic Area. Education seems to reduce prejudice (Schumacher, 1973).

Increasing the educational level of an ethnic group relative to whites has proven to be very influential in narrowing these differences. Table 15 summarizes the attributes for which $EDDIF_K$ is significant, and the attributes for which $EDDIF_K$ is the most influential variable in the regression. It appears that in 55 regressions out of 96, $EDDIF_K$ assists in narrowing interethnic occupational differences. However, for 12 regressions, occupational differences could actually increase if the educational level of minorities increases relative to whites. Eleven of these cases occur for Asian-Americans. Asian males already have higher levels of education compared to the white group; therefore, an

increase in their educational levels would only increase the occupational differences between the two groups.

Table 16 summarizes the attributes for which ECLF is significant and the ones for which it is the most influential variable in the regression. ECLF was not as significant as $EDDIF_K$. For only 18 regressions of the 96 was the overall educational level of the civilian labor force influential in narrowing interethnic occupational differences. However, for 25 regressions, increases in the overall educational level of the civilian labor force widened interethnic differences.

For African-American males, their educational level was the most influential variable explaining occupational differences. For 11 attributes, $EDDIF_K$ reflected that increasing the level of education of black males would result in less segregated occupations (Table 4). Most importantly, for seven of these attributes the educational level was the most influential, out of the 18 variables used, in narrowing the differences (Table 15).

The educational level of African-American females was significant in narrowing the percent deviation for five attributes. From these, $EDDIF_K$ was the most influential variable for only two attributes (Table 15). It was expected that $EDDIF_K$ would be the most influential for more attributes. However, this may reflect the fact that black females have already achieved higher occupational positions than their male counterparts.

For Asian-American males, the effect of education is quite different from the effect on other minority groups. For Asian males, higher levels of education usually increase interethnic occupational differences. The educational level of Asian males is already

higher than white males. Therefore, even higher levels of education would separate them even more from other groups. In attributes which are predominantly Asian, and which require high levels of education, the higher the educational level of Asians, the more Asians will go into occupations with these attributes. On the other hand, for attributes which do not require high levels of education and which are predominantly held by the Asian male group, the higher the educational level of Asians, the fewer who will go into occupations which require these attributes.

For Asian-American females, the results are similar to the other minorities. In seven attributes, the educational level of Asian females is the most influential variable narrowing the percent deviation. In most cases, the attribute requires education, and is predominantly held by the white group. Therefore, an increase in the educational level of Asian females would cause those occupations to be less segregated.

Hispanics appear to be the group which benefits most from an increase in their educational level.

For Hispanic-American males, $EDDIF_K$ is the most influential variable for 12 out of 16 attributes. For 11 of these, it narrows the interethnic occupational differences. This reflects how the occupational segregation between Hispanics and whites is mostly due to the unequal educational levels of the two groups.

For Hispanic-American females, it is very similar to Hispanic males. For 10 out of 16 attributes, the educational level of the ethnic group is the most influential variable and it narrows the occupational differences between the two groups.

This study shows overall that the most important determinant of the occupational differences between the whites and minority groups is the educational level of the minority group. For some attributes, such as “research and compiling,” “troubleshooting,” “instructing,” and “supervising,” education is an important requirement. These attributes are mostly dominated by the white group. Therefore, as the educational level of minorities increases relative to the whites, more of minority workers would enter into occupations that require higher education and the percent deviation would narrow. For attributes such as “mechanical ability,” “mobility,” “part time,” and “irregular hours,” higher education is not as significant. For most of these occupations, higher education is not required. Therefore, as the educational level of minorities increases, more minorities would leave such occupations and enter occupations in which they can utilize their human capital.

The educational level of the entire civilian labor force (ECLF) was expected to also be very influential in narrowing interethnic occupational differences. According to Schumacher (1973), a more educated population has less prejudice. Overall, ECLF has proven to be the most influential variable for only five regressions out of 96 (Table 16). For two of these five, it causes convergence. In three of them it actually increased the interethnic occupational differences, meaning that increases in the educational level of the entire civilian labor force would actually increase the percent deviation.

The educational level of the overall civilian labor force appears to be far less influential in narrowing the interethnic differences between whites and minority groups than the educational level of the minority group.

Eff (1994), in a similar study, tried to determine factors which narrow intergender occupational differences. Eff found that the growth rate of the private sector was the most important factor narrowing the occupational differences between males and females. For gender differences, it seems that when the private sector grows and, as a result, labor demand increases, employers hire both sexes (Eff, 1994). In this study, though, the educational level of the minority group is the most important factor narrowing occupational differences.

6.2 Policy Implications

As mentioned in Chapter 1, education is particularly suitable as a policy variable since it can be monitored and controlled by the government. Government can easily intervene in matters that affect education. Education is a major share of government spending, therefore, the influence of education is a major concern to the government. Increasing the educational levels of minorities does not disturb the allocative efficiency of labor markets, therefore markets can continue to run smoothly. Increasing the level of education for minorities will result in equal opportunities for employment, housing, and higher overall socioeconomic status of minorities. The increased socioeconomic status of minorities will eventually result in better family backgrounds for the next generation. Finally, education can reduce prejudice.

Black and Hispanic minorities, due to educational attendance zones, enter the labor market with lower levels of human capital (Kimenyi, 1995). Equal Education Opportunity Policies (EEO) were formed to reduce geographical segregation and division based on the socioeconomic status of minorities (Kimenyi, 1995).

Desegregation of public schooling is one of the policies of EEOP. Due to the existing housing segregation (poor minorities living in ghettos), desegregating public schools was difficult. Poor students continued to attend poor schools. In the past two decades, the government has tried to eliminate this division by providing access through busing and optional attendance zones.

Another policy is fiscal equalization. The federal government has enforced a variety of programs under which schools across states and school districts would receive equal funding. This is indeed necessary as schools located in poor areas (since they rely heavily on local property taxes as financial sources) are unable to offer quality education (Kimenyi, 1995).

Another policy is compensatory education. This results from the failure of poor schools to provide quality education. "Head Start" is the most effective compensatory program that helps disadvantaged preschoolers. It is supposed to help "children of poor homes by providing educational, health, nutritional, and social services" (Kimenyi, 1995).

Finally, admission policies deal with teenagers who are trying to go to college but who have an uncompetitive educational background. Most minorities, due to geographical segregation and family background, come out of high school with lower levels of education than whites (Kimenyi, 1995). Therefore, in entrance examinations, they score lower and face barriers of entry to college. It has been suggested that admission policies should differ for whites and minorities. Most colleges offer some form of preferential treatment to minorities for admission and funding (Kimenyi, 1995).

Offering easier access to funding will assist minorities who come from poor backgrounds in financing higher education.

The policies just mentioned reflect methods adopted by the government in an effort to increase the educational level of minorities. This study reinforces the urgency for effective government policies in attempting to offer better quality education for minorities, since increasing the level of minority education is the most important way in which interethnic occupational differences can be diminished.

Table 15 Regressions in which EDDIF _K Is Significant						
Attributes	Black Males	Asian Males	Hispanic Males	Black Females	Asian Females	Hispanic Females
Research and Compiling	X*	O*	X*	X	O*	X*
Analyzing and Evaluating	X	O*	X*			X*
Trouble-shooting	X*	X*	X*		X*	X*
Artistic Expression			X*	X*		X*
Instructing	X*	O*	X*	X	X*	X*
Treating and Advising	X*	O*	X*		X*	X*
Supervising	X	O	X		X*	X
Persuading	X*		X*	X*	X*	X*
Public Contact	X*	X	X*		X	X*
Mechanical Ability			X*			X
Operating a Vehicle	X	O	X	X		X
Repetitious	X*	X*	X*		X*	X*
Mobility		O*	X*			
Physical Stamina	X	O	X		X	X
Part Time			O*			
Irregular Hours		O*			O	X

Notes: X reflects convergence; O reflects divergence; * indicates the most influential variable in the regression.

Attributes	Black Males	Asian Males	Hispanic Males	Black Females	Asian Females	Hispanic Females
Research and Compiling				O		
Analyzing and Evaluating	X*	O	X			O
Trouble-shooting	X	X				O
Artistic Expression	O	O	O		O	
Instructing		O				
Treating and Advising	X					
Supervising	X		X			O
Persuading	X	O			O	
Public Contact	X	O*		X	O*	O
Mechanical Ability		X	O	X	O	
Operating a Vehicle	O		X		O*	X
Repetitious	X		O			O
Mobility			X			X*
Physical Stamina		O	O	X		
Part Time			O			O
Irregular Hours						

Notes: X reflects convergence; O reflects divergence; * indicates the most influential variable in the regression.

APPENDICES

APPENDIX A

Occupational Attributes

Researching and Compiling: “Gathering and organizing information or data by reading, conducting tests or experiments, or interviewing experts. Though research, scientists gather information to develop new theories, products, and processes, such as a new medicine to cure a disease. Paralegals conduct research and compile information to identify appropriate laws, legal articles, and judicial decisions that might be used in a client’s case. Credit clerks and authorizers compile and update information for credit clerks” (Clymer and McGregor, 1992).

Analyzing and evaluating: “Examining data or information to develop conclusions or interpretations. After conducting research and compiling data, paralegals may analyze the information and write reports that are used by attorneys to decide how a case should be handled. Retail buyers study sales data to determine purchasing trends, and budget analysts examine financial data to determine the most efficient distribution of funds and resources for their company” (Clymer and McGregor, 1992)..

Troubleshooting: “Identifying, diagnosing, and solving problems. A degree of analysis may be required to form opinions and make decisions. Involves reaction to a situation or problem that arises. Elevator repairers diagnose and repair electrical defects quickly to ensure that elevators continue running smoothly. Automotive mechanics diagnose problems with cars and make adjustments or repairs. Managers must deal with

various problems, such as a decline in an employee's performance or budget reductions requiring layoffs" (Clymer and McGregor, 1992).

Artistic expression: "Designing, composing, drawing, writing, or creating original works or concepts. Interior designers need creativity to develop designs to use in preparing working drawings and specifications for interior construction of buildings. They need an artistic sense to coordinate colors, select furniture and floor coverings, and design lighting and architectural details. Newspaper columnists convey their views on political, social and economic issues" (Clymer and McGregor, 1992).

Instructing: "Teaching people by explaining or showing. Often requires ability to develop new methods and approaches. Adult education teachers demonstrate various techniques to students, including the use of tools or equipment. Manufacturers and wholesale sales representatives show their customers how to operate and maintain new equipment" (Clymer and McGregor, 1992).

Treating and advising: "Counseling or caring for others. Dietitians advise people on proper nutrition. Psychologists and counselors help people deal with vocational and marital problems. Securities and financial services sales representatives advise people on financial investments and planning" (Clymer and McGregor, 1992).

Supervising: "Directing, organizing, and motivating people and groups. Blue-collar worker supervisors coordinate and supervise the activities of subordinates. Education administrators provide direction, leadership, and day-to-day management of educational activities in schools and instructional organizations in private businesses" (Clymer and McGregor, 1992).

Persuading: “Influencing the feelings of others. Preaching, selling, promoting, speechmaking, negotiating, and mediating are among the skills included in this occupational characteristic. Lawyers attempt to persuade a jury to believe a client’s case. Advertising executives try to influence consumers to buy the products they are promoting” (Clymer and McGregor, 1992).

Public contact: “Meeting, assisting, and dealing directly with the public frequently on a daily basis. Reference librarians work directly with people, helping them locate information. Bank tellers cash checks and process deposits and withdrawals for customers. Real estate agents help customers find homes that meet their needs” (Clymer and McGregor, 1992).

Mechanical ability: “Extensively using and understanding machines or tools. Setting up, operating, adjusting, and repairing machines may also be required. Textile machinery operators make minor repairs and restart looms when malfunctions occur. Musical instrument repairers tune and adjust pianos and other instruments. Marine engineers maintain and repair engines, boilers, generators, and other machinery on boats and ships” (Clymer and McGregor, 1992).

Operating a vehicle: “Driving and controlling vehicles or equipment. Busdrivers, industrial truck operators, and aircraft pilots are several examples” (Clymer and McGregor, 1992).

Repetitious: “Work in which the same duties are performed continuously in a short period of time. Sometimes a machine sets the pace of work. Examples include

workers on automotive assembly lines, as well as cashiers and bank tellers” (Clymer and McGregor, 1992).

Mobile: “Requires frequent movement between various work locations, such as office buildings and construction sites. Can involve a combination of different work settings. Workers do not stay in a single office, factory, or laboratory. For example, in addition to working in an office, property and real estate managers frequently visit properties they oversee, while manufacturing sales representatives travel to different cities to visit customers. Messengers deliver packages to various locations” (Clymer and McGregor, 1992).

Physical stamina: “Physically demanding. Workers must endure significant physical stress and strain, including lifting heavy objects. Construction work is often strenuous, and workers spend most of the day on their feet- bending, kneeling, lifting, and maneuvering heavy objects” (Clymer and McGregor, 1992).

Part Time: “Opportunities for part-time work are favorable. Most waiters and waitresses work part time, as do retail salesworkers” (Clymer and McGregor, 1992).

Irregular hours: “Working a schedule other than the standard 8-hour day, including night or weekend shifts, rotating schedules, or working for several days and then having several days off. Many nurses and security guards work nights or weekends. Other occupations that work on shifts include firefighters, pilots, and roustabouts” (Clymer and McGregor, 1992).

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