On the Cost of Ethnicity
An Empirical Analysis of Relative Wages of Hispanics in the United States

by

Manuel A. Orejuela

B.A., Economics
Boston College, 1995

Submitted to the Department of Urban Studies and Planning
in Partial Fulfillment of the Requirements for the Degree of

Master in City Planning

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

June 1997

Signature of Author:_____
Department of Urban Studies and Planning
May 20, 1997

Certified by:_____
Aixa N. Cintron
Assistant Professor of Urban Studies and Planning
Thesis Supervisor

Accepted by:_____
Mark Schuster
Associate Professor of Urban Studies and Planning
Chair, Master in City Planning Program

On the Cost of Ethnicity
An Empirical Analysis of Relative Wages of Hispanics in the United States

by

Manuel A. Orejuela

Submitted to the Department of Urban Studies and Planning
on May 20, 1997 in Partial Fulfillment of the
Requirements for the Degree of Master in City Planning

ABSTRACT

This paper examines the labor market outcomes of Hispanic male and female workers using Public Use Microdata Samples from the 1990 Census of Population. Multivariate regression analysis is applied to estimate wage equations, correcting for selectivity bias, for Hispanic main national-origin groups and non-Hispanic blacks and whites. A detailed breakdown of the wage differential between each Hispanic group and non-Hispanic whites is provided.

Results indicate that Hispanics earn lower wages than non-Hispanic whites, but the extent of wage differences varies by national-origin group and gender. On average, Cubans and Puerto Ricans fare better than Mexicans and Central and South Americans. Parameter estimates show that both human capital and job-related and labor market characteristics are significant determinants of Hispanic wages, though the estimated returns to observed characteristics differ by nationality among Hispanics. Low educational and occupational attainment explains most of the wage gap for Cuban and Puerto Rican men and Mexican women. For the remaining Hispanic groups, particularly Hispanic women, there exists considerable evidence of unexplained discrimination relative to non-Hispanic whites. Policy implications of these findings are discussed.

Thesis Supervisor: Aixa N. Cintron
Title: Assistant Professor of Urban Studies and Planning

ACKNOWLEDGEMENTS

The author is indebted to several scholars in academic careers whose writings inform, analyze, and stimulate research. I am especially thankful to Aixa N. Cintron, for guiding me through the whole intricate process of writing a thesis. Aixa generously reviewed the study with great care and raised numerous issues that forced me to rethink my treatment of several topics. To Aixa, I extend my deepest thanks.

I am also grateful to Dough Staiger of the Harvard John F. Kennedy School of Government. Dough provided extremely useful and detailed suggestions for improving the methodology and empirical analysis sections.

Finally, I appreciate the comments of Frank Levy who was part of my committee as the thesis reader.

Of course, I solely bear responsibility for the final results of this paper.

To my beloved wife
and family,
Their love helped see me through it

CONTENTS

LIST OF FIGURES

LIST OF TABLES

I. INTRODUCTION

During the last decade, the experience of Hispanics in the United States has been the subject of increasing research. These studies has mainly focused on understanding the incorporation of Hispanics into American society and its labor markets. Particularly, social scientists have attempted to address the question of why Hispanics have not been integrated more successfully into U.S. labor markets. Indeed, the existing literature has revealed extensive social and economic inequality between Hispanics and non-Hispanics (Borjas and Tienda, 1985; Bean and Tienda, 1987; Chiswick, 1988; Defreitas, 1991).

Although no consensus prevails in the literature, empirical studies of Hispanic-non-Hispanic wage differentials have indicated that differences in human capital and personal characteristics explain most of the discrepancy for some Hispanic groups, but not for others (Melendez, Rodriguez, and Figueroa, 1991). This in part reflects the marked socioeconomic heterogeneity that exists among Hispanic national-origin groups. In addition, other factors such as occupational status, labor market conditions, and wage discrimination, have been shown to significantly influence the labor market outcomes for Hispanics (Tienda, 1983; Verdugo and Verdugo, 1984; Reimers, 1985).

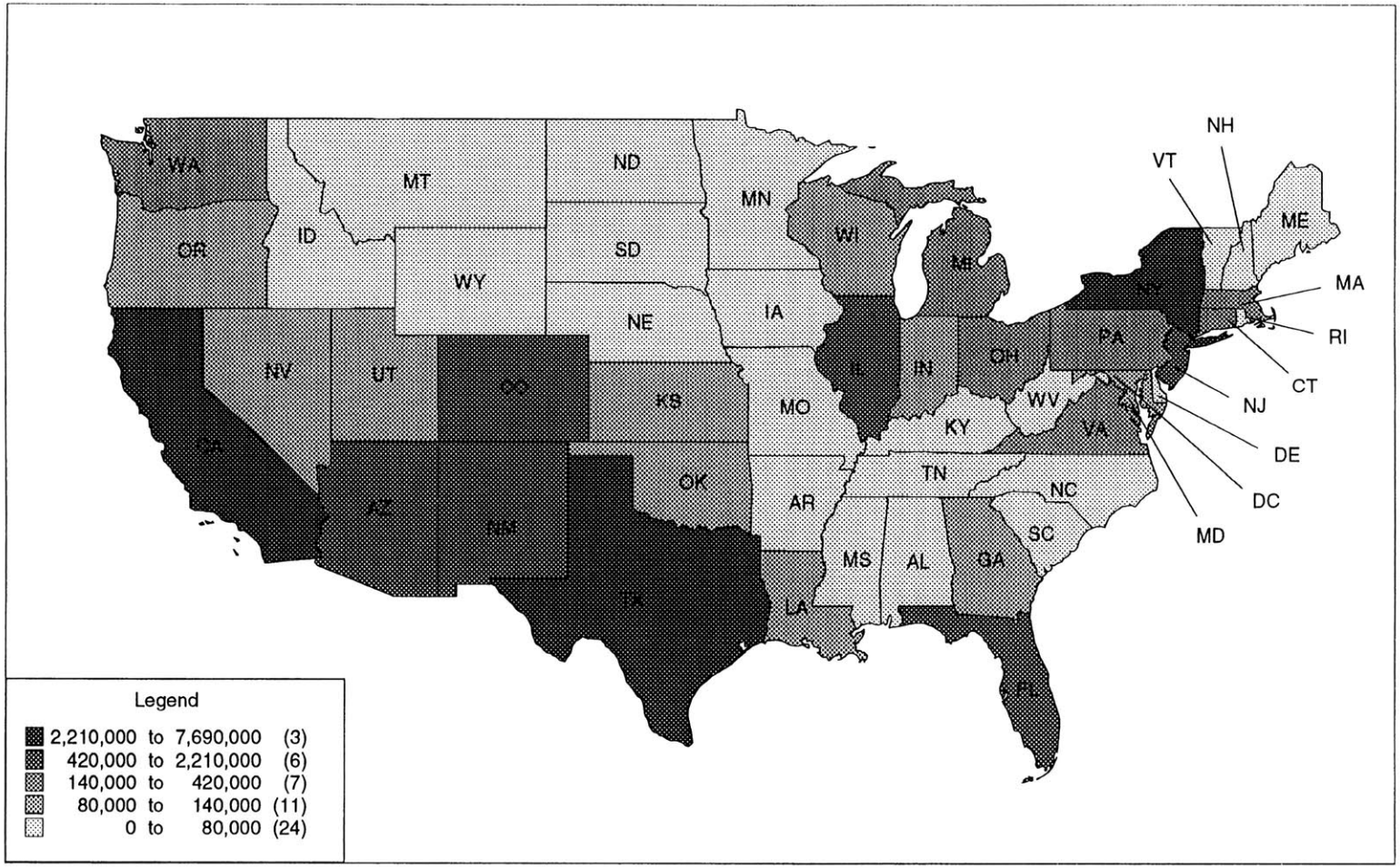
As emphasized by Bean and Tienda (1987), the significance of conducting research on Hispanics lies primarily in their increasing impact on the demographic composition and socioeconomic features of the U.S. population. In 1994, according to the Bureau of the Census, the Hispanic population amounted to 27 million, representing 10% of the Country's total population. From 1990 to 1994, the Hispanic population expanded by 20%. Over the same period, in contrast, the U.S. population as a whole grew by only 6%.

The rapid growth of Hispanics in the early 1990s was a continuation of past trends. Between 1980 and 1990, the Hispanic population increased by 53%, a growth rate that exceeded that of whites and African Americans by nearly 10 and 5 times, respectively (Bonilla and Morales, 1992). If expected fertility, immigration, and mortality rates persist, Hispanics will surpass within 25 years African Americans as the single largest minority in the nation (Enchautegui, 1995).

Because of their geographic concentration, Hispanics also have a significant impact on U.S. labor markets (Figure 1). Between 1988 and 2000, the Hispanic labor force is projected to grow by 60%. Over this period, the Hispanic share of the overall labor force is expected to be nearly 27% (Defreitas, 1991). The consequences then of overlooking the disadvantaged economic position of Hispanics become evident. The costs of this neglect are already being experienced. During the 1980s, the Hispanic population experienced larger increases in poverty than whites and African Americans. In 1992, the poverty rate of Hispanics was nearly 6 percentage points above the 1979 level, compared to less than 1 percentage point higher for African Americans and 1.5 percentage point higher for whites (Enchautegui, 1995). However, the economic plight of Hispanics affects more than a single ethnic group. As Enchautegui (1995) writes, the costs of low income and rising poverty among Hispanics "falls on Latino children and communities" and, eventually, "on the nation".

The present study is an analysis of the relative wages of Hispanic workers in the United States today. The purpose of the study is twofold: (1) to measure the relative

Figure 1. Geographic Distribution of the Hispanic Population in the United States by State of Residence, 1990
(Absolute Numbers)



Source: U.S. Bureau of the Census "Race and Hispanic Origin", 1990 Census Profile, Number 2, June 1991.
Note: Alaska and Hawaii are not included.

impact of personal characteristics and productivity-related factors, job and labor market conditions, and "potential" labor market discrimination on the wages of Hispanics; (2) to determine the critical factors that explain wage differences for Hispanics. The principal contribution of the study consists in updating the empirical work on the labor market performance of Hispanics by using Public Use Micro Sample data from the 1990 Census of Population. Because of the limited research on Hispanic females' economic status, special attention is given to the experience of Hispanic women in the labor market. The ultimate aim of the study is to shed light on within-group differences in socioeconomic outcomes amenable to public policy intervention.

The current study applies multivariate regression analysis to estimate wage functions for Hispanics and non-Hispanics and to provide a detailed decomposition of the wage differentials. In theory, a major advantage of regression analysis is that it allows for the isolation of the relative effects of individual factors on wages[1].

The remaining portion of the study is divided into four sections. Section II reviews the literature detailing the main explanations of ethnic economic differences. The methodology applied in the paper is presented in Section III with a discussion of data and model specification. Section IV provides the results of the empirical analysis. Section V summarizes the findings and discusses their implications for public policy.

[1] The author is aware, as Reimers (1983) emphasizes, that caution should be assigned to the interpretation of regression coefficients as the potential effects of modifying characteristics of ethnic groups in the real world, where explanatory variables interact with one another.

II. LITERATURE REVIEW

Income inequality in the form of earnings differentials has been the subject of extensive empirical work in the United States[2]. Initially, the bulk of the research focused on the analysis of gender and racial economic differences (Tienda and Lii 1985). With the development of the civil rights movement during the 1960's and 1970's, the labor market experience of women and African American men received considerable attention from the academic world and became an issue of policy concern (Siegel, 1965; Weiss, 1970; Brown and Fuguitt, 1972; Oaxaca, 1973; Polacheck, 1975). Few researchers then examined the socioeconomic achievements of other minority groups (Poston and Alvirez, 1973; Long, 1977; Frisbie and Nieder, 1977; Gwartney and Long, 1978; Chiswick, 1978). Over the past two decades, however, Hispanics as an ethnic group have attracted political and social interest (Tienda, 1983). As Hispanics have become the fastest-growing population in the United States, they have gained considerable importance and visibility. Nowadays, there is a growing body of literature dedicated to Hispanic research. Specifically, social scientists have increasingly studied the economic status of Hispanics. This chapter intends to summarize and critically evaluate the available research literature on the labor market position of Hispanics.

Widely accepted is the notion that Hispanics are an economically disadvantaged minority group. More concretely, Hispanics tend to receive lower hourly wages than their

[2] The empirical literature on growing inequality and on declining earnings for less educated workers is reviewed by Levy and Murnane (1992).

counterpart non-Hispanic whites[3] (Poston, Alvirez, and Tienda, 1976; Verdugo and Verdugo, 1984). For example, Reimers (1983) computed that the male average wage rate for non-Hispanic whites was $5.97 but $4.31 for Mexicans in 1976. The economic inequality between Hispanics and non-Hispanics, moreover, is accompanied by inequality within the Hispanic population. That is, the Hispanic labor market experience differs appreciably among national-origin groups. For instance, Mexicans and Puerto Ricans are the most socially and economically disadvantaged and, consequently, lag substantially behind non-Hispanic whites. Conversely, Cubans have achieved impressive economic progress and, currently, they approximate the living standards of non-Hispanic whites (Borjas, 1982; Borjas and Tienda, 1985; Bean and Tienda, 1987; Defreitas 1991). Several explanations have been proposed for the observed *inter* and *intra* ethnic earnings differentials. Basically, the present literature can be divided into three notions: (1) differences in "human capital" and personal attributes; (2) variation of job-related and labor market characteristics; and, (3) labor market discrimination.

2.1 Human Capital and Personal Attributes

The "human capital' hypothesis states that earnings differences between Hispanics and non-Hispanic whites stem from differences in individual "productivity" (Psacharopoulos and Woodhall, 1985). In this context, Hispanics with lower stocks of human capital are less productive than other ethnic groups with higher stocks of human

[3] As expected, the magnitude of Hispanic-white earnings differentials is not homogeneous throughout the nation. For instance, Davila (1984) estimated that Hispanics and blacks encounter larger earnings differences in Texas than in California and the United States as a whole.

capital. Accordingly, Hispanics receive lower wages in the labor market than other ethnic groups. Proponents of this view usually emphasize educational attainment, job experience and skills, and English proficiency as the main determinants of earnings differences (Tienda, 1983; Bean and Tienda, 1987)[4]. Hispanics have lower earnings because they have fewer years of education and experience, and because they are less skillful and proficient in English. This section focuses primarily on differences in education and English proficiency as explanations for the wage gap.

Fogel (1966, 1967) was one of the initial scholars who analyzed empirically the relatively poor performance of Hispanic men in labor markets. Employing data from the 1960 U.S. census, Fogel conducted a comparative study of the median incomes of various ethnic groups, including Mexican Americans and Puerto Ricans. He concluded that a considerable part of the income differential between Hispanics and "Anglos" was due to differences in educational attainment, especially for Mexican Americans.

Reimers (1983, 1985) used microdata from the 1976 Survey of Income and Education (SIE) to estimate male and female wage functions of Hispanics and non-Hispanic blacks and whites. Running separate regressions for various Hispanic nationalities, she explored the wage gap between each Hispanic group and whites. Reimers reported that education was the largest single source of the 34 and 33% wage differentials for Mexican and Puerto Rican men, respectively. Improving the educational levels of Mexican and Puerto Rican men to parity with non-Hispanic whites' average would eliminate 17 and 13 percentage points of the wage difference, respectively. For

[4] For a "neo-classical" presentation of the human capital theory, see Schultz (1961), Mincer (1970), and Cain (1975).

Cuban and Central & South American men, education played a smaller role in explaining wage inequality. Wage discrepancies of only 3% among Central & South Americans and 5% among Cubans were associated with the educational gap. Reimers further estimated that observable personal characteristics, notably time since immigration and English proficiency, could virtually explain the entire male Cuban-White wage differential. In fact, controlling for differences in socioeconomic factors yielded a wage gap of 6% in favor of Cubans.

Reimers also found lower levels of education as the main factor explaining the shortfall in wages of Hispanic women. For Puerto Rican and Mexican women, disparities in educational attainment accounted for a 13 to 15 % differential in wages from non-Hispanic whites. For the remaining Hispanic groups, differences in education accounted for a 4 to 7% wage differential relative to non-Hispanic whites. Reimers' study, however, omitted a series of variables that might confound the impact of education on the wage gap. For instance, numerous researchers have furnished empirical evidence of the importance of labor market conditions, occupational status, and minority concentration as determinants of Hispanics' earnings (Tienda and Lii, 1985; Bean and Tienda, 1987; Defreitas, 1991). Furthermore, Reimers assumed that unmeasured ability and motivation were uncorrelated with years of education. Without this assumption, the coefficients on education would be "biased". This is an assumption, however, made in most empirical studies. The reason lies in the difficulty of finding valid proxies for innate ability and personal motivation.

Davila (1984) reached a similar conclusion on the importance of human capital on earnings profiles. His analysis concentrated on the performance of minority men in the

labor market of Texas. In his paper, Davila employed data from the Public Use Micro Sample (PUMS) of the 1980 Census of Population to estimate earnings on an hourly basis. His results indicated that controlling for differences in personal characteristics reduced considerably the wage differential between Hispanic and non-Hispanic men. The wage gap would decrease from 46 to 2% if Hispanics and non-Hispanic whites shared the same socioeconomic characteristics. Years of schooling and English ability constituted the principal source of the difference in wages, accounting for more than half of the 46% wage gap between Hispanic and white males. Davila, however, estimated wage regressions on a pooled sample of Hispanic males and, therefore, failed to control for socioeconomic differentiation within the Hispanic population.

The literature on labor market outcomes shows that not only earnings and education, but also payoffs to educational attainment vary considerably among ethnic groups. In an analysis of earnings determinants for Hispanics, Bean and Tienda (1987) maintained that the rate of return to schooling changed according to national origin. Whereas Mexican and Cuban men received a 4.6% return for each year of education, Puerto Rican and Central & South American men received a 5.6% payoff for schooling. The same conclusion applied to Hispanic women. Among female Mexicans and Central & South Americans, returns to education were approximately 3.6%, while those among female Puerto Ricans were roughly 4.6%. Cuban women received the lowest returns to education with 2.4%. Bean and Tienda, however, did not include a comparison group, such as non-Hispanic whites, which would have provided a more complete interpretation of their estimates.

In prior work, Carliner (1976) used data from the 1970 Current Population Survey (CPS) to compare earnings of Hispanics and non-Hispanic white men. Carliner also concluded that differences in payoffs to educational attainment differed substantially. His results showed that returns to education for male Mexicans were about 70% of those for "Anglos". Yet, the coefficients on education were 30 percent higher for Cubans and Central & South Americans than for Anglo men. Carliner suggested differences in class background as the most likely explanation for these Hispanic-Anglo differentials in returns to education[5]. Yet, he correctly noted that other explanations, such as differences in quality of schooling and discrimination, could not be discounted. A discussion of ethnic discrimination against Hispanics follows the next section of this chapter.

Carliner's study (1976) failed to control for nativity status and, therefore, might have produced biased estimates. Reimers (1984) showed that somewhat different results were obtained by including nativity status in the analysis of the wage structure of Hispanics. Men born in the U.S. with Mexican background had as high a return to schooling as non-Hispanic whites. Moreover, the interaction of years of schooling with nativity status indicated that male non-Hispanic white immigrants received higher payoffs to schooling than Hispanic immigrant men from any national-origin group. Thus, while non-Hispanic white immigrants had a 5.2% return per grade of schooling, those born in Mexico, Puerto Rico and Central & South American had returns to education of 3.6, 3 and 5%, respectively.

[5] Carliner (1976) defines class background in terms of occupational attainment. "Upper" and "middle" class backgrounds include professionals and managers. "Lower" class background consists of farmers and laborers.

Several researchers also underscore the role of English language proficiency in explaining the relatively low earnings of Hispanics. For instance, Greiner (1984) estimated that English deficiency reduced the earnings of Hispanic males by nearly 15%. Language attributes explained as much as one third of the relative wage difference between Hispanic and Anglo male workers. McManus, Gould, and Welch (1983) calculated that deficiency in English accounted for practically the entire Hispanic wage difference attributed to ethnicity, U.S. nativity, and time since immigration. Moreover, among those who were proficient in English, there existed no evidence of statistical differentials between Anglos and Hispanics.

In subsequent research, Kossoudji (1988) asserted that lack of English fluency imposed a cost on Hispanic workers. Kossoudji maintained that English language deficiency not only decreased earnings, but also "pushed down Hispanics on the occupational ladder". Kossoudji found a substantial and statistically significant reduction in earnings in sales, craft, operative, and service occupations for Hispanic immigrant men. The earnings loss was largest for sales and craft workers, with 66 and 30%, respectively. In all of these studies, however, the regression models were not estimated separately for each Hispanic-national origin group. Hispanics are not homogeneous and should not be treated as a single group. As Chiswick (1987) states, "by blending the impressive achievements of some and the depths of disadvantage of other, observers may miss some essential insights into the Hispanic experience".

Other empirical papers furnish opposite results concerning the impact of English proficiency on the wages of Hispanics (Reimers, 193, 1984, 1985). Reimers (1985) noted

that English deficiencies did not reduce the wages of Mexican men as much as it lowered those of the other Hispanic groups. In general, English deficiencies failed to explain large portions of the male wage gap. At most, improving Cubans' and Puerto Ricans' fluency in English to the level of non-Hispanic whites would reduce 6 percentage points of the male wage differential.

Among Hispanic women, Reimers (1985) documented that lack of proficiency in English did not have a significant effect on the wages of any female group. Her regression analysis showed a 15% decrease in Cuban's wages caused by poor English. Yet, the small size of the Cuban sample prevented her from calculating precise estimates. Surprisingly, English-language problems of Hispanic women appeared to narrow the wage gap. Reimers assumed that in the absence of discrimination the wage function was halfway between that of whites and Hispanics. Then, she computed that poor English led to a "wage-offer" difference ranging from -1.7% for Mexican women to -4.3% for Puerto Rican women. As formerly stated, these calculations were subject to large standard errors because of the small number of observations used in the regression analysis.

Within the human capital perspective, the effects of "assimilation" on the relative earnings of Hispanics have been the topic of intense research. In this context, time since immigration reflects different levels of knowledge and skills required to succeed in the U.S. labor market (Bean and Tienda, 1987). In the classical study of the assimilation process, Chiswick (1978) used cross-sectional data of the 1970 Census of Population to contend that immigrants, including Cubans and Mexicans, initially earned less than the native-born. However, their earnings increased rapidly as they "acquired knowledge of

the language, customs, and nature" of American labor markets. Chiswick estimated that after 10-15 years the earnings of immigrants would surpass those of the native-born. Yet, "Mexican-Americans of every generation", Chiswick affirmed, continually received significantly lower earnings than other white men of similar immigrant status.

Borjas (1985) questioned the assimilation claim presented by Chiswick (1978). Considering cross-sectional studies as "useless" for examining the assimilation process, Borjas conducted a cohort analysis of earnings determination. He argued that the earnings of early cohorts had continually exceeded those of recent cohorts. According to Borjas, the reason lied in the decline of the "quality" of recent immigrant cohorts in terms of human capital endowments. Currently, the relative effect of "assimilation" on earnings remains a subject of continuous debate.

Scholars have further suggested differences in additional individual demographic characteristics as explanations for earnings inequality among ethnic groups. Several studies identify age and marital status as statistically significant determinants of earnings, accounting for a small portion of the earnings gap (Gwartney and Long, 1978). For instance, Mexicans and Puerto Ricans are younger, on average, than non-Hispanic whites. This is important because earnings tend to rise with age (Reimers, 1984; Defreitas, 1991). Similarly, Bean and Tienda (1987) found that marital status increased the earnings of Hispanics, though this coefficient was statistically significant only for Central & South Americans. Geographical location has also been shown to influence employment and earnings of Hispanics. For example, Puerto Ricans concentrate in the Northeast, an area characterized by high costs of living relative to other parts of the United States (Tienda

and Wilson, 1992; Borjas and Tienda, 1985). Conversely, Mexicans disproportionately locate in the Southwest, where wages are relatively low (Reimers, 1983).

The current literature, moreover, addresses differentials in work-related health limitations. Angel (1984) asserted that Hispanics suffered larger losses of work and income than did non-Hispanics as a result of disability, though there were considerable differences among nationality groups. Angel provided statistical evidence that the negative economic impact of ill health was largest for those Hispanics who lacked English fluency. In contrast, Reimers (1985) reported that health disabilities did not depress the "wage offers" for Hispanics. She maintained that the negative impact of health disabilities stemmed from the presence of "sample-selection bias". The notion of possible selectivity bias refers to the distinction between average "wage offers" and average "observed wages". Researchers observe wages for individuals who participate in the labor market; yet, they do not observe everyone's wage offer. Specifically, wages are not observed for non-workers. Reimers argues that because individuals decide whether or not to participate in the labor market, the observed wage distribution can not be used to estimate the wage-offer function. Thus, it is necessary to correct for an individual's probability of working to obtain unbiased estimates of the parameters of the wage-offer function facing each ethnic group.

2.2 Job-Related and Labor Market Characteristics

The second hypothesis accentuates the relative importance of job-related characteristics for explaining ethnic earnings differences. The argument is that earnings

differences exist because of ethnic differentials in the occupational, industry, and sector "mixes" (Davila, 1984). Specifically, wage discrepancies stem from the concentration of Hispanics in low-paying occupations and industries. Using census data from 1960 and 1970, Long (1977) found males of Spanish origin concentrated in blue-collar occupations of traditionally low pay (laborers and service workers). Not only were Spanish males significantly under-represented in white-collar occupations, but also they lagged behind whites in terms of salaries in those white-collar occupations in which they were employed.

Verdugo and Verdugo (1984) analyzed CPS data from March 1981 to examine earning differences among Mexican American, black and white male workers. They showed that industry and employment sector were important determinants of earnings and earnings differential between Mexican American and white male workers. In their study, Mexican Americans were more likely to work in wholesale and retail trade than whites. The signs of the estimated parameters on the manufacturing, construction, and transportation, communication & public utility industry variables were positive for whites but negative for Mexican Americans. These findings suggested that the earnings of Mexican American male workers were considerably lower than those of whites in these industries. The largest difference in coefficients occurred in the manufacturing industry.

Similar evidence was found by Davila (1984) and Melendez (1991) in the labor markets of Texas and New York City, respectively. Davila (1984) determined that Hispanic males were more likely than whites to be blue-collar workers (laborers, craftsmen, farmers and service workers). Davila estimated that the concentration of Hispanics in these occupations accounted for a sizable portion (7%) of the observed

earnings differential in Texas (46%). Basing his analysis in New York City, Melendez (1991) asserted that the structure of labor markets in terms of industrial sectors and occupational segments explained a substantial proportion of Hispanic wage differentials. The overall proportion of the wage gap accounted for by differences in occupational segments ranged from 16 to 19% for Hispanic men and from 36 to 58% for Hispanic women. Differences in the concentration of Hispanics and non-Hispanic whites in industrial sectors were source of smaller wage differentials. For Hispanic men, the percentage of the wage difference explained by industrial sectors was between 7 and 14%. For Hispanic women, the corresponding figure was between 4 and 7%.

Differences in occupational status are also considerable between Hispanic and non-Hispanic white women. Tienda and Guhleman (1982) analyzed the occupational position of women of several Hispanic nationalities with 1976 SIE data. Their findings not only indicate differences in the occupational distributions of Hispanic and non-Hispanic white women but also highlight important differences in the occupational position of Hispanic women according to national origin. Tienda and Guhleman documented that 24% of non-Hispanic white female workers in their sample were employed in professional, managerial, and technical occupations. For Mexican, Puerto Rican, and Central & South American women, the corresponding figure was 7, 10, and 11%. Relative to non-Hispanic white women, "operative" occupations, including transportation jobs, provided employment to a substantially large proportion of Hispanic female workers. The percentage of female workers who held job in these occupations was 27% among Mexicans, 43% among Puerto Ricans, and 35% among Central & South Americans, as compared to 10% among

non-Hispanic whites. In addition, Mexican women was the only Hispanic group to have a higher percentage of workers in service occupations (25%) than non-Hispanic white women (17%).

Bean and Tienda (1987) employed PUMS data from the 1980 Census of Population to estimate earnings regressions for both Hispanic origin male and female workers. Investigating earnings differences associated with class of worker, they found that public sector employment produced opposite effects on the earnings of Hispanic men and women. For women, public sector employment raised annual earnings relative to self-employment. For instance, the positive earnings returns received by Cuban and Puerto Rican females were 21-22%. Conversely, the earnings of Hispanic men working in the public sector were lower than otherwise similar counterparts working as self-employed. The wage penalty attributed to public sector employment was 20% for Cuban men and 16% for Puerto Rican men.

Related to job-related characteristics is the relative impact of labor market conditions on the earnings of Hispanics. According to the so-called "structural approach", characteristics of labor markets, "demand factors", work in conjunction with characteristics of workers, "supply factors", to determine earnings (Tienda, 1983). The argument is that wage structures and employment opportunities vary by labor market. To the extent that Hispanics concentrate in areas of high unemployment and low-wage industries, ethnic variation in the composition of labor markets would contribute to the disadvantaged economic status of Hispanics. This notion might be particularly pertinent

to explaining earnings of Hispanic subgroups because of their high concentration in regional and local markets.

Tienda (1983) explored the influence of market characteristics on the earnings of male Hispanic native and immigrant workers using data from the 1976 Survey of Income and Education. She found that the influence of labor market characteristics differed depending on the Hispanic nationality. In practically all cases, unemployment rates had a negative impact on earnings. Yet, only for Mexican and Puerto Rican men, was the effect statistically significant. Another of Tienda's findings was that Hispanics did not benefit equally from working in labor markets of favorable wage structures. Estimates for both natives and immigrant men indicated that Mexican, Central & South American, and other Hispanic workers who lived in high-wage areas gained from 12 to 15% higher annual earnings than workers of similar characteristics who resided in low-wage areas. In contrast, the impact of wage structure on Puerto Rican earnings was not statistically different from zero.

More recently, Bean and Tienda (1987) conducted an analysis of earnings determination for Hispanic origin workers and examined the influence of structural forces on individual earnings. They observed that the influence of market factors varied by gender. With the exception of Puerto Ricans, female earnings were more sensitive to variations in the average wage rates of labor markets than those of Hispanic men. As an example, variation in average wage rates increased the annual earnings of Cuban women by 12%, but only 6% in the case of Cuban men.

In conclusion, empirical papers indicate that both job-related and labor market characteristics are important determinants of Hispanics' earnings and, as such, need to be included in the study of ethnic earnings differentials.

2.3 Labor Market Discrimination

The relative significance of labor market discrimination in explaining wage differentials is an issue of substantial discussion. Within the literature, the dominant approach has been to define discrimination in economic terms: "differences in economic outcomes between groups that cannot be accounted for by the skills and productive characteristics of these groups" (Psacharopoulos and Patrinos, 1994). The standard statistical procedure to estimate discrimination has been to decompose the earnings gap into two components: "explained" and "unexplained". The explained component is the portion attributed to differences in average observed characteristics. The unexplained component is the remaining portion attributed to differences in the parameters of the wage functions and represents the level of "potential" discrimination. Because of the presence of unmeasured wage determinants, such as innate ability, motivation, and quality of education, the unexplained component is considered an "upper-bound" estimate of discrimination in the labor market (Psacharopoulos and Patrinos, 1994).

Using this definition, numerous researchers have empirically investigated the degree of ethnic discrimination against Hispanics in the labor market. Long (1977) used 1960 and 1970 census data to explore how the intensity of employment discrimination faced by Hispanics varied by occupation. His estimate of the earnings differential between

white and "Spanish-origin" males was 34%. He indicated that employment discrimination and differences in "productivity" factors, specially educational attainment, were equally important for explaining this gap. Long also observed that the extent of employment discrimination was not homogeneous across men of all Spanish-origin groups. Long's estimates of discrimination were larger for Cuban and Puerto Rican males than for Mexican American males.

Similar to Long's (1983) results, Reimers (1983, 1985) reported that the effects of discrimination on the wages of Hispanic men varied by nationality. After correcting for the possibility of sample-selection bias, she found that discrimination seemed to contribute substantially to the low wages of Puerto Ricans as well as Central & South Americans. For Central & South American males, discrimination might be responsible for a 36% difference in wages. In the case of Puerto Ricans, discrimination could account for a wage difference of 18%. Nonetheless, much of the wage differential between whites and Mexican and Cuban men in Reimers' paper was not due to discrimination. The unexplained differential attributed to discrimination was only 6% for Mexicans. Likewise, the difference in coefficients of the wage functions was 6% in favor of Cubans.

Reimer's analysis of female wage determination (1985) suggested that only Central & South American and other Hispanic women might suffer from wage discrimination in the labor market. For these groups, the wage gap explained by differences in parameters was nearly 13 and 9%, respectively. In the case of female Mexicans, Puerto Ricans, and Cubans, Reimers found no evidence of wage discrimination based on ethnicity.

Controlling for differences in average observed characteristics virtually eliminated the wage differential between them and non-Hispanic women.

Labor market discrimination has further been explored with a focus on specific Hispanic subgroups. The majority of these papers has centered on Mexican American male workers. Poston and Alvirez (1973) and Poston, Alvirez and Tienda (1976) used PUMS data from the 1960 and 1970 U.S. censuses to argue that the earnings disadvantage of Mexican Americans relative to "Anglos" could not simply be explained by differences in education or occupation. Instead, Mexican Americans suffered from ethnic discrimination. In both studies, the "cost" of being Mexican American was defined as the "residual" part of the earnings differential and interpreted as evidence of labor market discrimination. Poston and Alvirez (1973) calculated that the total income differential in 1959 between Anglos and Mexican Americans was $2,050, of which 44% ($900) was attributed to "minority membership"[6].

In addition, Poston, Alvirez, and Tienda (1976) suggested that "cost" of being a Mexican American worker had increased during the 1960's. They estimated an increase of between 3 to 6% in the discrimination "costs" for three separate Mexican American cohorts: male workers aged 20-29, 30-39, and 40-49 in 1960. Poston, Alvirez, and Tienda further reported that the portion of the earnings discrepancy due to differences in educational attainment had decreased between 1960 and 1970. They maintained that while there had been some convergence in the educational gap between Mexican

[6] In reality, Poston and Alvirez (1973) did not estimate the income differential between all Mexican Americans and "Anglos". The study was based on a sample of full-time workers who were between the ages of 20 and 40, in predominantly urban occupations, and residing in one of the five southwestern states of Arizona, California, Colorado, New Mexico, and Texas.

Americans and Anglos, this gain had not translated into rising earnings for Mexican Americans.

It is very difficult here, however, to interpret the "residual" earnings differences as the result of only ethnic discrimination. In these studies, the authors selected a sample of Mexicans and whites who were "comparable" with respect to only age, region of residence, full-time work status, and employment in urban occupations. Other factors not available for empirical analysis in the 1960 and 1970 Census of Population may have also played a role in explaining the earnings gap. As an example, well-documented are the effects on Hispanic earnings of recency of arrival in the U.S. and English proficiency (Chiswick, 1978; Greiner, 1984). If these factors are correlated with any of the explanatory variables used for the analysis, then the studies would suffer from a problem of omitted-variable bias. Poston, Alvirez, and Tienda (1976) recognized this problem. Yet, they believed this issue would not affect their results. Empirical evidence, however, does not support their position.

Verdugo and Verdugo (1984) employed 1981 CPS data to conclude that, while human capital and labor market characteristics were important in explaining the white-Mexican American earnings gap, Mexican Americans faced considerable discrimination relative to white males. Verdugo and Verdugo calculated that discrimination accounted for 19% of the white-Mexican American earnings difference.

In general, specific sub-group studies face a limitation if there is an attempt to extrapolate from the outcome of a particular Hispanic group to the experience of others. As Poston and Alvirez (1973) acknowledged, their paper focused solely on the labor

market performance of Mexicans. Current literature shows that Hispanic national-origin groups are not similarly disadvantaged and, consequently, the conclusions of the analysis of a particular group do not apply to all Hispanics male workers (Chiswick, 1987; Morales and Bonilla, 1987; Defreitas, 1991).

Some empirical studies have not found evidence of discrimination against Hispanics. For instance, Shapiro (1984) analyzed data from the 1979 National Longitudinal Survey of Youth Labor Market Experience to test the hypothesis that race or ethnicity was related to wages of youths. Shapiro determined that Hispanic-white wage differences were not statistically significant among either students or non-students. Similarly, Greiner (1984) found little evidence of "unexplained" labor market discrimination against Hispanics. Using 1976 SIE data, Greiner calculated that the 26% of wage differential between Hispanic and non-Hispanic white males was entirely due to different observed average characteristics. Additionally, Greiner estimated that of the 8% wage differential that existed between whites and Hispanics who spoke English as a child, just 5.5 percent was attributable to different coefficients and, potentially, to discrimination.

The empirical analyses conducted by Shapiro (1984) and Greiner (1984), however, have some shortcomings. The results obtained by Shapiro do not apply to Hispanic male adults who participate in the labor market. This is a relevant issue. While there is not enough variation in the wages of basically first-time labor market entrants (youth), large wage differentials arise among adult workers (Defreitas 1991). Additionally, the study undergone by Greiner incorrectly assumed that Hispanics constituted a homogeneous

group in terms of socioeconomic characteristics and, hence, did not include separate regressions for each Hispanic nationality.

On a more recent study, Melendez (1991) focused on the wage differences between Hispanics and non-Hispanic whites in New York City. His findings showed a substantial effect of discrimination on the wage gap for Hispanics. Discrimination accounted for one-third of the Mexican, Puerto Rican, and Cuban male wage gap when compared to non-Hispanic white men. For Hispanic women, discrimination represented between 20 and 50% of the wage discrepancy relative to non-Hispanic white females. Melendez, however, treated Hispanics as a single group. Therefore, his estimate of labor market discrimination does not apply to all Hispanics because of the high level of socioeconomic and geographic differentiation among Hispanic national-origin groups.

A discussion of the relative earnings of minority groups needs to distinguish, at least theoretically, the potential effects of "indirect" or "premarket" discrimination from "direct" labor market discrimination (Reimers, 1985; Borjas and Tienda, 1985; Bean and Tienda, 1987; Defreitas, 1991). Premarket discrimination generally refers to unequal access to goods and services that would influence individual productivity. For instance, differences in educational attainment between Hispanics and whites might simply represent Hispanics' limited access to education, not to mention possible differences in the quality of education. Likewise, the relatively low earnings of Hispanics might stem from their being "crowded" into low-paying jobs because of discrimination (Davila, 1984; Bean and Tienda, 1987; Defreitas, 1991). Consequently, restricting the impact of discrimination to the "residual" of a regression model may underestimate the total effect of discrimination

on the earnings of Hispanics. Unfortunately, researchers can only speculate on the degree and impact of premarket discrimination. Data limitations prevent empirical study of this phenomenon.

III. METHODOLOGY

The present study uses multivariate regression analysis for (1) the estimation of wage functions for Hispanics and non-Hispanics, and (2) the decomposition of wage differentials into explained and unexplained components. In this paper, the explained component consists of differences in human capital and personal endowments, and variation in job and labor market characteristics. The unexplained component represents an "upper bound" estimate of labor market discrimination[7].

Sample selection bias is an issue of concern when estimating wage functions for ethnic groups. The problem is that the wage rate is not observed for individuals who are not working. Economic theory indicates that the decision of whether to work depends on comparing "market wages" with "reservation wages". Non-workers either have a low wage rate or a high reservation wage (Borjas, 1996; Reimers, 1985). Thus, a sample of workers, or non-workers, is not a random sample of the population.

To adjust for possible selectivity bias, the study uses the method suggested by Heckman (1979) of including the inverse of the Mill's ratio as an additional explanatory variable in the wage equation[8]. The inverse Mill's ratio intends to control for the probability that a person is working. The literature on employment outcomes indicates that low labor force participation rates are a more serious problem for Hispanic women

[7] The unexplained component includes wage discrimination and differences in other unmeasured factors, such as ability, motivation, culture, and quality of education. Consequently, the unexplained portion can only be interpreted as "potential" labor market discrimination (Psacharopoulos and Patrinos, 1994).

[8] The method of correcting for the presence of selectivity bias consists of two steps. First, a probit model is estimated for predicting inclusion in the wage sample. Secondly, the inverse of the Mill's ratio is calculated from the probit model and included in the wage equation as an independent variable. Lastly, the "new" wage function is estimated by ordinary least squares. The inverse of the Mill's ratio measures the expected error in the wage, conditional on being in the wage sample (Reimers, 1984, 1985).

than Hispanic men (Cooney and Ortiz, 1983; Cintron, 1995). For consistency purposes, however, the Heckman correction technique is applied to both the female and male wage equations.

3.1 Model Specification

Based on the literature review presented in Section II, the model examined in this study is given by:

$$W = f(P, J, O)$$

where "W" is hourly wages; "P" represents human capital and personal characteristics; "J" includes job-related and labor market characteristics; and, "O" denotes labor market discrimination and omitted variables.

The wage equations corrected for selectivity bias for non-Hispanic whites (w) and Hispanics (h) are specified as:

$$ln\, W_w = \alpha_w + \beta_w X_w + \sigma_w \lambda_w + \varepsilon_w \qquad (1)$$

$$ln\, W_h = \alpha_h + \beta_h X_h + \sigma_h \lambda_h + \varepsilon_h \qquad (2)$$

where *ln* W is the natural logarithm of hourly wages, α is the regression intercept, β is a vector of regression coefficients, X is a vector of measured characteristics, λ is the inverse Mill's ratio computed from the probit equations, σ is the estimated covariance between the errors of the probit and wage equations, and ε is the residual or error term.

The study then uses a modification of Oaxaca's (1973) decomposition technique to

analyze the determinants of the Hispanic-non-Hispanic white wage gap[9]. A property of the ordinary least squares estimator is that the regression lines pass through the mean values of the variables:

$$ln\,\overline{W}_w = \hat{\alpha}_w + \hat{\beta}_w\overline{X}_w + \hat{\sigma}_w\overline{\lambda}_w \qquad (3)$$

$$ln\,\overline{W}_h = \hat{\alpha}_h + \hat{\beta}_h\overline{X}_h + \hat{\sigma}_h\overline{\lambda}_h \qquad (4)$$

In economic terms, wage discrimination is defined as unequal pay for the same endowments of wage-determining characteristics. In the absence of discrimination, then, Hispanics would receive the same return as non-Hispanic whites for their endowments of productive characteristics:

$$ln\,\overline{W}_h^* = \hat{\alpha}_h + \hat{\beta}_w\overline{X}_h + \hat{\sigma}_h\overline{\lambda}_h \qquad (5)$$

Subtracting (5) from (3) gives the difference between average non-Hispanic wages and average hypothetical "nondiscriminatory" Hispanic wages. This is the difference that results from different endowments of wage-determining characteristics:

$$ln\,\overline{W}_w - ln\,\overline{W}_h^* = \hat{\alpha}_w - \hat{\alpha}_h + \hat{\beta}_w(\overline{X}_w - \overline{X}_h) + \hat{\sigma}_w\overline{\lambda}_w - \hat{\sigma}_h\overline{\lambda}_h \qquad (6)$$

Subtracting (4) from (5) gives the difference between the hypothetical "nondiscriminatory" Hispanic wages and their actual wage. This is the difference that results from different returns to the same productive characteristics:

[9] The discussion of the decomposition technique is adapted from Reimers (1985), Tienda (1983), and Psacharopoulos and Patrinos (1994).

$$ln\,\overline{W}_h^{*} - ln\,\overline{W}_h = \hat{\alpha}_h - \hat{\alpha}_h + \overline{X}_h(\hat{\beta}_w - \hat{\beta}_h) + \hat{\sigma}_h\overline{\lambda}_h - \hat{\sigma}_h\overline{\lambda}_h \quad (7)$$

Adding (6) and (7) and rearranging terms yields:

$$ln\,\overline{W}_w - ln\,\overline{W}_h - (\hat{\sigma}_w\overline{\lambda}_w - \hat{\sigma}_h\overline{\lambda}_h) = \hat{\alpha}_w - \hat{\alpha}_h + \overline{X}_h(\hat{\beta}_w - \hat{\beta}_h) + \hat{\beta}_w(\overline{X}_w - \overline{X}_h)$$

The term $\hat{\beta}_w(\overline{X}_w - \overline{X}_h)$ is the explained component. It is defined as the portion of the wage gap attributable to differences in measured characteristics $(\overline{X}_w - \overline{X}_h)$ evaluated with non-Hispanic coefficients $(\hat{\beta}_w)$. As previously stated, the assumption is that the pay structure of non-Hispanic individuals prevails in the labor market in the absence of discrimination. The term $\hat{\alpha}_w - \hat{\alpha}_h + \overline{X}_h(\hat{\beta}_w - \hat{\beta}_h)$ is the unexplained component. It is defined as the portion of the wage gap attributable to differences in returns $(\hat{\beta}_w - \hat{\beta}_h)$ that non-Hispanics and Hispanics receive for the same endowment of wage-generating characteristics[10]. The unexplained component also includes the part measuring the difference in the two intercepts $(\hat{\alpha}_w - \hat{\alpha}_h)$. The term $(\hat{\sigma}_w\overline{\lambda}_w - \hat{\sigma}_h\overline{\lambda}_h)$ is the estimated difference in selection bias.

3.2 Data

The study uses data from the 5% Public Use Microdata Sample of the 1990 Census of Population, which ensures sufficient sample sizes for the different Hispanic

[10] In this case, the average Hispanic endowment for each measured characteristic $(\overline{X}_h)$ is used for estimating the unexplained component.

nationalities. For Hispanics, the sample includes individuals who reports their national origin only as Mexican, Puerto Rican, Cuban, or Central & South American[11]. In 1990, these subgroups composed 93% of the total Hispanic population in the U.S. (Figure 2). As in previous studies, whites and blacks, defined in terms of race and non-Hispanic origin, provide reference points for evaluating the labor market experience of Hispanics (Reimers, 1985; Tienda and Wilson, 1992)[12]. To incorporate the high degree of geographic concentration of Hispanics, the sample is restricted to nine states: Arizona, California, Colorado, Florida, Illinois, New Jersey, New Mexico, New York, and Texas[13] (Figure 3). The wage functions are estimated using ordinary least squares regression separately for men and women. Because of the well-documented socioeconomic differentiation among Hispanic nationalities, the study estimates a separate wage function for each ethnic group.

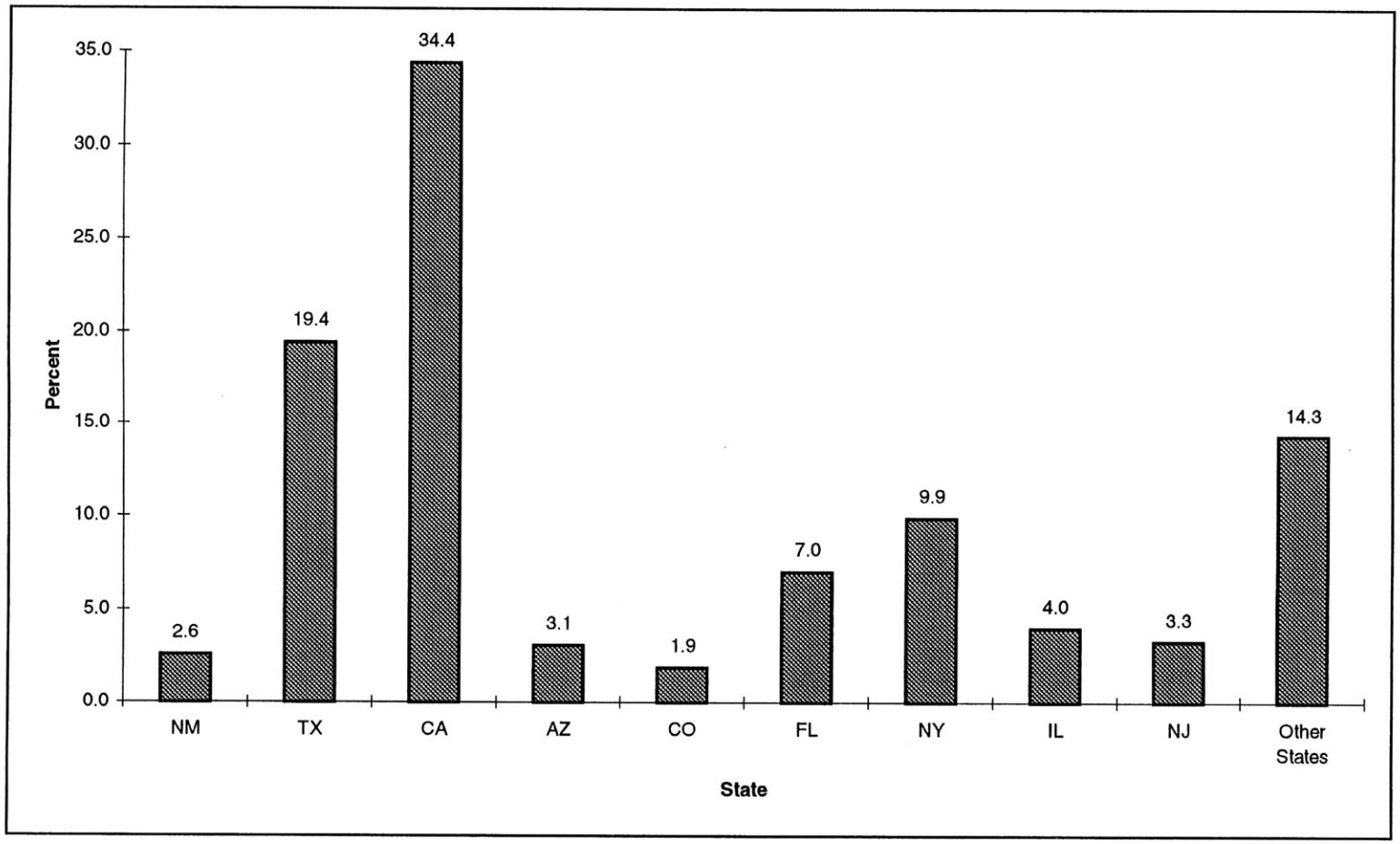
For the empirical estimation, the sample is restricted to civilian men and women aged 16 to 64 who were in the labor force in 1989 and who had nonzero wages. To eliminate voluntary part-time working, individuals enrolled in school at the time of the survey were excluded. Other sample restrictions include those commonly used in the literature: individuals who never worked, observations that lacked information on the explanatory variables, and members of the military in 1989 (Reimers, 1985; Defreitas,

[11] The "Other Hispanics" group is excluded from the analysis because of its considerable diversity. This population is composed of a large number of Hispanic national-origin groups that differ substantially in demographic, economic, and social characteristics (Bean and Tienda, 1987).

[12] The six groups in the study are mutually exclusive. Hispanics might be of any race. Whites and Blacks are non-Hispanics. Lastly, those non-Hispanics who are neither white nor black (Asians) are excluded from the study.

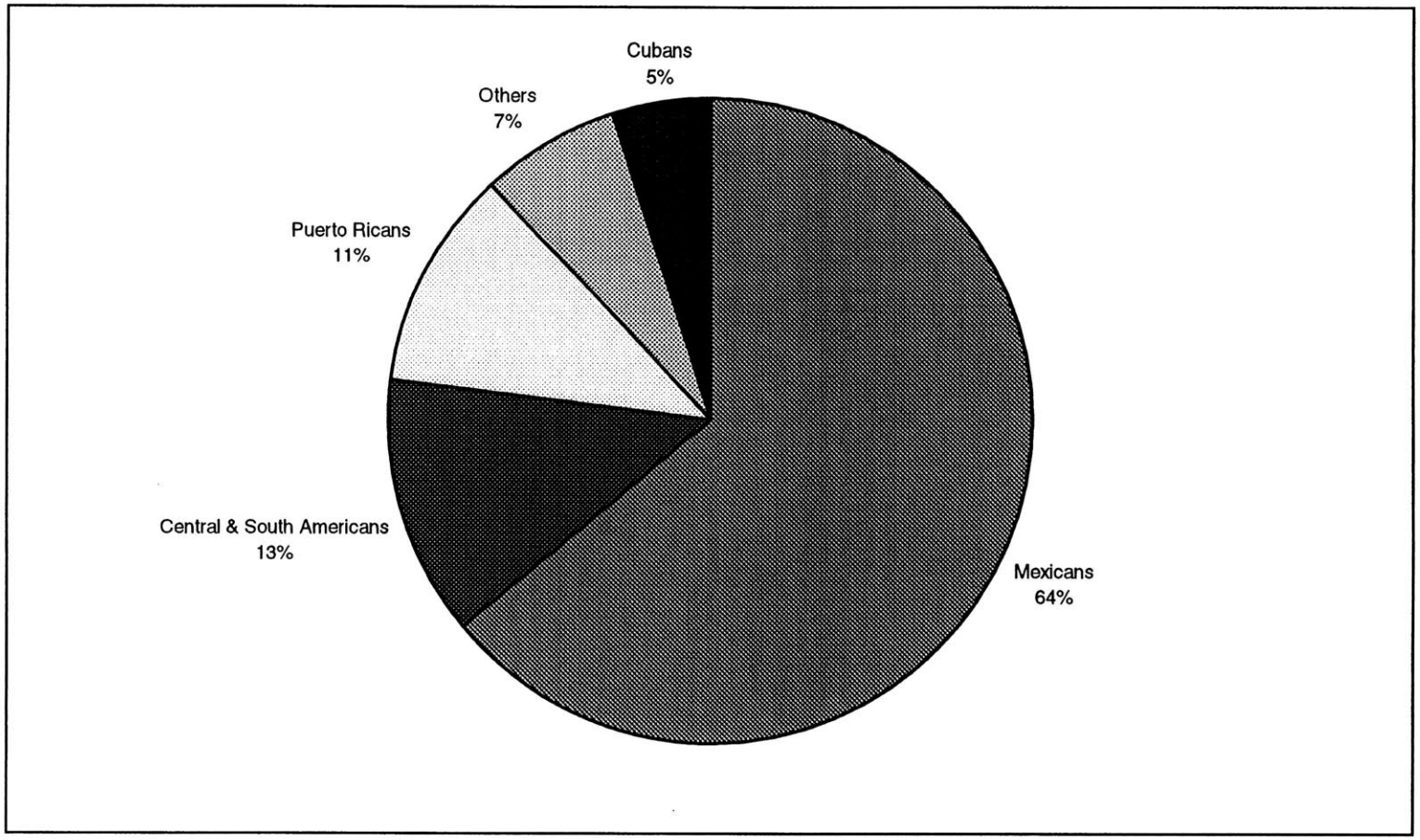
[13] The use of samples drawn from the population of specific states is a common feature in empirical studies of Hispanics' labor market outcomes. For instance, see Defreitas (1991).

Figure 3. Distribution of the Hispanic Population by State of Residence, 1990
(Percent)



Source: U.S. Bureau of the Census, 1990 Census of Population.

Figure 2. National-Origin Composition of Hispanic Population in the United States, 1990
(Percent)



Source: U.S. Bureau of the Census, 1990 Census of Population.

1988; Tienda and Wilson, 1992).

3.3 Variables

The dependent variable is the natural logarithm of wage rates, which is calculated from reported annual wages and salaries, total weeks worked, and usual hours worked per week in 1989[14]. Employing earnings on a hourly basis avoids earnings fluctuation resulting from "business cycles" (Davila, 1984; Reimers, 1985). Hourly wages are transformed into logarithmic form because of the skewed distribution of wage rates. The coefficients on the explanatory variables can then be interpreted as percentage changes. Explanatory variables used in the analysis are defined in Table 1. The selection of independent variables is based on the literature review presented in Section II[15]. *Human Capital and Personal Characteristics* include educational attainment, potential work experience, immigration background, English proficiency, health disability, marriage and household headship, presence of children, and veteran status. *Job-related and Labor Market Characteristics* consist of employment sector, occupation and industry segments, Hispanic concentration and average wage rates in labor markets, and state unemployment rates.

[14] Several social scientists argue that estimated hourly earnings for the self-employed are likely to be a poor measure of their wage rates. (Reimers, 1985; Defreitas, 1991). This paper intends to focus on the experience of Hispanics in the labor market. Thus, self-employment income is excluded from the computation of hourly wage rates.

[15] For a rationale for including particular independent variables in the wage functions, see Verdugo and Verdugo (1984), Bean and Tienda (1987), and Tienda and Wilson (1992).

Table 1

Definition of Variables Included in the Analysis

Variable	Definition
Dependent Variable	
Wages	Hourly wage rate, calculated as (total income from wages and salaries/ weeks worked * usual hours per week) in 1989
Log wages	Natural logarithm of wages
Sample	Dummy variable coded 1 if in sample for wage equations; otherwise 0
Human Capital and Personal Characteristics	
Education	Years of education
Potential experience	Age - years of education - 6
(Potential experience)^2	Square of potential experience
English deficiency	Dummy variable coded 1 if reported speaking English not well or not at all. Reference category is speaks only English, well, or very well
Spanish at home	Dummy variable coded 1 if reported speaking Spanish at home; otherwise 0
Health disability	Dummy variable coded 1 if reported a health condition that limited the kind of work or amount of work individual could do; otherwise 0
Foreign	Dummy variable coded 1 if born outside U.S. mainland; otherwise 0
Immpre50[a]	Dummy variable coded 1 if immigrated to U.S. before 1950; otherwise 0
Imm50	Dummy variable coded 1 if immigrated to U.S. 1950-1959; otherwise 0
Imm60	Dummy variable coded 1 if immigrated to U.S. 1960-1969; otherwise 0
Imm70-74	Dummy variable coded 1 if immigrated to U.S. 1970-1974; otherwise 0
Imm75-79	Dummy variable coded 1 if immigrated to U.S. 1975-1979; otherwise 0
Imm80-84	Dummy variable coded 1 if immigrated to U.S. 1980-1984; otherwise 0
Imm85-90	Dummy variable coded 1 if immigrated to U.S. 1985-1990; otherwise 0
Married	Dummy variable coded 1 if married; otherwise 0
Spouse present	Dummy variable coded 1 if married with spouse present; otherwise 0
Spouse absent	Dummy variable coded 1 if married with spouse absent; otherwise 0
Divorced	Dummy variable coded 1 if divorced; otherwise 0
Separated	Dummy variable coded 1 if separated; otherwise 0
Widowed	Dummy variable coded 1 if widowed; otherwise 0
Household head	Dummy variable coded 1 if head of household; otherwise 0

[a] Puerto Ricans are not considered immigrants and, thus, are not asked questions on immigration background. Variables representing periods of immigration are excluded from the Puerto Rican wage equations.

(continued)

Table 1 (continued)

Definition of Variables Included in the Analysis

Variable	Definition
Human Capital and Personal Characteristics	
Child 6	Dummy variable coded 1 if reported children under 6 years only; otherwise 0
Child 6-17	Dummy variable coded 1 if reported children 6 to 17 years only; otherwise 0
Child 6&17	Dummy variable coded 1 if reported children 6 years and 6 to 17 years; otherwise 0
Veteran	Dummy variable coded 1 if veteran; otherwise 0
Exogenous income	Total family income - total personal income
Home ownership	Dummy variable coded 1 if home owner; otherwise 0
Person 65	Dummy variable coded 1 if reported person 65 years and over in household; otherwise 0
Mills	Inverse Mill's Ratio, predicted from reduced-form probit equation for being in wage sample
Job-Related and Labor Market Characteristics	
Public sector	Dummy variables designating working in federal, state, and local government; otherwise 0 Reference category is private sector
Industry[b]	Dummy variables designating manufacturing; construction; retail and wholesale trade; transportation, communications, and other public utilities; finance, insurance, and real estate; services; mining; and agriculture, forestry, and fishing. Reference category is public administration
Occupation[c]	Dummy variables designating technical, sales, and administrative support; farming forestry, and fishing; managerial and professional specialty; precision production, craft, and repair; operators, fabricators, and laborers. Reference category is service occupations
Average wage rate	Average wage rate in PUMA place of work
Hispanic concentration	Proportion Hispanic in PUMA place of work
State unemployment rate	Unemployment rate in state of residence
State	Dummy variables designating California, Colorado, Illinois, Florida, New Mexico, New Jersey, New York, and Texas. Reference category is Arizona

[b] Industries: "agrict": agriculture, forestry, and fisheries; "mining": mining; "const": construction; "manfg": manufacturing; "tcop": transportation, communications, and other public utilities; "trade": wholesale and retail trade; "fire": finance, insurance, and real estate; "service": business, repair, personal, entertainment, recreation, and professional and related services; "publicad": public administration.

[c] Occupations: "mangmt": managerial and professional specialty; "tech": technical, sales, and administrative support; "serv": service occupations; "farming": farming, forestry, and fishing; "produc": precision production, craft, and repair; "operat": operators, fabricators, and laborers.

IV. EMPIRICAL RESULTS AND ANALYSIS

The current study utilizes data from the 5% PUMS of the 1990 Census of Population. The male wage sample consists of 35,424 Hispanics, 12,083 non-Hispanic whites, and 9,323 non-Hispanic blacks. Mexicans comprise more than three fifths of all Hispanic-origin male individuals. South & Central Americans represent approximately 11%, Puerto Ricans 8%, and Cubans 6% of the sample of working-age Hispanic men. The female wage sample includes 24,714 Hispanics, 8,512 non-Hispanic whites, and 8,179 non-Hispanic blacks. The national origin composition of Hispanic women resembles quite closely that of Hispanic men. Tables 2 and 3 show the sample distributions by ethnicity and state of residence for each gender group.

In an effort to eliminate "state-specific effects", such as cost of living, the objective in the drawing of random samples was to maintain a uniform geographic distribution among ethnic groups. This was accomplished for Hispanics and Non-Hispanic whites and blacks. The sample distribution by state of residence, however, varied by Hispanic national-origin group. For instance, over 40% of Mexicans reside in California, while Cubans are concentrated in Florida and the majority of Puerto Ricans are located in New York and New Jersey. Hence, state dummy variables were added to the wage equations with the purpose of controlling for geographical factor that might bias the empirical results.

Table 2

Sample Distributions of Men by State of Residence
(Percent)

State	Non-Hispanic Whites	Non-Hispanic Blacks	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans
Arizona	3.30	3.70	3.50	4.80	0.10	0.30	0.50
California	44.40	43.40	42.60	51.90	7.30	9.00	41.20
Colorado	2.40	3.10	2.50	2.50	0.20	0.50	0.30
Florida	7.70	9.00	9.20	1.40	70.90	17.90	17.70
Illinois	4.20	4.30	4.70	5.30	1.90	7.20	2.60
New Mexico	3.40	1.30	3.30	2.90	0.00	0.00	0.10
New Jersey	3.90	4.50	4.00	0.30	10.50	19.40	9.90
New York	8.50	8.70	7.90	0.70	6.90	42.60	22.10
Texas	22.20	21.80	22.20	30.20	2.20	3.20	5.60

Source: 5% Public-Use Microsample from 1990 Census of Population.

Table 3

Sample Distributions of Women by State of Residence
(Percent)

State	Non-Hispanic Whites	Non-Hispanic Blacks	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans
Arizona	3.50	3.80	3.50	5.30	0.20	0.60	0.80
California	38.00	38.40	38.60	48.50	7.40	9.30	41.70
Colorado	2.90	3.40	2.90	2.80	0.30	0.50	0.40
Florida	9.70	9.60	11.10	1.30	72.50	18.50	17.50
Illinois	3.40	3.80	3.90	4.40	1.50	6.10	3.20
New Mexico	3.50	1.20	3.80	3.20	0.10	0.20	0.10
New Jersey	4.30	5.30	4.60	0.30	10.00	19.10	9.70
New York	9.80	10.60	9.20	0.60	6.30	42.80	21.30
Texas	25.00	23.90	22.30	33.60	1.80	3.00	5.30

Source: 5% Public-Use Microsample from 1990 Census of Population.

4.1 Male Summary Statistics

Table 4 presents mean values and standard deviations of the variables for men in the sample of wage earners. Descriptive data reveal marked socioeconomic differences between non-Hispanic whites and Hispanics. The data also show heterogeneity within the Hispanic population in terms of demographic and economic characteristics. As expected, Hispanics are a disadvantaged group. On average, all Hispanic men, aggregated as a single group, earn roughly 38% less than non-Hispanic white men. The male Hispanic-white gap in mean wages, however, is considerably smaller for Cubans (23%) and Puerto Ricans (27%) and larger for Mexicans (41%). For Central & South Americans, the wage disadvantage is about 37%.

Hispanic men average lower levels of education relative to their white counterparts. Namely, mean schooling levels are approximately 12 years for Cubans and Puerto Ricans, trailing the 14 years of white non-Hispanic men. Mexicans and Central & South Americans fare worse and average, respectively, 10 and 11 years of school. Not surprisingly, non-Hispanic white men are more fluent in English and more likely to be native born than Hispanic men. The percentage of Hispanics that suffered from English deficiency range from 10% for Puerto Ricans to 30% for Central & South Americans as compared to less than 1% for white men. While 50 and 60% of Mexicans and Puerto Ricans, respectively, were born outside the U.S. mainland, Cubans and South & Central Americans are almost entirely foreign born. In contrast, 5 and 9% of non-Hispanic white and black men, respectively, can be identified as foreigners. Cuban immigrant men arrived in the United States primarily during the 1960s, though a substantial influx of Cuban men

Table 4

Selected Descriptive Statistics for Men in Sample of Wage Earners
Means and Standard Deviations

Variable	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Dependent Variable							
Wages	16.668	10.414	9.756	12.772	12.249	10.545	12.825
	(11.778)	(7.217)	(6.489)	(9.872)	(7.413)	(7.978)	(8.121)
Log wages	2.623	2.166	2.107	2.359	2.359	2.169	2.390
	(.618)	(.590)	(.581)	(.590)	(.543)	(.595)	(.578)
Independent Variable							
Age	39.252	35.872	34.865	42.090	37.828	36.045	38.874
	(11.011)	(11.139)	(10.806)	(12.551)	(11.310)	(10.706)	(10.898)
Education	13.854	10.786	10.250	12.309	11.807	11.428	13.045
	(2.480)	(3.781)	(3.857)	(3.396)	(2.808)	(3.835)	(2.353)
Potential experience	19.398	19.089	18.618	23.782	20.023	18.621	19.831
	(11.060)	(11.964)	(11.817)	(13.772)	(12.238)	(11.067)	(11.246)
(Potential experience)^2	498.613	507.505	486.020	755.137	550.629	469.197	519.731
	(500.533)	(575.260)	(566.260)	(718.120)	(586.152)	(508.542)	(521.056)
English deficiency	0.004	0.233	0.253	0.245	0.101	0.304	0.006
	(.066)	(.423)	(.435)	(.430)	(.301)	(.460)	(.074)
Spanish at home	0.013	0.818	0.823	0.914	0.834	0.920	0.022
	(.113)	(.386)	(.382)	(.281)	(.372)	(.272)	(.147)
Health disability	0.037	0.021	0.020	0.020	0.033	0.013	0.032
	(.188)	(.145)	(.141)	(.138)	(.180)	(.112)	(.176)
Foreign	0.051	0.569	0.507	0.879	0.590	0.939	0.089
	(.188)	(.495)	(.500)	(.326)	(.492)	(.240)	(.285)
Immpre50	0.005	0.010	0.006	0.010	--	0.002	0.001
	(.069)	(.101)	(.079)	(.100)	--	(.043)	(.025)
Imm50	0.009	0.038	0.025	0.054	--	0.027	0.004
	(.093)	(.192)	(.157)	(.227)	--	(.163)	(.064)
Imm60	0.013	0.109	0.069	0.451	--	0.155	0.015
	(.115)	(.311)	(.254)	(.498)	--	(.362)	(.123)
Imm70-74	0.005	0.083	0.082	0.134	--	0.109	0.017
	(.069)	(.276)	(.275)	(.341)	--	(.311)	(.129)
Imm75-79	0.006	0.094	0.103	0.026	--	0.144	0.016
	(.080)	(.292)	(.304)	(.158)	--	(.351)	(.127)
Imm80-84	0.007	0.124	0.110	0.167	--	0.277	0.022
	(.083)	(.329)	(.313)	(.373)	--	(.447)	(.147)
Imm85-90	0.006	0.111	0.111	0.037	--	0.226	0.014
	(.075)	(.314)	(.314)	(.188)	--	(.418)	(.115)
Married	0.702	0.678	0.681	0.723	0.662	0.651	0.614
	(.457)	(.467)	(.466)	(.448)	(.473)	(.477)	(.487)
Spouse present	0.692	0.625	0.623	0.692	0.641	0.582	0.593
	(.462)	(.484)	(.485)	(.462)	(.480)	(.493)	(.491)
Spouse absent	0.010	0.053	0.059	0.031	0.021	0.070	0.021
	(.099)	(.224)	(.235)	(.173)	(.143)	(.255)	(.143)
Divorced	0.090	0.057	0.050	0.089	0.081	0.051	0.096
	(.286)	(.232)	(.217)	(.284)	(.272)	(.221)	(.295)
Separated	0.014	0.025	0.021	0.023	0.040	0.033	0.049
	(.119)	(.155)	(.145)	(.151)	(.197)	(.179)	(.215)
Widowed	0.005	0.004	0.004	0.005	0.004	0.004	0.008
	(.069)	(.066)	(.065)	(.072)	(.060)	(.061)	(.089)
Household head	0.823	0.709	0.700	0.790	0.725	0.683	0.747
	(.382)	(.454)	(.459)	(.407)	(.447)	(.465)	(.435)
Veteran	0.319	0.134	0.134	0.073	0.235	0.049	0.336
	(.466)	(.341)	(.340)	(.261)	(.424)	(.216)	(.473)
Exogenous income	154.479	153.263	148.317	183.680	157.673	163.066	167.346
(hundreds)	(216.312)	(202.778)	(195.658)	(216.627)	(200.978)	(216.337)	(206.995)
Home ownership	0.706	0.504	0.518	0.615	0.449	0.334	0.538
	(.456)	(.500)	(.500)	(.487)	(.497)	(.472)	(.499)
Person 65	0.039	0.060	0.049	0.161	0.062	0.068	0.050
	(.194)	(.237)	(.217)	(.368)	(.241)	(.251)	(.218)
Mills	1.008	1.026	1.024	1.009	1.040	1.018	1.050
	(.073)	(.068)	(.065)	(.066)	(.092)	(.051)	(.103)

Source: 5% Public-Use Microsample from 1990 Census of Population.
Note: Standard deviations are given in parentheses.

(continued)

Table 4 (continued)

Selected Descriptive Statistics for Men in Sample of Wage Earners
Means and Standard Deviations

Variable	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Independent Variable							
Federal	0.046	0.033	0.033	0.022	0.049	0.017	0.094
	(.210)	(.179)	(.178)	(.147)	(.217)	(.129)	(.292)
State	0.045	0.027	0.027	0.021	0.032	0.013	0.051
	(.207)	(.163)	(.162)	(.142)	(.177)	(.115)	(.220)
Local	0.074	0.061	0.057	0.076	0.109	0.025	0.124
	(.262)	(.239)	(.231)	(.265)	(.312)	(.157)	(.329)
Industry Categories							
agrict	0.016	0.070	0.096	0.008	0.012	0.020	0.012
	(.124)	(.255)	(.294)	(.090)	(.109)	(.140)	(.108)
mining	0.018	0.011	0.015	0.003	0.002	0.001	0.007
	(.132)	(.105)	(.120)	(.058)	(.042)	(.037)	(.083)
const	0.107	0.113	0.126	0.084	0.061	0.092	0.061
	(.309)	(.317)	(.332)	(.277)	(.240)	(.289)	(.240)
manfg	0.221	0.238	0.247	0.196	0.228	0.262	0.197
	(.415)	(.426)	(.431)	(.397)	(.420)	(.440)	(.397)
tcop	0.105	0.092	0.083	0.109	0.120	0.085	0.171
	(.306)	(.289)	(.276)	(.311)	(.326)	(.278)	(.376)
trade	0.184	0.216	0.214	0.255	0.186	0.238	0.160
	(.388)	(.412)	(.410)	(.436)	(.389)	(.426)	(.367)
fire	0.063	0.040	0.026	0.081	0.079	0.055	0.051
	(.244)	(.195)	(.160)	(.273)	(.270)	(.228)	(.221)
service	0.219	0.174	0.149	0.218	0.237	0.229	0.249
	(.413)	(.379)	(.356)	(.413)	(.426)	(.421)	(.432)
publicad	0.068	0.045	0.044	0.045	0.074	0.017	0.092
	(.252)	(.208)	(.205)	(.208)	(.262)	(.130)	(.289)
Occupation Categories							
mangmt	0.337	0.118	0.093	0.215	0.153	0.149	0.199
	(.473)	(.323)	(.291)	(.411)	(.360)	(.356)	(.399)
tech	0.237	0.166	0.142	0.270	0.213	0.179	0.237
	(.425)	(.372)	(.349)	(.444)	(.409)	(.383)	(.425)
serv	0.074	0.140	0.134	0.119	0.179	0.167	0.156
	(.261)	(.347)	(.341)	(.324)	(.384)	(.373)	(.363)
farming	0.013	0.070	0.094	0.010	0.017	0.022	0.014
	(.114)	(.255)	(.292)	(.102)	(.129)	(.148)	(.119)
produc	0.195	0.214	0.222	0.181	0.184	0.212	0.150
	(.396)	(.410)	(.415)	(.385)	(.387)	(.409)	(.358)
operat	0.144	0.293	0.315	0.204	0.254	0.271	0.244
	(.351)	(.455)	(.464)	(.403)	(.435)	(.445)	(.430)
Hispanic concentration	0.548	0.682	0.682	0.775	0.655	0.668	0.563
	(.177)	(.154)	(.153)	(.151)	(.147)	(.140)	(.167)
Average area wage rate	13.078	12.548	12.112	12.478	14.070	13.867	13.343
	(2.711)	(2.560)	(2.281)	(2.148)	(3.159)	(2.722)	(2.521)
Arizona	0.033	0.035	0.048	0.001	0.003	0.005	0.037
	(.178)	(.184)	(.214)	(.031)	(.053)	(.071)	(.190)
California	0.444	0.426	0.519	0.073	0.090	0.412	0.434
	(.497)	(.495)	(.500)	(.261)	(.287)	(.492)	(.496)
Colorado	0.024	0.025	0.025	0.002	0.005	0.003	0.031
	(.153)	(.156)	(.158)	(.044)	(.070)	(.057)	(.174)
Florida	0.077	0.092	0.014	0.709	0.179	0.177	0.090
	(.267)	(.289)	(.119)	(.455)	(.383)	(.381)	(.286)
Illinois	0.042	0.047	0.053	0.019	0.072	0.026	0.043
	(.200)	(.211)	(.223)	(.135)	(.258)	(.160)	(.202)
New Mexico	0.034	0.033	0.029	0.000	0.000	0.001	0.013
	(.182)	(.180)	(.167)	(.022)	(.019)	(.028)	(.111)
New Jersey	0.039	0.040	0.003	0.105	0.194	0.099	0.045
	(.195)	(.196)	(.051)	(.307)	(.395)	(.299)	(.207)
New York	0.085	0.079	0.007	0.069	0.426	0.221	0.087
	(.279)	(.270)	(.084)	(.254)	(.495)	(.415)	(.282)
Texas	0.222	0.222	0.302	0.022	0.032	0.056	0.218
	(.415)	(.416)	(.459)	(.147)	(.175)	(.230)	(.413)
N	12,083	35,424	23,948	2,097	2,815	3,713	9,323

Source: 5% Public-Use Microsample from 1990 Census of Population.
Note: Standard deviations are given in parentheses.

entered the country in the early 1980s. In contrast, for Mexicans and, mainly, Central & South American men, the bulk of immigration occurred during the late 1970s and throughout the 1980s.

Personal characteristics indicate further differences in average age among ethnic groups. Hispanic men are younger than non-Hispanic white and black men. Mexican men are the youngest group with less than 36 years. The exception is Cuban men who, on average, are 42 years of age compared to non-Hispanic white and black men at 39 years. The sharp difference in age between Cuban men and the rest of the Hispanic national-origin groups partially reflects their different immigration histories. Cuban men have more years of potential labor market experience and a larger proportion are married than in the other Hispanic groups. Averaging almost 24 years, Cuban men, along with Puerto Ricans (20 years) have more potential labor market experience than their white and black counterparts.

Marital status information shows that a larger proportion of wage-earning Cuban and non-Hispanic white men report being married with spouse present (69%) than Mexicans, Puerto Ricans, and Central & South Americans. At 58%, this proportion is lowest for Central & South Americans. Other personal characteristics indicate that Hispanic men are less likely than non-Hispanic whites to enjoy home ownership and to be veterans. The latter finding probably reflects the marked immigrant composition of Hispanic men. Also, a larger percentage of Hispanic men, especially Cubans, have adults aged 65 and over living in their households than non-Hispanic white and black men. With the exception of Mexicans, Hispanic and non-Hispanic black men have larger amount of

"exogenous income" than their white counterparts. Defined as the difference between family and personal income, exogenous income should serve to decrease the labor force participation rates of Cuban, Puerto Rican, and Central & South American males relative to those of non-Hispanic white men.

Table 5 discloses clear differences among ethnic groups in their occupational distributions. Levels of occupational attainment clearly favor non-Hispanic white men over their black and Hispanic counterparts. All Hispanic men are highly concentrated in low-wage, blue-collar occupations except Cubans. For example, nearly 32% of Mexicans, 25% of Puerto Ricans, and 27% of Central & South American work as laborers, as compared to non-Hispanic white's 14%. Likewise, Mexican men are more likely than non-Hispanic white and black men, as well as any other Hispanic group, to be farm workers. Among white-collar occupations, managerial and professional occupations provide employment to 58% of non-Hispanic white male workers. For Mexicans, Puerto Ricans, and Central & South Americans, the corresponding figures drop to 9, 15, and 14%, respectively. Within the Hispanic male population, however, Cubans differ from this pattern of low occupational attainment. Almost half of all Cuban men are employed in white-collar occupations. Specifically, 27% of Cuban men work in technical and sales jobs as opposed to non-Hispanic white's and black's 24%.

Sectoral and industrial differences are also evident among ethnic groups (Table 5). The vast majority of male workers of each group has employment in the private sector. Yet, a relatively large percentage of Puerto Ricans and, mainly, non-Hispanic blacks work in the public sector, particularly at the local level. Men of all Hispanic groups, except

Table 5

Sectoral, Industrial, and Occupational Distributions of Men by Ethnicity
(Percent)

	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Employment Sector							
Private Sector	83.50	87.90	88.30	88.10	81.00	94.50	73.10
Public Sector							
Federal	4.60	3.30	3.30	2.20	4.90	1.70	9.40
State	4.50	2.70	2.70	2.10	3.20	1.30	5.10
Local	7.40	6.10	5.70	7.60	10.90	2.50	12.40
Industry Categories							
Agriculture, Forestry, and Fisheries	1.60	7.00	9.60	0.80	1.20	2.00	1.20
Mining	1.80	1.10	1.50	0.30	0.20	0.10	0.70
Construction	10.70	11.30	12.60	8.40	6.10	9.20	6.12
Manufacturing	22.10	23.80	24.70	19.60	22.80	26.20	19.70
Transportation, Communications, and Other Public Utilities	10.50	9.20	8.30	10.90	12.00	8.50	17.10
Retail and Wholesale Trade	18.40	21.60	21.40	25.50	18.60	23.80	16.00
Finance, Insurance, and Real Estate	6.30	4.00	2.60	8.10	7.90	5.50	5.10
Service	21.90	17.40	14.90	21.80	23.70	22.90	24.90
Public Administration	6.80	4.50	4.40	4.50	7.40	1.70	9.20
Occupation Categories							
Managerial and Professional Specialty	33.70	11.80	9.30	21.50	15.30	14.90	19.90
Technical, Sales, and Administrative Support	23.70	16.60	14.20	27.00	21.30	17.90	23.70
Services	7.40	14.00	13.40	11.90	17.90	16.70	15.60
Farming, Forestry, and Fishing	1.30	7.00	9.40	1.00	1.70	2.20	1.40
Precision Production, Craft, and Repair	19.50	21.40	22.20	18.10	18.40	21.20	15.00
Operators, Fabricators, and Laborers	14.40	29.30	31.50	20.40	25.40	27.10	24.40

Source: 5% Public-Use Microsample from 1990 Census of Population.

Puerto Ricans, are more likely than non-Hispanic white and black men to work in retail and wholesale trade. Manufacturing, moreover, is a larger source of male jobs for Central & South Americans, Mexicans, and Puerto Ricans than for non-Hispanic whites and blacks. As expected, a higher proportion of Mexicans (10%) worked in agriculture relative to any other ethnic and Hispanic group. Also, among Hispanic men, only Mexicans are less likely than non-Hispanic whites to be employed in the service industry.

Regarding labor market conditions, summary statistics show that Hispanic men of all national-origin groups work in areas of high Hispanic concentration compared to non-Hispanic white and black men (Table 4). Puerto Rican and Central & South American men work in areas of relative high wages, reflecting the relatively high cost of living of New York and New Jersey in which these Hispanic groups are principally located.

4.2 Female Summary Statistics

Table 6 provides mean characteristics for women of various ethnic groups in 1989. The data reveal that, on average, all Hispanic women receive lower wages than non-Hispanic white women. Yet, the disadvantages are not as large as those in the case of men. The wage gap is largest for Mexican and Central & South American women who averaged around 28% less than non-Hispanic white women. The wage differential is considerably smaller for Cuban and Puerto Ricans with 13 and 11%, respectively. Relative to Hispanics, non-Hispanic black women fare better in the labor market. Blacks earn just 4% less than their white counterparts.

Table 6

Selected Descriptive Statistics for Women in Sample of Wage Earners
Means and Standard Deviations

Variable	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Dependent Variable							
Wages	11.354	8.552	8.101	9.935	10.118	8.190	10.867
	(7.090)	(5.261)	(4.908)	(6.320)	(5.777)	(5.238)	(6.757)
Log Wages	2.277	1.997	1.949	2.135	2.183	1.951	2.233
	(.554)	(.541)	(.529)	(.561)	(.513)	(.540)	(.557)
Independent Variable							
Age	38.998	36.537	35.629	41.338	36.489	37.184	38.722
	(11.152)	(10.873)	(10.534)	(12.379)	(10.603)	(10.636)	(10.657)
Education	13.678	11.646	11.294	12.551	12.614	11.369	13.205
	(2.201)	(3.288)	(3.309)	(3.218)	(2.565)	(3.778)	(2.214)
Potential experience	19.324	18.893	18.337	22.788	17.878	19.816	19.519
	(11.459)	(11.748)	(11.506)	(13.600)	(11.364)	(11.438)	(10.995)
(Potential experience)^2	504.707	494.956	468.639	704.153	448.690	523.382	501.850
	(513.576)	(542.379)	(527.173)	(676.882)	(500.113)	(527.349)	(495.154)
English deficiency	0.005	0.168	0.157	0.238	0.071	0.323	0.005
	(.070)	(.374)	(.364)	(.426)	(.257)	(.468)	(.072)
Spanish at home	0.016	0.786	0.775	0.937	0.847	0.929	0.020
	(.125)	(.410)	(.417)	(.244)	(.360)	(.257)	(.140)
Health disability	0.024	0.017	0.016	0.009	0.027	0.011	0.025
	(.152)	(.128)	(.127)	(.092)	(.161)	(.106)	(.155)
Foreign	0.050	0.465	0.340	0.858	0.526	0.932	0.076
	(.218)	(.499)	(.474)	(.350)	(.499)	(.252)	(.265)
Immpre50	0.003	0.012	0.007	0.011	--	0.007	0.000
	(.057)	(.108)	(.082)	(.103)	--	(.083)	(.011)
Imm50	0.011	0.040	0.025	0.061	--	0.031	0.003
	(.105)	(.196)	(.157)	(.239)	--	(.172)	(.058)
Imm60	0.017	0.119	0.065	0.502	--	0.180	0.019
	(.131)	(.324)	(.247)	(.500)	--	(.384)	(.138)
Imm70-74	0.005	0.078	0.067	0.142	--	0.142	0.013
	(.068)	(.268)	(.251)	(.349)	--	(.349)	(.114)
Imm75-79	0.006	0.074	0.073	0.018	--	0.163	0.015
	(.078)	(.262)	(.261)	(.133)	--	(.369)	(.121)
Imm80-84	0.003	0.083	0.059	0.100	--	0.235	0.016
	(.058)	(.275)	(.235)	(.301)	--	(.424)	(.126)
Imm85-90	0.004	0.059	0.043	0.024	--	0.175	0.009
	(.061)	(.235)	(.203)	(.153)	--	(.380)	(.095)
Married	0.598	0.575	0.587	0.643	0.517	0.537	0.434
	(.490)	(.494)	(.492)	(.479)	(.500)	(.499)	(.496)
Spouse present	0.589	0.546	0.560	0.614	0.495	0.491	0.415
	(.492)	(.498)	(.496)	(.487)	(.500)	(.500)	(.493)
Spouse absent	0.009	0.029	0.027	0.029	0.021	0.046	0.018
	(.095)	(.169)	(.163)	(.169)	(.145)	(.209)	(.134)
Divorced	0.170	0.131	0.124	0.157	0.152	0.115	0.197
	(.376)	(.338)	(.329)	(.364)	(.359)	(.319)	(.397)
Separated	0.022	0.048	0.044	0.027	0.070	0.068	0.081
	(.147)	(.213)	(.206)	(.161)	(.255)	(.252)	(.272)
Widowed	0.028	0.028	0.026	0.038	0.025	0.034	0.044
	(.165)	(.165)	(.158)	(.192)	(.156)	(.181)	(.205)
Household head	0.325	0.273	0.252	0.249	0.374	0.272	0.472
	(.468)	(.446)	(.434)	(.438)	(.484)	(.445)	(.499)
Child 6	0.087	0.106	0.111	0.088	0.109	0.097	0.088
	(.282)	(.308)	(.314)	(.283)	(.312)	(.296)	(.284)
Child 6-17	0.223	0.270	0.282	0.209	0.278	0.245	0.285
	(.416)	(.444)	(.450)	(.405)	(.448)	(.430)	(.452)
Child 6&17	0.050	0.111	0.132	0.052	0.078	0.098	0.085
	(.219)	(.314)	(.339)	(.221)	(.268)	(.298)	(.278)
Exogenous income (hundreds)	281.266	241.558	231.649	298.429	222.757	274.616	195.335
	(321.182)	(263.559)	(238.283)	(313.029)	(239.978)	(338.842)	(250.971)
Home ownership	0.686	0.564	0.596	0.679	0.423	0.412	0.501
	(.464)	(.496)	(.491)	(.467)	(.494)	(.492)	(.500)
Person 65	0.060	0.084	0.071	0.200	0.067	0.096	0.068
	(.238)	(.278)	(.257)	(.400)	(.249)	(.295)	(.252)
Mills	1.075	1.121	1.129	1.065	1.100	1.079	1.066
	(.152)	(.131)	(.125)	(.135)	(.155)	(.119)	(.126)

Source: 5% Public-Use Microsample from 1990 Census of Population.
Note: Standard deviations are given in parentheses.

(continued)

Table 6 (continued)

Selected Descriptive Statistics for Women in Sample of Wage Earners
Means and Standard Deviations

Variable	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Independent Variable							
Federal	0.032	0.034	0.037	0.019	0.043	0.014	0.074
	(.415)	(.182)	(.189)	(.137)	(.203)	(.118)	(.262)
State	0.060	0.053	0.058	0.024	0.051	0.024	0.079
	(.237)	(.224)	(.235)	(.154)	(.220)	(.154)	(.270)
Local	0.109	0.093	0.097	0.094	0.133	0.048	0.149
	(.312)	(.291)	(.296)	(.292)	(.340)	(.214)	(.356)
Industry Categories							
agrict	0.007	0.015	0.021	0.003	0.005	0.007	0.003
	(.081)	(.121)	(.144)	(.056)	(.072)	(.083)	(.053)
mining	0.007	0.002	0.003	0.001	0.002	0.001	0.003
	(.082)	(.046)	(.052)	(.023)	(.041)	(.032)	(.057)
const	0.018	0.010	0.010	0.012	0.013	0.009	0.009
	(.131)	(.101)	(.099)	(.110)	(.113)	(.096)	(.095)
manfg	0.110	0.204	0.212	0.208	0.166	0.230	0.106
	(.313)	(.403)	(.409)	(.409)	(.372)	(.421)	(.308)
tcop	0.059	0.050	0.045	0.068	0.073	0.038	0.092
	(.235)	(.219)	(.208)	(.252)	(.261)	(.191)	(.289)
trade	0.188	0.187	0.199	0.162	0.143	0.176	0.118
	(.390)	(.390)	(.399)	(.369)	(.351)	(.381)	(.323)
fire	0.126	0.091	0.079	0.155	0.109	0.083	0.099
	(.332)	(.287)	(.270)	(.362)	(.311)	(.276)	(.299)
service	0.435	0.386	0.374	0.350	0.427	0.436	0.480
	(.496)	(.487)	(.484)	(.477)	(.495)	(.496)	(.500)
publicad	0.052	0.053	0.056	0.041	0.061	0.021	0.089
	(.222)	(.225)	(.230)	(.198)	(.240)	(.143)	(.285)
Occupation Categories							
mangmt	0.376	0.191	0.172	0.242	0.247	0.156	0.281
	(.484)	(.393)	(.378)	(.428)	(.431)	(.363)	(.449)
tech	0.473	0.413	0.412	0.465	0.465	0.330	0.439
	(.499)	(.492)	(.492)	(.499)	(.499)	(.470)	(.496)
serv	0.090	0.178	0.177	0.105	0.133	0.278	0.184
	(.287)	(.383)	(.382)	(.307)	(.340)	(.448)	(.388)
farming	0.003	0.013	0.019	0.003	0.004	0.006	0.002
	(.056)	(.114)	(.137)	(.052)	(.062)	(.078)	(.048)
produc	0.019	0.042	0.046	0.039	0.032	0.040	0.026
	(.137)	(.200)	(.209)	(.194)	(.175)	(.196)	(.159)
operat	0.039	0.164	0.173	0.146	0.119	0.190	0.068
	(.193)	(.370)	(.379)	(.353)	(.324)	(.393)	(.252)
Hispanic concentration	0.517	0.669	0.671	0.780	0.625	0.648	0.533
	(.188)	(.166)	(.166)	(.159)	(.155)	(.144)	(.174)
Average area wage rate	10.132	10.215	9.952	10.051	11.060	10.980	10.536
	(2.742)	(3.053)	(3.555)	(1.418)	(1.929)	(1.737)	(2.128)
Arizona	0.035	0.035	0.053	0.002	0.006	0.008	0.038
	(.184)	(.185)	(.223)	(.040)	(.075)	(.087)	(.191)
California	0.380	0.386	0.485	0.074	0.093	0.417	0.384
	(.485)	(.487)	(.500)	(.262)	(.290)	(.493)	(.486)
Colorado	0.029	0.029	0.028	0.003	0.005	0.004	0.034
	(.169)	(.169)	(.166)	(.052)	(.072)	(.061)	(.180)
Florida	0.097	0.111	0.013	0.725	0.185	0.175	0.096
	(.296)	(.314)	(.114)	(.447)	(.388)	(.380)	(.294)
Illinois	0.034	0.039	0.044	0.015	0.061	0.032	0.038
	(.180)	(.194)	(.204)	(.123)	(.239)	(.175)	(.192)
New Mexico	0.035	0.038	0.032	0.001	0.002	0.001	0.012
	(.183)	(.192)	(.176)	(.023)	(.046)	(.037)	(.109)
New Jersey	0.043	0.046	0.003	0.100	0.191	0.097	0.053
	(.202)	(.210)	(.052)	(.300)	(.394)	(.297)	(.224)
New York	0.098	0.092	0.006	0.063	0.428	0.213	0.106
	(.297)	(.288)	(.077)	(.244)	(.495)	(.409)	(.308)
Texas	0.250	0.223	0.336	0.018	0.030	0.053	0.239
	(.433)	(.416)	(.472)	(.131)	(.170)	(.224)	(.426)
N	8,512	24,714	14,878	1,881	2,329	2,915	8,179

Source: 5% Public-Use Microsample from 1990 Census of Population.
Note: Standard deviations are given in parentheses.

Human capital factors render some explanation for the observed wage differentials within the female Hispanic population and between Hispanic and non-Hispanic white women. Women of most Hispanic-origin groups have low levels of education and suffer from English deficiency, compared to non-Hispanic white and black women. More concretely, the average years of schooling for Mexicans and Central & South Americans is 11, while that of non-Hispanic white and black women is around 14 and 13 years, respectively. The proportion of women who have some deficiencies in English is around 16% for Mexicans and 32% for Central & South Americans but less of a percent for non-Hispanic whites and blacks. Cuban and Puerto Rican women are better educated, completing almost 13 years of schooling. Likewise, only 7% of Puerto Rican women face some type of English deficiency.

A larger percentage of Mexican than Cuban women, however, has achieved fluency in English (24%). Despite this advantage, Mexican women have performed far worse in the labor market than their Cuban counterparts. This suggests, as noted by Bean and Tienda (1987), that though "mastery of the language may be a necessary condition for socioeconomic success, it is insufficient by itself". Unquestionably, this outcome also reflects the well-documented higher success of Cubans in developing an ethnic enclave economy, which allows them to mitigate the adverse effects that stem from lack of English proficiency (Portes and Bach, 1980; Wilson and Portes, 1980; Chiswick, 1987).

Similar to men, variation in post-school job experience among women reflects age composition of the various ethnic groups. Being the oldest among all Hispanic and non-Hispanic groups, Cuban women are also the most experienced on the job with average

experience of 23 years. Mexican, Puerto Rican, and Central & South American women are younger and have less work experience, on average, than non-Hispanic white and black women. For instance, with roughly 18 years, Mexican and Puerto Rican women average under two years of labor market experience less than non-Hispanic white and black women.

As observed for Hispanic men, Hispanic women are more likely to be immigrants, particularly Cubans and Central & South Americans than non-Hispanic females. For Puerto Ricans, more than half of working-age women are foreign-born, which in their case refers to birth on the island of Puerto Rico rather than U.S. mainland. Women of Cuban and Central & South American origins follow the time pattern evidenced by their male counterparts. Whereas Cuban women entered the United States mostly during the 1960s, Central & South American female immigration happened principally in the 1980s. In contrast, Mexican men and women immigrants have traced divergent paths. Firstly, 34% of Mexican women in the sample are identified as foreigners, considerably lower than Mexican men's 51%. Secondly, Mexican women's immigration declined in the 1980s, while that of men actually increased over this period. This discrepancy might be partially accounted by the undercount of undocumented Mexican immigrants in the census of population. But, it also might indicate that the geographic closeness between Mexico and U.S. could raise the likelihood of migrating for single male individuals, as opposed to whole families.

Family and household information demonstrates that all Hispanic women, except Cubans, are less prone to be married but more likely to have children living with them than

non-Hispanic whites. For example, the percentage of Hispanic women who report having teenagers residing in their homes is almost 25% for Central & South Americans, and 28% for Mexicans and Puerto Ricans. The corresponding figure for non-Hispanic whites is 22%. As Reimers (1985) writes, this finding implies that Hispanic women wage earners "may have less actual work experience than non-Hispanic whites of the same age and education". Differences in the proportion married among female groups mirror variance in age composition. Being a relatively young age group, Puerto Rican women are also less likely than any other group but non-Hispanic blacks to be married. The lower proportion of married Puerto Rican women also results from breakup of families as suggested by their higher rates of divorce and separation.

Table 6 suggests that Cubans have been the most successful group in attaining family stability within the working Hispanic population. Not only do Cuban women have the highest marriage rate among women of all Hispanic-origin groups (4%), but also they have the lowest percentage of households headed by women (25%). Cuban women further enjoy rates of home ownership equivalent to that of non-Hispanic white women and higher than any other female minority group. Lastly, all Hispanic women, and Cubans in particular, are more likely than their white and black counterparts to have a person 65 or over residing in their households. In 1990, the proportion of women who lived with individuals age 65 and older was 10% among Central & South American women and 20% among Cubans, in comparison to 6 and 7% for non-Hispanic white and black women, respectively.

Data on family and personal income shows variation by ethnicity in the variable defined as exogenous income. With the exception of Cubans, women of all Hispanic-origin groups have lower exogenous income than non-Hispanic white women. For non-Hispanic black women, the amounts of exogenous income are even smaller. Assuming that a spouse's lower income increase women's work probability, exogenous income would tend to augment the labor force participation rates of non-Hispanic black, Mexican, Puerto Rican, and Central & South American women relative to those of non-Hispanic white females.

Occupational distributions of the various female ethnic groups are displayed in Table 7. Compared to non-Hispanic whites, the percentage of women that occupy white collar jobs is lower for all Hispanic groups. The female occupational difference in white-collar jobs is substantial for Mexicans and Puerto Ricans. Roughly 58% of Mexican women and 49% of Puerto Rican women are professional or technical and sales workers as opposed to non-Hispanic whites' 84% and blacks' 72%. Among blue-collar occupations, Hispanic women are primarily employed as laborers and service workers. Particularly, these occupations comprise nearly 46% of women wage-earners from Central & South America but only 13 and 25% of non-Hispanic white and black women, respectively.

Distributional differences by employment sector among women exhibit that a relatively high percentage of Black are employed in the public sector (30%). Within the wage-earning Hispanic population, Puerto Rican women are the most likely to work in government jobs, especially at the local level. Specifically, the percentage of Hispanic

Table 7

Sectoral, Industrial, and Occupational Distributions of Women by Ethnicity
(Percent)

	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Employment Sector							
Private Sector	79.90	82.00	80.80	86.30	77.30	91.40	69.80
Public Sector							
Federal	3.20	3.40	3.70	1.90	4.30	1.40	7.40
State	6.00	5.30	5.80	2.40	5.10	2.40	7.90
Local	10.90	9.30	9.70	9.40	13.30	4.80	14.90
Industry Categories							
Agriculture, Forestry, and Fisheries	0.70	1.50	2.10	0.30	0.50	0.70	0.30
Mining	0.70	0.20	0.30	0.10	0.20	0.10	0.30
Construction	1.80	1.00	1.00	1.20	1.30	0.90	0.90
Manufacturing	11.00	20.40	21.20	20.80	16.60	23.00	10.60
Transportation, Communications, and Other Public Utilities	5.90	5.00	4.50	6.80	7.30	3.80	9.20
Retail and Wholesale Trade	18.80	18.70	19.90	16.20	14.30	17.60	11.80
Finance, Insurance, and Real Estate	12.60	9.10	7.90	15.50	10.90	8.30	9.90
Service	43.50	38.60	37.40	35.00	42.70	43.60	48.00
Public Administration	5.20	5.30	5.60	4.10	6.10	2.10	8.90
Occupation Categories							
Managerial and Professional Specialty	37.60	19.10	17.20	24.20	24.70	15.60	28.10
Technical, Sales, and Administrative Support	47.30	41.30	41.20	46.50	46.50	33.00	43.90
Services	9.00	17.80	17.70	10.50	13.30	27.80	18.40
Farming, Forestry, and Fishing	0.30	1.30	1.90	0.30	0.40	0.60	0.20
Precision Production, Craft, and Repair	1.90	4.20	4.60	3.90	3.20	4.00	2.60
Operators, Fabricators, and Laborers	3.90	16.40	17.30	14.60	11.90	19.00	6.80

Source: 5% Public-Use Microsample from 1990 Census of Population.

women holding public sector jobs ranged from under 9% for Central & South Americans to nearly 23% for Puerto Ricans. Among non-Hispanic white women, this proportion reaches 20%.

The distribution of employment by industry reveals a major difference in manufacturing between non-Hispanic white and Hispanic women of every national-origin group. The percentage of women that work in manufacturing is 23% for Central & South Americans, 21% for Mexicans and Cubans, and 16% for Puerto Ricans, compared to just 11% for both non-Hispanic whites and blacks. Also, services are the largest source of employment for women of all ethnic groups; yet, with the exception of Central & South Americans, the employment share attributed to this industry is smaller for all Hispanic women than for non-Hispanic white women.

Not surprisingly, labor market characteristics indicate that Hispanic women, and mainly Cubans, work in areas of high Hispanic concentration relative to other ethnic groups. Furthermore, reflecting their geographical location, Puerto Rican and Central & South American women work in labor markets of higher average wages than the other Hispanic and non-Hispanic groups.

Descriptive data, therefore, demonstrate that there exist marked differences in personal, economic, and employment characteristics between Hispanic and non-Hispanic workers. Consistent with earlier studies, summary statistics also reveal extensive socioeconomic diversity within the wage-earning Hispanic population (Chiswick, 1987; Beand and Tienda, 1987; Melendez, Rodriguez, and Figueroa, 1991). The results of the descriptive analysis of this paper, however, differ from those of previous studies in a major

area. In the past, researchers found that Mexicans and Puerto Ricans performed very poorly relative to Cubans and other non-Hispanic groups (Tienda, 1983; Reimers, 1984, 1985; Borjas and Tienda, 1985). Nowadays, economic disparity among working Hispanics favors Puerto Ricans in addition to Cubans. That is, working Puerto Ricans have erased a situation of within-group economic disadvantage to reach labor market outcomes equivalent to those of Cubans. This finding appears consistent with current research on Puerto Rican outcomes (Rivera-Batiz and Santiago, 1995)[16].

In general, both demand and supply-side explanations of the Hispanic-white wage gap appear to have some empirical support. Hispanics who participate in the labor market have, on average, lower human capital than their non-Hispanic white counterparts. Moreover, employed Hispanics have achieved low occupational status relative to the wage-earning non-Hispanic population. It is important, hence, to control for these discrepancies when analyzing empirically the wage differentials between these ethnic groups. The present study attempts to do so in the following sections.

4.3 Reduced Probit Equations for Men

The probit estimates for men of the various ethnic groups are reported in Table 8. The results exhibit some general similarities between Hispanics and non-Hispanic white and black men. Excluding Cubans, the coefficient on education is positive and statistically

[16] Using data from the 1990 Census of Population, Rivera-Batiz and Santiago (1995) report that Puerto Ricans have experienced increases in wages and hours worked. Further, Puerto Ricans have enjoyed rising labor force participation rates and occupational upgrading. However, Rivera-Batiz and Santiago stress that these gains have been conditional on working, so that increasing within-group differentiation has become a marked feature of the Puerto Rican population.

Table 8

Coefficients of Probit Model for being in the Sample for Non-Hispanic White, Black, and Hispanic Men

Independent variables	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Exogenous income	-0.000	0.000 **	0.000 **	-0.000	0.000	0.000	0.000 *
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Home ownership	0.146 **	0.204 **	0.148 **	0.260 **	0.357 **	0.139 *	0.223 **
	(.045)	(.020)	(.025)	(.095)	(.067)	(.076)	(.032)
Person 65	-0.362 **	-0.122 **	-0.121 **	-0.102	0.067	-0.007	-0.316 **
	(.062)	(.031)	(.040)	(.104)	(.102)	(.112)	(.047)
Education	0.024 **	0.028 **	0.024 **	0.087 *	0.094 **	0.072	0.062 **
	(.008)	(.005)	(.006)	(.052)	(.023)	(.046)	(.007)
Potential experience	0.027 **	0.011 **	0.014 **	-0.081 *	-0.017	-0.003	-0.002
	(.007)	(.004)	(.004)	(.044)	(.015)	(.034)	(.005)
(Potential experience)^2	-0.001 **	-0.001 **	-0.001 **	0.001	-0.000	-0.000	-0.001 **
	(.000)	(.000)	(.000)	(.001)	(.000)	(.001)	(.000)
English deficiency	0.156	-0.039 *	-0.052 *	-0.229 **	0.084	-0.158 **	-0.180
	(.216)	(.024)	(.029)	(.114)	(.083)	(.068)	(.170)
Spanish at home	-0.185	-0.138 **	-0.122 **	-0.001	-0.285 **	0.117	-0.147 *
	(.142)	(.026)	(.033)	(.170)	(.092)	(.123)	(.089)
Foreign	--	--	--	--	0.612 *	--	--
	--	--	--	--	(.338)	--	--
Foreign*Education	-0.024	-0.022 **	-0.013 *	-0.064	-0.092 **	-0.047	-0.042 **
	(.024)	(.006)	(.008)	(.054)	(.025)	(.046)	(.021)
Foreign*Potential Experience	0.004	-0.003	-0.002	0.100 **	0.037 **	0.014	-0.031
	(.022)	(.005)	(.006)	(.045)	(.017)	(.035)	(.020)
(Foreign*Potential Experience)^2	-0.000	0.000 **	0.000 **	-0.002	-0.001 *	0.000	0.001 **
	(.000)	(.000)	(.000)	(.001)	(.000)	(.001)	(.000)
Foreign*Immpre50	0.500	-0.256 **	-0.338 **	-0.469	--	-0.695	0.439
	(.522)	(.116)	(.158)	(.860)	--	(.760)	(.584)
Foreign*Imm50	0.140	0.018	-0.163	-0.424	--	0.093	1.070 **
	(.469)	(.102)	(.134)	(.796)	--	(.691)	(.488)
Foreign*Imm60	0.259	0.133	0.048	-0.479	--	0.332	0.888 **
	(.428)	(.094)	(.121)	(.768)	--	(.664)	(.394)
Foreign*Imm70-74	0.578	0.257 **	0.159	-0.363	--	0.371	1.444 **
	(.489)	(.092)	(.116)	(.766)	--	(.663)	(.393)
Foreign*Imm75-79	-0.157 *	0.304 **	0.210 **	0.001	--	0.438	1.083 **
	(.435)	(.090)	(.112)	(.813)	--	(.657)	(.380)
Foreign*Imm80-84	0.272	0.332 **	0.388 **	-0.613	--	0.398	1.086 **
	(.471)	(.088)	(.109)	(.760)	--	(.652)	(.360)
Foreign*Imm85-90	-0.859 **	-0.018	-0.088	-0.959	--	0.054	0.669 **
	(.401)	(.085)	(.104)	(.770)	--	(.650)	(.338)
Household head	0.419 **	0.556 **	0.541 **	0.500 **	0.595 **	0.569 **	0.622 **
	(.053)	(.024)	(.030)	(.112)	(.070)	(.074)	(.036)
Veteran	-0.055	0.011	0.011	-0.080	0.108	0.423 **	0.094 **
	(.045)	(.030)	(.038)	(.178)	(.076)	(.190)	(.034)
Health disability	-1.369 **	-1.465 **	-1.452 **	-1.548 **	-1.445 **	-1.217 **	-1.395 **
	(.043)	(.024)	(.030)	(.111)	(.071)	(.109)	(.036)
Married spouse present	0.454 **	0.231 **	0.199 **	0.407 **	0.407 **	0.048	0.462 **
	(.060)	(.027)	(.034)	(.127)	(.081)	(.085)	(.043)
Married spouse absent	0.073	0.138 **	0.080 **	0.461 **	0.123	0.104	-0.043
	(.138)	(.034)	(.041)	(.225)	(.154)	(.101)	(.078)
Widowed	0.332 **	-0.020	-0.118	0.413	0.006	0.017	0.023
	(.165)	(.085)	(.101)	(.433)	(.266)	(.375)	(.107)
Divorced	0.275 **	0.063 *	0.070	0.100	0.136	0.038	0.241 **
	(.073)	(.038)	(.049)	(.150)	(.105)	(.146)	(.052)
Separated	0.210	-0.022	-0.012	-0.028	0.107	-0.163	0.178 **
	(.137)	(.047)	(.063)	(.209)	(.121)	(.141)	(.060)
Hispanic concentration	-0.391 **	1.446 **	1.380 **	2.743 **	1.379 **	1.011 **	-0.404 **
	(.130)	(.068)	(.089)	(.276)	(.232)	(.231)	(.112)
Average area wage rate	0.071 **	0.047 **	0.035 **	0.065 **	0.102 **	0.067 **	0.105 **
	(.010)	(.005)	(.007)	(.027)	(.013)	(.015)	(.009)
State unemployment rate	2.926	-8.258 **	-6.846 **	-0.656	-22.137 **	-4.546	-3.850 *
	(2.749)	(1.384)	(2.318)	(6.514)	(3.346)	(4.267)	(2.163)
Intercept	0.251	0.043	0.168	-1.514 *	-0.330	-0.725	-0.780 **
	(.289)	(.159)	(.251)	(.907)	(.424)	(.782)	(.226)
N	15,151	50,403	34,145	2,718	4,309	5,011	14,986

Note: Standard errors are given in parentheses. ** 5% level, * 10% level

significant for all men regardless of ethnicity. This implies that years of education increase the probability that a man would work. Home ownership, household headship, and working in area of high average wage rate also raises the male propensity to work of every ethnic group, while health disability decreases it.

Among other effects, the presence of adults age 65 and over in the household lowers the participation in the labor force of non-Hispanic white and black men but only that of Mexican males within the Hispanic population. English deficiency decreases the work probabilities of Mexican, Cuban, and Central & South American males. The coefficient on English deficiency is also negative for Puerto Ricans, but not statistically significant. Similarly, Mexican and Puerto Rican men who speak Spanish at home are less likely to work. Some researchers argue that retention of "mother tongue" among Mexican men may hinder English proficiency, making it more difficult to obtain employment in the labor market (Chiswick, 1987; Rodriguez, 1991). The parameter on Spanish practice, nevertheless, is significant and negative after controlling for educational background. This finding suggests that Spanish retention might affect Hispanic participation rates through other channels apart from English deficiency.

The impact of being married on men's participation in the labor market is positive and statistically significant for all groups except Central & South Americans. In addition, Mexican and Puerto Rican married men who are not living with their spouses are more likely to work than those who are part of intact marriages. Job experience and its quadratic term have the expected effects on the participation probabilities of Mexican and non-Hispanic white men only. For these groups, while the initial years of experience

enhance the likelihood of working, increasing years on the job would tend to reduce the probability of being employed as workers reach a plateau and approach the retirement age.

Among Puerto Rican males, birth on the island positively influences the likelihood of working. Contrary to the expected effect, exogenous income actually augments the propensity to work for Mexican and non-Hispanic black men, though the size of the coefficient is negligible in both cases. Mexican and Puerto Rican men, along with non-Hispanic black males, are less likely to work in states with high unemployment rates. Lastly, increasing the Hispanic percentage in the labor market raises the work probabilities of all Hispanic men but lowers the participation rates of non-Hispanic white and black men. Table 8, then, supplies some evidence that ethnic concentration enhances the employment status of Hispanic men through means such as the use of networking or the accumulation of "social capital".

4.4 Reduced Probit Equations for Women

The parameters of the female probit equations are shown in Table 9. As expected, the estimated coefficients indicate that the amount of exogenous income available in a family decreases the work probabilities of women of any ethnic group. Similarly, health disability, and the presence of children in the household are negative significant factors in determining female participation rates in labor markets. Raising both young children and teenagers constitutes an impediment to work for Hispanic and non-Hispanic women, which points to the need of both day and after-school care. In addition, the absence of a male spouse in a household diminishes the likelihood of employment for married Mexican

Table 9

Coefficients of Probit Model for being in the Sample for Non-Hispanic White, Black, and Hispanic Women

Independent variables	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Exogenous income	-0.000 **	-0.000 **	-0.000 **	-0.000 **	-0.000 **	-0.000 **	-0.000 **
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Home ownership	0.054	0.252 **	0.172 **	0.204 **	0.371 **	0.135 **	0.247 **
	(.033)	(.015)	(.019)	(.066)	(.055)	(.052)	(.031)
Person 65	-0.223 **	-0.065 **	-0.091 **	-0.079	0.016	0.050	-0.147 **
	(.048)	(.023)	(.030)	(.073)	(.090)	(.074)	(.048)
Education	0.084 **	0.089 **	0.097 **	0.011	0.094 **	-0.006	0.096 **
	(.007)	(.004)	(.005)	(.044)	(.019)	(.045)	(.007)
Potential experience	-0.009 *	0.001	0.003	-0.010	-0.021 *	0.045	0.000
	(.005)	(.003)	(.003)	(.027)	(.012)	(.032)	(.005)
(Potential experience)^2	-0.001 **	-0.000 **	-0.000 **	-0.000	-0.000	-0.002 **	-0.000 **
	(.000)	(.000)	(.000)	(.001)	(.000)	(.001)	(.000)
English deficiency	-0.087	-0.149 **	-0.148 **	-0.209 **	-0.181 **	-0.112 **	0.068
	(.176)	(.019)	(.025)	(.077)	(.068)	(.050)	(.164)
Spanish at home	0.196 *	0.021	0.050 **	-0.193	0.003	0.042	0.031
	(.112)	(.019)	(.023)	(.135)	(.072)	(.088)	(.097)
Foreign	--	--	--	--	0.709 **	--	--
	--	--	--	--	(.299)	--	--
Foreign*Education	-0.040 *	-0.087 **	-0.094 **	0.010	-0.061 **	0.020	-0.074 **
	(.023)	(.005)	(.006)	(.045)	(.022)	(.045)	(.021)
Foreign*Potential Experience	-0.019	0.001	0.008 *	-0.005	-0.009	-0.038	0.007
	(.019)	(.004)	(.005)	(.029)	(.014)	(.032)	(.017)
(Foreign*Potential Experience)^2	0.001	0.000	-0.000	0.000	0.000	0.001 *	0.000
	(.000)	(.000)	(.000)	(.001)	(.000)	(.001)	(.000)
Foreign*Immpre50	0.329	0.664 **	0.931 **	-0.528	--	-0.572	0.140
	(.470)	(.095)	(.135)	(.715)	--	(.702)	(.683)
Foreign*Imm50	0.331	0.721 **	0.890 **	-0.464	--	-0.623	1.047 **
	(.414)	(.083)	(.113)	(.669)	--	(.664)	(.430)
Foreign*Imm60	0.485	0.784 **	0.898 **	-0.362	--	-0.522	1.137 **
	(.391)	(.077)	(.101)	(.659)	--	(.653)	(.372)
Foreign*Imm70-74	0.605	0.899 **	1.008 **	-0.419	--	-0.475	0.884 **
	(.403)	(.076)	(.096)	(.658)	--	(.652)	(.362)
Foreign*Imm75-79	0.884 **	0.970 **	1.032 **	-0.704	--	-0.269	0.943 **
	(.415)	(.075)	(.094)	(.684)	--	(.651)	(.354)
Foreign*Imm80-84	0.470	0.931 **	1.037 **	-0.400	--	-0.399	1.024 **
	(.427)	(.074)	(.093)	(.658)	--	(.649)	(.340)
Foreign*Imm85-90	0.088	0.721 **	0.726 **	-0.412	--	-0.628	0.623 *
	(.397)	(.073)	(.091)	(.670)	--	(.648)	(.333)
Household head	0.118 **	0.132 **	0.171 **	0.099	0.118 **	0.207 **	0.256 **
	(.046)	(.021)	(.027)	(.096)	(.063)	(.065)	(.037)
Child 6	-0.737 **	-0.528 **	-0.486 **	-0.553 **	-0.706 **	-0.440 **	-0.451 **
	(.051)	(.023)	(.030)	(.114)	(.078)	(.073)	(.047)
Child 6-17	-0.214 **	-0.164 **	-0.144 **	-0.238 **	-0.343 **	-0.109 *	-0.146 **
	(.040)	(.019)	(.024)	(.086)	(.063)	(.062)	(.038)
Child 6&17	-0.934 **	-0.646 **	-0.606 **	-1.021 **	-0.922 **	-0.543 **	-0.541 **
	(.052)	(.022)	(.027)	(.124)	(.080)	(.073)	(.047)
Health disability	-0.861 **	-0.914 **	-0.879 **	-1.019 **	-0.860 **	-0.616 **	-0.972 **
	(.046)	(.025)	(.032)	(.117)	(.075)	(.094)	(.038)
Married spouse present	-0.124 **	0.106 **	0.031	0.011	0.486 **	-0.006	0.347 **
	(.062)	(.023)	(.029)	(.122)	(.074)	(.068)	(.043)
Married spouse absent	-0.274 **	-0.161 **	-0.152 **	-0.055	-0.166	-0.155	0.139
	(.132)	(.037)	(.048)	(.190)	(.135)	(.098)	(.088)
Widowed	-0.057	0.011	-0.131 **	-0.046	0.183	0.151	-0.023
	(.092)	(.040)	(.052)	(.177)	(.142)	(.125)	(.065)
Divorced	0.255 **	0.244 **	0.177 **	0.142	0.530 **	0.243 **	0.336 **
	(.071)	(.029)	(.037)	(.142)	(.086)	(.095)	(.047)
Separated	-0.092	-0.016	-0.061	0.487 **	0.145	0.039	0.052
	(.105)	(.033)	(.042)	(.218)	(.090)	(.100)	(.052)
Hispanic concentration	-2.990 **	1.127 **	1.234 **	2.934 **	-1.161 **	0.258	-2.399 **
	(.101)	(.053)	(.069)	(.214)	(.200)	(.191)	(.102)
Average area wage rate	0.292 **	0.286 **	0.233 **	0.594 **	0.429 **	0.468 **	0.358 **
	(.011)	(.005)	(.007)	(.032)	(.016)	(.017)	(.011)
State unemployment rate	-7.491 **	-4.341 **	-9.670 **	-4.872	-29.169 **	-9.876 **	-14.307 **
	(2.543)	(1.270)	(2.269)	(4.817)	(4.354)	(3.565)	(2.556)
Intercept	0.382	-3.065 **	-2.285 **	-5.573 **	-1.209 **	-2.720 **	-1.164 **
	(.244)	(.133)	(.203)	(.781)	(.452)	(.741)	(.242)
N	15,132	50,848	31,770	3,249	5,036	5,546	14,926

Note: Standard errors are given in parentheses. ** 5% level, * 10% level

and non-Hispanic white women. A possible explanation for this outcome is that, without a spouse's assistance, married women are forced to assume greater domestic responsibility, such as child raising, and, thus, reduce their labor supply or even withdraw completely from the labor market.

Table 9 further shows that home ownership is a positive factor in explaining the employment status of all Hispanic and non-Hispanic black women. Moreover, Puerto Rican women who are born in the island have a higher propensity to work than those who are born in the U.S. mainland. Among Mexican women, those who are immigrants enjoy higher participation rates. Relative to women who immigrated in the 1960s or before, recent immigrants are more likely to be in the wage and salary sector, as suggested by the increasing size of the coefficients on the year of immigration variables. These estimates might mirror the aging of the "old" immigrants, but they may also suggest rising labor force participation rates among female immigrants of Mexican origin. In contrast, the parameter on household headship is negative and statistically significant for females of all ethnic backgrounds except Cubans. That is, heading a household is a negative determinant of a woman's working in the labor market.

Additional estimates display that participation in the labor force is less likely for Hispanic and non-Hispanic women if they lack English fluency. Mexican and non-Hispanic women with adults age 65 and over living in the household are also less likely to work. Educational level is particularly important in increasing the probability of being in the work force among Puerto Rican, Mexican, and non-Hispanic women, regardless of race.

Given the estimated size of its coefficient, potential labor market experience appear to be inconsequential for the work probabilities for women.

Other results exhibit that labor market conditions significantly affect female work probabilities. Being employed in areas of high female hourly wages increases the likelihood that women would work, regardless of ethnicity. As in the case of men, Hispanic concentration makes non-Hispanic white and black women less likely to be part of the working population. A high Hispanic percentage of the workforce also diminishes the probability of being in the wage sample for Puerto Rican females. Conversely, rising Hispanic concentration in labor markets improves the work probabilities of Mexican and Cuban women. State unemployment rates, moreover, have negative effects on the female participation rates of all ethnic groups except that of Cubans.

In sum, the results of the probit models exhibit some general similarities between Hispanics and non-Hispanic men and women, but there also remain several ethnic and gender differences that deserve careful consideration.

4.5 Parameter Estimates of Male Wage Equations

The results of estimating wage functions for Hispanic and non-Hispanic men are reported in Table 10. The coefficient on the Inverse Mill's ratio is negative and statistically significant for Mexican, Puerto Rican, and non-Hispanic white and black males. It appears that men of these ethnic groups enjoy higher relative productivity in other sectors than the labor market and, consequently, are less likely to be in the wage sample.

Table 10

Coefficients of Wage Equations for Non-Hispanic White, Black, and Hispanic Men Corrected for Sample-Selection Bias

Dependent variable: log(hourly wages)

Independent variables	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Human Capital & Personal Characteristics							
Education	0.074 **	0.057 **	0.059 **	0.080 **	0.078 **	0.032 **	0.062 **
	(.002)	(.002)	(.002)	(.012)	(.007)	(.014)	(.003)
Potential experience	0.040 **	0.033 **	0.032 **	0.049 **	0.038 **	0.037 **	0.029 **
	(.002)	(.001)	(.001)	(.010)	(.005)	(.010)	(.002)
(Potential experience)^2	-0.001 **	-0.000 **	-0.000 **	-0.001 **	-0.001 **	-0.001 **	-0.000 **
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
English deficiency	0.004	-0.119 **	-0.115 **	-0.100 **	-0.087 **	-0.132 **	0.036
	(.070)	(.007)	(.009)	(.033)	(.030)	(.021)	(.065)
Spanish at home	-0.042	-0.049 **	-0.042 **	-0.034	-0.049 **	-0.064 **	0.008
	(.040)	(.007)	(.009)	(.040)	(.024)	(.032)	(.032)
Married	0.131 **	0.078 **	0.077 **	0.122 **	0.097 **	0.054 **	0.072 **
	(.011)	(.006)	(.008)	(.027)	(.021)	(.019)	(.012)
Foreign	--	--	--	--	0.420 **	--	--
	--	--	--	--	(.112)	--	--
Foreign*Education	-0.024 **	-0.031 **	-0.040 **	-0.049 **	-0.029 **	-0.005	-0.032 **
	(.007)	(.002)	(.002)	(.013)	(.008)	(.014)	(.006)
Foreign*Potential Experience	-0.004	-0.016 **	-0.017 **	-0.041 **	-0.017 **	-0.021 **	-0.014 **
	(.007)	(.002)	(.002)	(.011)	(.006)	(.010)	(.006)
(Foreign*Potential Experience)^2	-0.000	0.000 **	0.000 **	0.001 **	0.000 **	0.000	0.000
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Household head	0.148 **	0.125 **	0.127 **	0.136 **	0.097 **	0.113 **	0.127 **
	(.013)	(.008)	(.009)	(.031)	(.025)	(.026)	(.015)
Veteran	-0.082 **	-0.011	-0.012	-0.011	0.018	0.008	-0.035 **
	(.011)	(.008)	(.010)	(.042)	(.022)	(.039)	(.011)
Health disability	-0.130 **	-0.070 **	-0.110 **	0.044	0.043	-0.086	0.102 **
	(.035)	(.030)	(.038)	(.105)	(.071)	(.101)	(.043)
Foreign*Immpre50	0.582 **	0.638 **	0.749 **	1.155 **	--	0.446	0.832 **
	(.150)	(.039)	(.054)	(.221)	--	(.272)	(.220)
Foreign*Imm50	0.508 **	0.658 **	0.790 **	1.113 **	--	0.420 **	1.000 **
	(.137)	(.033)	(.042)	(.197)	--	(.210)	(.136)
Foreign*Imm60	0.452 **	0.603 **	0.700 **	1.081 **	--	0.215	0.691 **
	(.124)	(.030)	(.038)	(.191)	--	(.204)	(.119)
Foreign*Imm70-74	0.378 **	0.514 **	0.594 **	0.934 **	--	0.237	0.592 **
	(.130)	(.030)	(.036)	(.191)	--	(.203)	(.115)
Foreign*Imm75-79	0.423 **	0.451 **	0.527 **	0.885 **	--	0.142	0.558 **
	(.131)	(.029)	(.035)	(.199)	--	(.203)	(.114)
Foreign*Imm80-84	0.413 **	0.351 **	0.427 **	0.829 **	--	-0.002	0.470 **
	(.129)	(.029)	(.034)	(.191)	--	(.201)	(.107)
Foreign*Imm85-90	0.315 **	0.267 **	0.347 **	0.748 **	--	-0.088	0.372 **
	(.128)	(.028)	(.033)	(.197)	--	(.201)	(.107)
Job-Related & Labor Market Characteristics							
Government Sector[a]							
Federal	-0.070 **	0.042 **	0.045 **	-0.073	-0.071	0.173 **	-0.022
	(.024)	(.016)	(.019)	(.077)	(.045)	(.066)	(.020)
State	-0.063 **	0.001	0.024	-0.173 **	-0.048	0.065	0.022
	(.024)	(.016)	(.020)	(.079)	(.053)	(.071)	(.024)
Local	-0.077 **	0.011	-0.016	0.030	0.077 **	0.122 **	0.093 **
	(.020)	(.012)	(.014)	(.048)	(.032)	(.053)	(.017)

(continued)

Table 10 (continued)

Coefficients of Wage Equations for Non-Hispanic White, Black, and Hispanic Men Corrected for Sample-Selection Bias

Dependent variable: log(hourly wages)

Independent variables	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South mericans	Non-Hispanic Blacks
Job-Related & Labor Market Characteristics							
Industry[b]							
agrict	-0.331 **	-0.184 **	-0.181 **	-0.040	-0.201 **	-0.062	-0.288 **
	(.051)	(.023)	(.026)	(.165)	(.103)	(.113)	(.060)
mining	0.006	0.090 **	0.083 **	0.119	0.209	0.725 **	0.103 *
	(.041)	(.027)	(.030)	(.189)	(.203)	(.222)	(.060)
const	-0.043	-0.016	-0.000	-0.166 **	-0.054	0.066	-0.015
	(.028)	(.017)	(.020)	(.074)	(.054)	(.077)	(.028)
manfg	-0.025	-0.068 **	-0.052 **	-0.176 **	-0.142 **	0.042	0.048 **
	(.026)	(.016)	(.019)	(.070)	(.047)	(.074)	(.024)
tcop	-0.015	0.029 *	0.053 **	-0.032	-0.014	0.063	0.071 **
	(.026)	(.016)	(.019)	(.068)	(.045)	(.073)	(.022)
trade	-0.192 **	-0.185 **	-0.178 **	-0.208 **	-0.226 **	-0.081	-0.154 **
	(.026)	(.016)	(.019)	(.068)	(.047)	(.074)	(.024)
fire	-0.033	-0.047 **	-0.081 **	-0.129 *	-0.071	0.169 **	-0.084 **
	(.030)	(.019)	(.025)	(.075)	(.051)	(.079)	(.029)
service	-0.196 **	-0.160 **	-0.175 **	-0.229 **	-0.158 **	-0.006	-0.175 **
	(.023)	(.015)	(.018)	(.064)	(.042)	(.072)	(.021)
Occupation[c]							
mangmt	0.281 **	0.327 **	0.286 **	0.394 **	0.250 **	0.354 **	0.310 **
	(.020)	(.010)	(.013)	(.041)	(.032)	(.030)	(.018)
tech	0.155 **	0.158 **	0.161 **	0.161 **	0.100 **	0.126 **	0.164 **
	(.020)	(.009)	(.012)	(.039)	(.029)	(.028)	(.017)
farming	-0.079	-0.024	-0.015	-0.000	-0.107	-0.007	0.081
	(.053)	(.019)	(.020)	(.139)	(.082)	(.083)	(.053)
produc	0.167 **	0.164 **	0.162 **	0.225 **	0.132 **	0.156 **	0.195 **
	(.021)	(.009)	(.011)	(.042)	(.031)	(.027)	(.019)
operat	0.041 *	0.069 **	0.078 **	0.084 **	0.051 *	0.038	0.083 **
	(.022)	(.009)	(.010)	(.041)	(.029)	(.026)	(.017)
Labor Market Conditions							
Hispanic concentration	0.332 **	-0.141 **	-0.165 **	-0.187 *	0.093	-0.129 *	0.201 **
	(.028)	(.021)	(.028)	(.106)	(.065)	(.068)	(.032)
Average area wage rate	0.032 **	0.020 **	0.022 **	0.023 **	0.008 **	0.008 **	0.017 **
	(.002)	(.001)	(.002)	(.007)	(.003)	(.004)	(.002)
California[d]	0.139 **	0.138 **	0.139 **	0.262	0.058	0.208 *	0.182 **
	(.025)	(.014)	(.014)	(.335)	(.158)	(.107)	(.026)
Colorado	0.008	-0.062 **	-0.042 *	-0.011	-0.312	-0.014	0.058
	(.037)	(.020)	(.022)	(.408)	(.195)	(.172)	(.036)
Florida	0.030	0.068 **	-0.013	0.115	-0.130	0.134	0.026
	(.029)	(.015)	(.027)	(.333)	(.157)	(.108)	(.030)
Illinois	0.096 **	0.149 **	0.151 **	0.189	0.014	0.345 **	0.117 **
	(.032)	(.017)	(.018)	(.341)	(.159)	(.116)	(.034)
New Mexico	-0.108 **	-0.125 **	-0.120 **	-0.311	-0.417	0.080	-0.007
	(.034)	(.018)	(.021)	(.580)	(.467)	(.291)	(.049)
New Jersey	0.132 **	0.191 **	0.180 **	0.277	0.089	0.314 **	0.164 **
	(.034)	(.019)	(.057)	(.335)	(.158)	(.110)	(.035)
New York	0.152 **	0.168 **	0.096 **	0.206	0.120	0.293 **	0.207 **
	(.029)	(.016)	(.037)	(.336)	(.157)	(.109)	(.031)
Texas	0.016	-0.080 **	-0.083 **	0.047	-0.109	0.118	-0.008
	(.026)	(.014)	(.014)	(.340)	(.163)	(.111)	(.027)
Inverse Mill's ratio	-0.287 **	-0.282 **	-0.197 *	-0.411	-0.455 **	-0.277	-0.574 **
	(.120)	(.085)	(.112)	(.292)	(.182)	(.364)	(.104)
Intercept	0.466 **	1.163 **	1.026 **	0.867	1.219 **	1.478 **	1.113 **
	(.143)	(.113)	(.146)	(.559)	(.312)	(.512)	(.153)
N	12,083	35,424	23,948	2,097	2,815	3,713	9,323
R^2	0.399	0.424	0.433	0.389	0.358	0.408	0.388

[a] Reference category is private sector.

[b] Reference category is public administration.

[c] Reference category is service occupations.

[d] Reference category is Arizona for all state dummy variables.

Note: Standard errors are given in parentheses. ** 5% level, * 10% level

Examination of the estimated wage equations reveals that most of the coefficients on the personal characteristic variables have the expected signs and are statistically significant. In accordance with the human capital theory, years of education and job experience generate wage gains for all groups. The size of the effect of these variables, nevertheless, varies by ethnicity. Mexican and, particularly, Central & South American men receive lower returns to education than non-Hispanic white men[17]. Each additional year of schooling improves male wages by roughly 7% for non-Hispanic whites. Yet, the returns to education are only 3% for Central & South Americans and 6% for Mexicans. Conversely, the impact of schooling on wages is larger for Cuban and Puerto Rican males than non-Hispanic white and black males by 1 and 2 percentage points, respectively.

Among male foreigners education has a much smaller effect on wages. The largest differential occurs within the Cuban population. Foreign-born Cuban men receive 3% in average returns to schooling, as compared to U.S. native Cuban men's 8%. In addition, foreign men of some Hispanic-origin groups appear to be less successful in converting years of education into wages than their non-Hispanic white counterparts. For male foreigners, returns to schooling are 2 and 3%, respectively, among Mexican and Cubans, whereas non-Hispanic whites earn 5% more for an extra year of school completed.

The effect of potential labor market experience on wages differs considerably less by ethnicity. The initial returns to years of working are slightly lower for Mexican (3.2%), Puerto Rican (3.8), and Central & South American (3.9%) men than non-Hispanic white

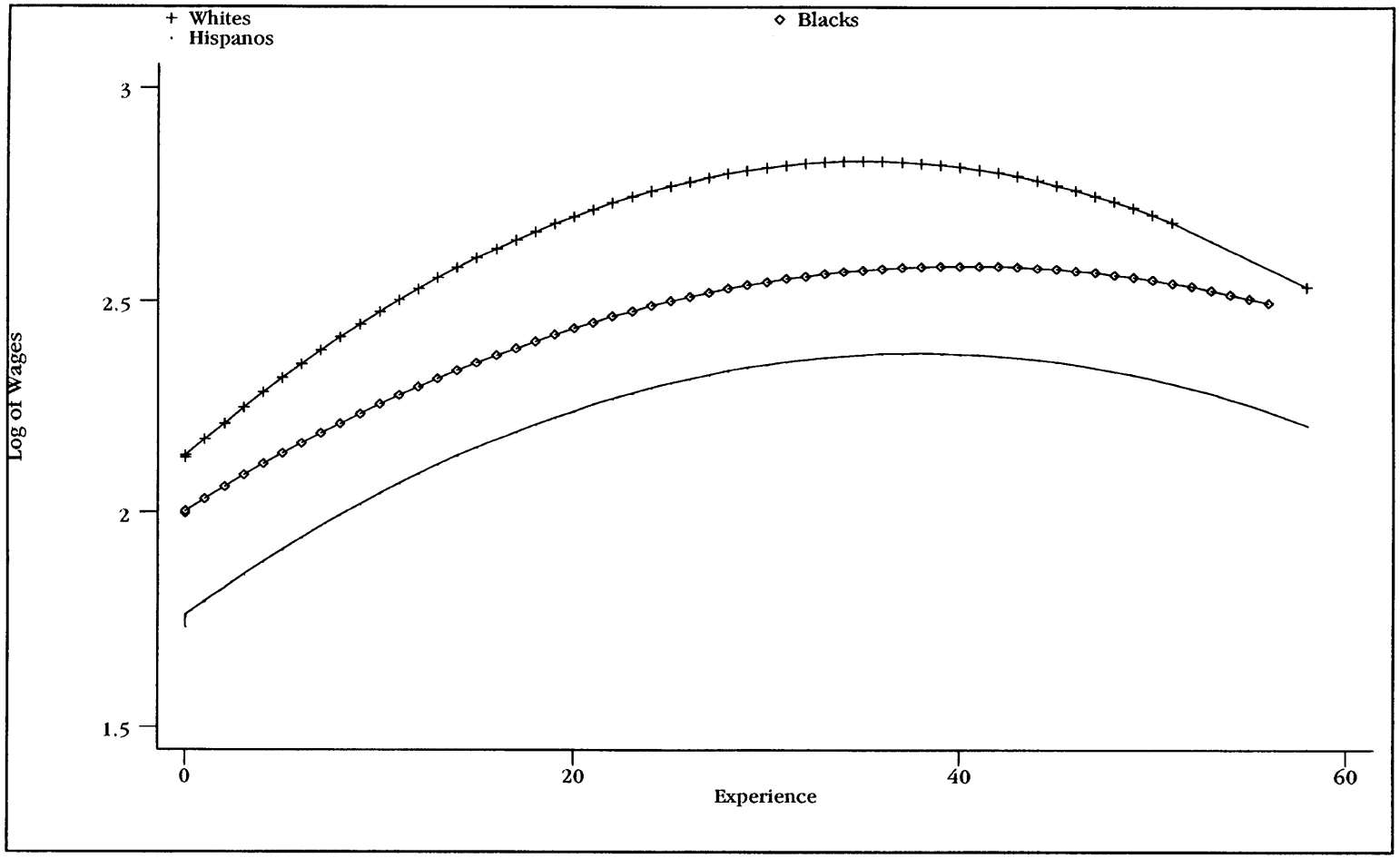
[17] Because the wage equations in this paper include industry and occupation controls, the estimated coefficients on education are not directly equivalent to the typical interpretation of returns to education in the literature.

men (4%). In contrast, the difference in returns to work experience favors Cuban men over non-Hispanic white men by roughly 1 percentage point. Figures 4 and 5 exhibit experience-wage profiles for U.S. mainland-born men. With the exception of Cubans, men of all Hispanic origin groups have slightly flatter experience-wage profiles than non-Hispanic white men. As shown by Table 11, wages peak 35 years after leaving school for non-Hispanic white men and after 40 years for non-Hispanic black men. For Cubans, Puerto Ricans, and Central & South Americans, wages are highest after 30 to 33 years of job experience.

Foreign men appear less successful than U.S. natives in obtaining returns from work experience. As observed with education, the estimated discrepancy is largest among Cubans. The initial returns to labor market experience are 5% for native-born Cuban men but less than 1% for foreign-born Cuban men. However, apart from Puerto Ricans, the experience-wage profiles of all immigrant men peak more rapidly than their native-born counterparts (Table 11). It is further evident that the impact of years of working on the wages of foreign men differ by ethnicity. An initial extra year of experience raises the male wages of Mexican, Puerto Rican, and Central & South American immigrants by approximately 2%, while the wage gain for non-Hispanic white immigrant men is almost twice as much.

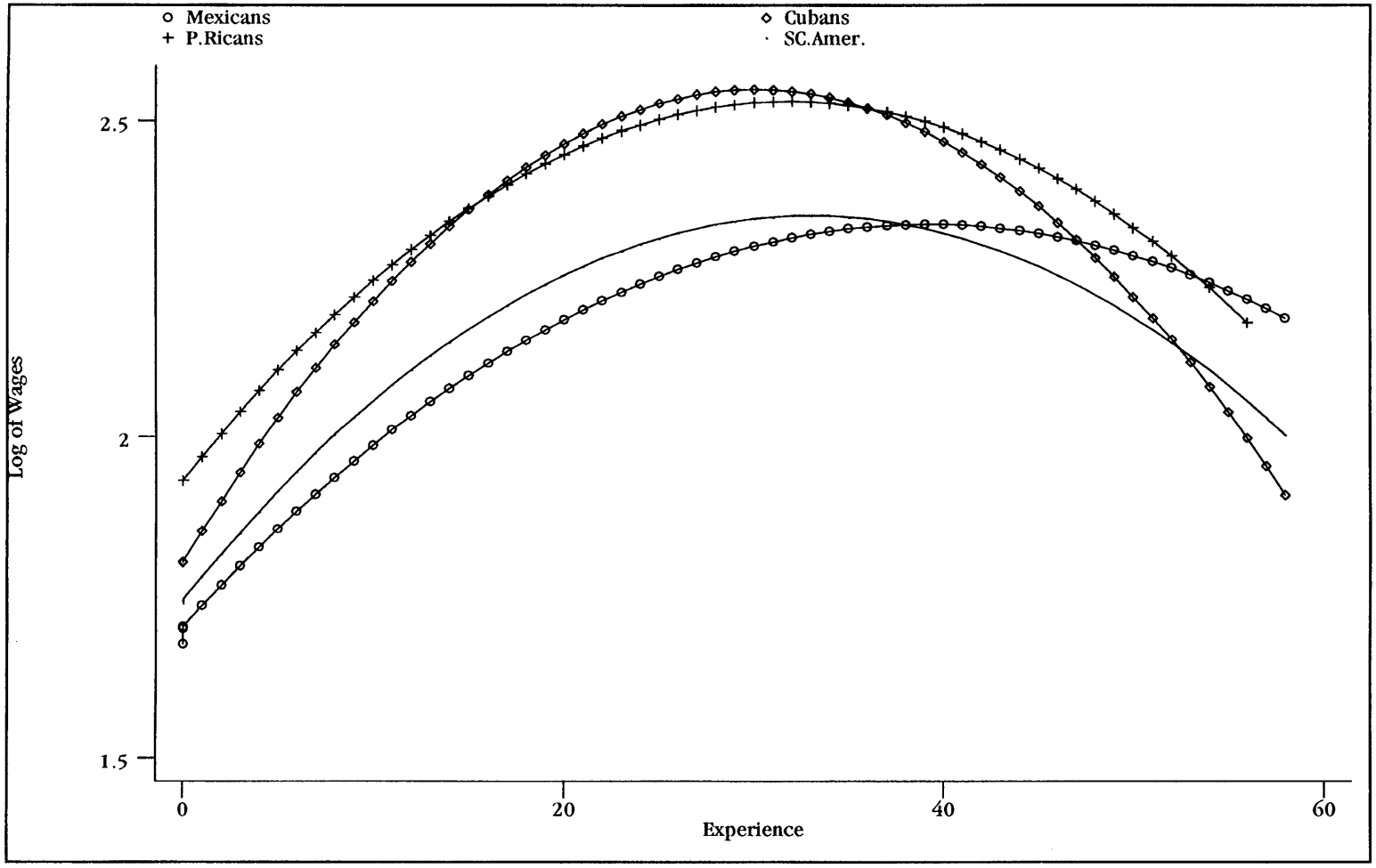
While the payoffs to education and experience appear to be smaller among foreign-born men relative to U.S. natives, immigration status by itself enhances hourly wages. Contrary to past research, Puerto Rican men who are born in the island experience an impressive 42% increase in hourly wages relative to those who are born in U.S.

Figure 4. Experience-Wage Profiles for Non-Hispanic White, Non-Hispanic Black and Hispanic Men, 1990



Source: The predicted potential experience-wage profiles are based on the estimated equations from Table 10. Wage equations are evaluated at the mean characteristics observed in the sample of workers for each ethnic group.

Figure 5. Experience-Wage Profiles for Mexican, Cuban, Puerto Rican, and South & Central American Men, 1990



Source: The predicted potential experience-wage profiles are based on the estimated equations from Table 10. Wage equations are evaluated at the mean characteristics observed in the sample of workers for each ethnic group.

Table 11

Value of Years of Experience at Peak of Experience-Wage Profiles for U.S. Mainland-Born and Foreign-Born Men

Ethnic Group	U.S. Mainland Born	Foreign Born
Non-Hispanic Whites	35.11	28.89
Non-Hispanic Blacks	40.28	24.44
All Hispanics	37.96	32.21
Mexicans	39.09	30.48
Cubans	30.11	24.29
Puerto Ricans	31.78	46.22
Central and South Americans	32.98	31.98

Source of primary data: 5% Public-Use Microsample from 1990 Census of Population.
Note: Value of "potential experience" derived from estimated wage equations in Table 10 by setting the partial derivative of "lnwage" with respect to " potential experience" equal to zero and solving for "potential experience" (∂ lnwage / ∂ potential experience = 0).

mainland[18]. Yet, the estimated parameter has a large standard error and, thus, should be interpreted cautiously. The period of immigration variables disclose that both Hispanic and non-Hispanic male immigrants of all cohorts, except Central & South Americans, fare better in the labor market than their U.S. native counterparts[19]. In every cohort, the wage bonuses accrued to immigrants are larger for Cuban and Mexican males than non-Hispanic white males. For example, Mexican immigrants who entered the country in the early 1970's receive 59% higher wages than their U.S.-born counterparts. Among non-Hispanic white men, the wage gain from immigrant status falls to 38%. The notion of "Americanization" or economic assimilation proposed by Chiswick (1978) finds some support in the present results. If assimilation levels are defined in terms of years of residence in the U.S., then Hispanic and non-Hispanic men who are more assimilated earn higher wages in the labor market than those who have entered the country recently.

Poor command of English not only decreases the likelihood of working but also significantly reduces the wages of all Hispanic men. The estimated wage loss is 12% for Mexicans, 10% for Cubans, 9% for Puerto Ricans, and 13% for Central & South American males. Apparently, the lack of English proficiency does not affect the wages of non-Hispanic white and black men. Language variables further demonstrate that speaking Spanish at home has a negative influence on the work probabilities and wages of all Hispanic men except Cubans, ranging from a wage reduction of 4% for Mexicans to above

[18] Reimers (1985) and Bean and Tienda (1987) found that Puerto Rican men and women were penalized for island birth. Nonetheless, the estimated coefficients in Reimers' paper were not statistically significant from zero.

[19] Puerto Ricans are not considered to be immigrants; consequently, data on year of immigration was not obtained for this Hispanic group.

6% for Central and South Americans. It seems improbable that retention of the Spanish language per se imposes a disadvantage on wage-earning Hispanic males. However, given the significance of its coefficient in the presence of educational controls, the data rejects the notion that Spanish retention simply mirrors the negative effects of low schooling on Hispanic wages.

In the probit equations, poor health diminishes the likelihood of working for all men. This is not the case in the wage equations. Health disability depresses hourly wages of non-Hispanic white and black men but only those of Mexican men within the working Hispanic population. Similarly, veteran status negatively affects the wages of non-Hispanic men but has no effect on the wages of Hispanic men, suggesting that military training does not benefit the economic position of Hispanic men. The positive impacts of marriage and household headship on the work probabilities of men also extend to their wage structures. Marriage and household headship provide all working men with wage increases, regardless of ethnicity or race. In both cases, the gains are largest for non-Hispanic white males. For instance, Mexican and Central & South American married men earn, respectively, 8 and 5% higher wages than their single counterparts, as compared to non-Hispanic white married men's 13%. Likewise, being head of a household augments male wage rates by 13% for Cubans and 10% for Puerto Ricans, while the payoff through household headship is 15% for non-Hispanic white men.

Job-related factors and labor market conditions are important wage determinants for both Hispanic and non-Hispanic men. Among Hispanic men, Central & South Americans benefit the most from employment in the public sector. Government sector

employment has a negative influence on the wages of non-Hispanic white men at the federal, state, and local levels. In contrast, jobs in the federal government provide Mexican and Central & South American males with wage bonuses of 5 and 17%, respectively. Likewise, working in local public agencies renders increases of 8% for Puerto Rican men and 12% for Central & South American males. Non-Hispanic Black men earn 9 percent more in the local public sector than their counterparts who hold private sector jobs.

Table 10 demonstrates that industry sector variables influence men's wages. Hispanic and non-Hispanic men experience some common effects. Most of the coefficients that are statistically significant have a negative sign for all men except Central & South Americans. This suggests that wages are higher in the excluded public administration industry. There is, however, some evidence of wage differentials among industries within the Hispanic population. Relative to public administration, Mexican and Cuban males who work in finance, insurance, and real estate suffer a wage reduction of 8 and 13%, respectively. Central & South Americans, however, earn 17% more in this sector. In addition, there appears to be interactions between industry and race/ethnicity. Compared to public administration, employment in manufacturing increases the male wages of non-Hispanic blacks by 5% but lowers those of Mexicans, Puerto Ricans, and Cubans from 5 to 18%.

Occupation also emerges as a significant factor affecting men's labor market wages. The estimated parameters that have statistical significance are positive regardless of ethnicity or race. This implies that both Hispanic and non-Hispanic men receive lower

wages in service occupations than in any other occupation. Yet, there is some variation in the size of the coefficients among the various ethnic groups. For instance, relative to service occupations, working as craftsman raises wages by 17% for non-Hispanic white men and 13% for Puerto Rican men. Among Cuban and non-Hispanic black men, the wage bonuses are larger with 23 and 20%, respectively.

The statistically significant effects on wages of the average male market wage rate and Hispanic concentration measures illustrate that structural factors are important in the wage determination of men. Employment in areas of high wages improve labor market outcomes. Mexican, Cuban, and non-Hispanic white male workers receive a 2 to 3% increase in hourly wages for each dollar increase in the prevailing average wage rate. Puerto Rican and Central & South American males benefit less with a wage increment of under 1%.

The reduced probit equations show that the increasing Hispanic composition of labor markets raises the likelihood of working for all Hispanic men. Nonetheless, employment gains fail to translate into wage gains. In accordance with previous research, work in markets with high Hispanic concentration hurts the economic position of Hispanic men (Reimers, 1984, 1985; Tienda and Lii, 1985; Bean and Tienda, 1987; Tienda and Wilson, 1992). The wage loss associated with Hispanic concentration varies from 13% for Central & South Americans to 17 and 19% for Mexicans and Cubans, respectively. Cuban men, seemingly, do not benefit from the development of an ethnic enclave economy in Miami. Conversely, non-Hispanic black and white males experience wage increases from 20 to 33% by working in areas where the percentage Hispanic is substantial. These

results might be evidence of increased labor market discrimination and intense competition among Hispanics for higher-status and better-paying jobs in areas where Hispanics are a large proportion of the labor force (Bean and Tienda, 1987). However, as Reimers (1985) asserts, this may also represent a "compensating differential" if Hispanics prefer living and working with many other Hispanics, despite lower wages.

Geographic area of residence seems to have a significant impact on the wages of some groups, but the magnitude of its effect differs according to ethnicity. As an example, wages are higher in Illinois relative to Arizona by 10 and 12% among non-Hispanic white and black men. For Mexican and Central & South American men, the wage gains are larger: 15 and 35%, respectively. Similarly, while Mexican and Central & South American males receive respectively 10 and 29% higher wages in New York than Arizona, their white and black counterparts earn 15 and 20% more in New York. Other results indicate that men of Mexican origin are penalized 8% in lower wages for residing in Texas relative to the omitted state. Apparently, geographic location has no influence on the hourly wages of Puerto Rican and Cuban men.

4.6 Parameter Estimates of Female Wage Equations

Table 12 presents the regression analysis of hourly wages for Hispanic and non-Hispanic women, corrected for selectivity bias. The coefficient on the inverse Mill's ratio is statistically different from zero for Mexican, Central & South American, and non-Hispanic women. Its negative sign indicates that the "unobservable" factors, which make women of these ethnic groups productive in the wage and salary sector, make them even

Table 12

Coefficients of Wage Equations for Non-Hispanic White, Black, and Hispanic Women Corrected for Sample-Selection Bias

Dependent variable: log(hourly wages)

Independent variables	Non-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Human Capital & Personal Characteristics							
Education	0.078 **	0.061 **	0.063 **	0.066 **	0.076 **	0.068 **	0.077 **
	(.003)	(.002)	(.003)	(.013)	(.007)	(.013)	(.003)
Potential experience	0.032 **	0.023 **	0.022 **	0.019 **	0.030 **	0.039 **	0.026 **
	(.002)	(.001)	(.001)	(.008)	(.005)	(.010)	(.002)
(Potential experience)^2	-0.001 **	-0.000 **	-0.000 **	-0.001 **	-0.001 **	-0.001 **	-0.000 **
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
English deficiency	0.014	-0.087 **	-0.056 **	-0.152 **	-0.097 **	-0.108 **	-0.147 **
	(.072)	(.010)	(.013)	(.033)	(.037)	(.021)	(.069)
Spanish at home	0.045	-0.049 **	-0.059 **	0.063	-0.069 **	-0.044	0.003
	(.040)	(.007)	(.009)	(.044)	(.025)	(.034)	(.034)
Married	0.055 **	0.070 **	0.068 **	0.059 **	0.061 **	0.073 **	0.068 **
	(.014)	(.007)	(.009)	(.026)	(.022)	(.020)	(.013)
Foreign	--	--	--	--	0.344 **	--	--
	--	--	--	--	(.122)	--	--
Foreign*Education	-0.032 **	-0.034 **	-0.044 **	-0.036 **	-0.022 **	-0.042 **	-0.033 **
	(.010)	(.002)	(.003)	(.014)	(.008)	(.013)	(.007)
Foreign*Potential Experience	-0.010	-0.012 **	-0.013 **	-0.011	-0.014 **	-0.029 **	-0.010
	(.007)	(.002)	(.002)	(.009)	(.006)	(.010)	(.006)
(Foreign*Potential Experience)^2	0.000	0.000 **	0.000 **	0.000	0.000 **	0.001 **	0.000
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Household head	0.084 **	0.074 **	0.063 **	0.124 **	0.095 **	0.049 **	0.060 **
	(.013)	(.007)	(.010)	(.028)	(.022)	(.021)	(.012)
Child 6	0.108 **	0.063 **	0.059 **	0.006	-0.006	0.044	0.016
	(.019)	(.010)	(.013)	(.039)	(.032)	(.030)	(.019)
Child 6-17	-0.069 **	-0.007	-0.002	0.016	-0.029	-0.023	-0.006
	(.013)	(.007)	(.009)	(.028)	(.023)	(.021)	(.012)
Child 6&17	0.056 **	0.051 **	0.040 **	0.036	-0.026	0.030	0.029
	(.024)	(.011)	(.014)	(.049)	(.038)	(.031)	(.019)
Health disability	-0.058 *	0.035	0.011	-0.086	-0.048	0.054	-0.076 **
	(.033)	(.022)	(.030)	(.111)	(.057)	(.074)	(.033)
Foreign*Immpre50	0.620 **	0.676 **	0.829 **	0.456 **	--	0.873 **	0.829 *
	(.187)	(.044)	(.067)	(.225)	--	(.220)	(.448)
Foreign*Imm50	0.646 **	0.657 **	0.781 **	0.649 **	--	0.800 **	0.709 **
	(.175)	(.038)	(.056)	(.207)	--	(.205)	(.152)
Foreign*Imm60	0.512 **	0.638 **	0.724 **	0.615 **	--	0.775 **	0.604 **
	(.162)	(.036)	(.050)	(.202)	--	(.199)	(.128)
Foreign*Imm70-74	0.565 **	0.533 **	0.614 **	0.497 **	--	0.687 **	0.669 **
	(.165)	(.035)	(.048)	(.202)	--	(.199)	(.128)
Foreign*Imm75-79	0.509 **	0.473 **	0.556 **	0.440 **	--	0.638 **	0.511 **
	(.166)	(.035)	(.047)	(.215)	--	(.198)	(.125)
Foreign*Imm80-84	0.337 *	0.406 **	0.480 **	0.360 *	--	0.553 **	0.495 **
	(.180)	(.035)	(.046)	(.202)	--	(.197)	(.120)
Foreign*Imm85-90	0.326 *	0.320 **	0.408 **	0.219	--	0.425 **	0.429 **
	(.172)	(.035)	(.046)	(.210)	--	(.197)	(.121)
Job-Related & Labor Market Characteristics							
Government Sector[a]							
Federal	0.084 **	0.085 **	0.084 **	-0.053	0.130 **	0.036	0.066 **
	(.031)	(.017)	(.021)	(.078)	(.046)	(.072)	(.021)
State	0.015	0.047 **	0.057 **	0.022	0.067	0.021	0.084 **
	(.022)	(.013)	(.016)	(.070)	(.044)	(.055)	(.020)
Local	0.005	0.041 **	0.017	0.176 **	0.077 **	0.052	0.098 **
	(.018)	(.011)	(.013)	(.040)	(.029)	(.040)	(.015)

(continued)

Table 12 (continued)

Coefficients of Wage Equations for Non-Hispanic White, Black, and Hispanic Women Corrected for Sample-Selection Bias

Dependent variable: log(hourly wages)

Independent variables	on-Hispanic Whites	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Job-Related & Labor Market Characteristics							
Industry[b]							
agrict	-0.227 **	-0.068 *	-0.084 **	-0.014	0.131	0.062	-0.223 **
	(.080)	(.038)	(.042)	(.215)	(.241)	(.164)	(.099)
mining	0.212 **	0.155 **	0.135 **	0.023	0.251	0.169	0.355 **
	(.064)	(.060)	(.067)	(.430)	(.212)	(.248)	(.085)
const	-0.025	0.034	0.040	0.082	0.091	-0.044	-0.000
	(.045)	(.030)	(.038)	(.107)	(.086)	(.103)	(.053)
manfg	0.049	-0.022	-0.017	0.005	0.015	-0.073	0.091 **
	(.031)	(.017)	(.021)	(.069)	(.052)	(.068)	(.026)
tcop	0.130 **	0.137 **	0.167 **	0.101	0.122 **	0.063	0.238 **
	(.032)	(.018)	(.023)	(.070)	(.051)	(.072)	(.024)
trade	-0.141 **	-0.163 **	-0.170 **	-0.066	-0.150 **	-0.169 **	-0.118 **
	(.029)	(.016)	(.020)	(.066)	(.049)	(.066)	(.024)
fire	0.031	0.017	0.013	0.032	0.084 *	-0.026	0.053 **
	(.030)	(.017)	(.022)	(.065)	(.050)	(.069)	(.025)
service	-0.069 **	-0.072 **	-0.078 **	-0.044	-0.039	-0.107 *	-0.054 **
	(.026)	(.014)	(.018)	(.060)	(.042)	(.063)	(.020)
Occupation[c]							
mangmt	0.365 **	0.367 **	0.348 **	0.408 **	0.327 **	0.384 **	0.347 **
	(.020)	(.010)	(.013)	(.043)	(.033)	(.029)	(.017)
tech	0.188 **	0.172 **	0.167 **	0.158 **	0.180 **	0.175 **	0.178 **
	(.018)	(.009)	(.011)	(.038)	(.029)	(.025)	(.015)
farming	-0.057	0.042	0.060	-0.024	-0.435	-0.178	-0.136
	(.110)	(.038)	(.040)	(.229)	(.275)	(.161)	(.107)
produc	0.180 **	0.164 **	0.180 **	0.135 **	0.134 **	0.108 **	0.214 **
	(.039)	(.016)	(.020)	(.063)	(.057)	(.046)	(.034)
operat	0.078 **	0.057 **	0.079 **	-0.050	0.033	0.014	0.064 **
	(.031)	(.011)	(.014)	(.048)	(.041)	(.032)	(.024)
Labor Market Conditions							
Hispanic concentration	0.378 **	-0.187 **	-0.276 **	0.013	0.269 **	-0.023	0.256 **
	(.037)	(.018)	(.023)	(.101)	(.061)	(.063)	(.037)
Average area wage rate	0.010 **	0.001	-0.000	0.021 *	0.026 **	0.011	0.007 **
	(.002)	(.001)	(.001)	(.011)	(.007)	(.007)	(.003)
California[d]	0.138 **	0.150 **	0.176 **	0.198	0.092	0.088	0.143 **
	(.027)	(.015)	(.016)	(.248)	(.118)	(.091)	(.026)
Colorado	-0.070 *	-0.026	-0.013	0.196	-0.305 *	0.019	0.002
	(.038)	(.021)	(.025)	(.310)	(.166)	(.155)	(.036)
Florida	0.008	0.071 **	-0.027	0.036	-0.065	0.010	0.002
	(.030)	(.017)	(.033)	(.246)	(.116)	(.092)	(.029)
Illinois	0.032	0.119 **	0.149 **	0.032	0.026	0.019	0.048
	(.037)	(.020)	(.023)	(.261)	(.121)	(.102)	(.035)
New Mexico	-0.145 **	-0.088 **	-0.087 **	-0.500	-0.118	0.029	-0.080
	(.037)	(.020)	(.024)	(.493)	(.217)	(.227)	(.050)
New Jersey	0.232 **	0.225 **	0.230 **	0.279	0.130	0.157 *	0.177 **
	(.035)	(.019)	(.067)	(.248)	(.117)	(.093)	(.033)
New York	0.127 **	0.211 **	0.125 **	0.276	0.120	0.187 **	0.172 **
	(.031)	(.017)	(.046)	(.250)	(.116)	(.092)	(.030)
Texas	0.019	-0.030 *	-0.022	0.061	-0.015	0.021	-0.047 *
	(.028)	(.015)	(.016)	(.256)	(.125)	(.095)	(.027)
Inverse Mill's ratio	-0.396 **	-0.544 **	-0.454 **	0.065	-0.122	-0.337 **	-0.431 **
	(.053)	(.035)	(.052)	(.127)	(.102)	(.111)	(.062)
Intercept	0.673 **	1.525 **	1.456 **	0.532	0.393 *	1.052 **	0.816 **
	(.082)	(.067)	(.094)	(.401)	(.233)	(.286)	(.103)
N	8,512	24,714	14,878	1,881	2,329	2,915	8,179
R^2	0.365	0.402	0.395	0.452	0.376	0.424	0.411

[a] Reference category is private sector.

[b] Reference category is public administration.

[c] Reference category is service occupations.

[d] Reference category is Arizona for all state dummy variables.

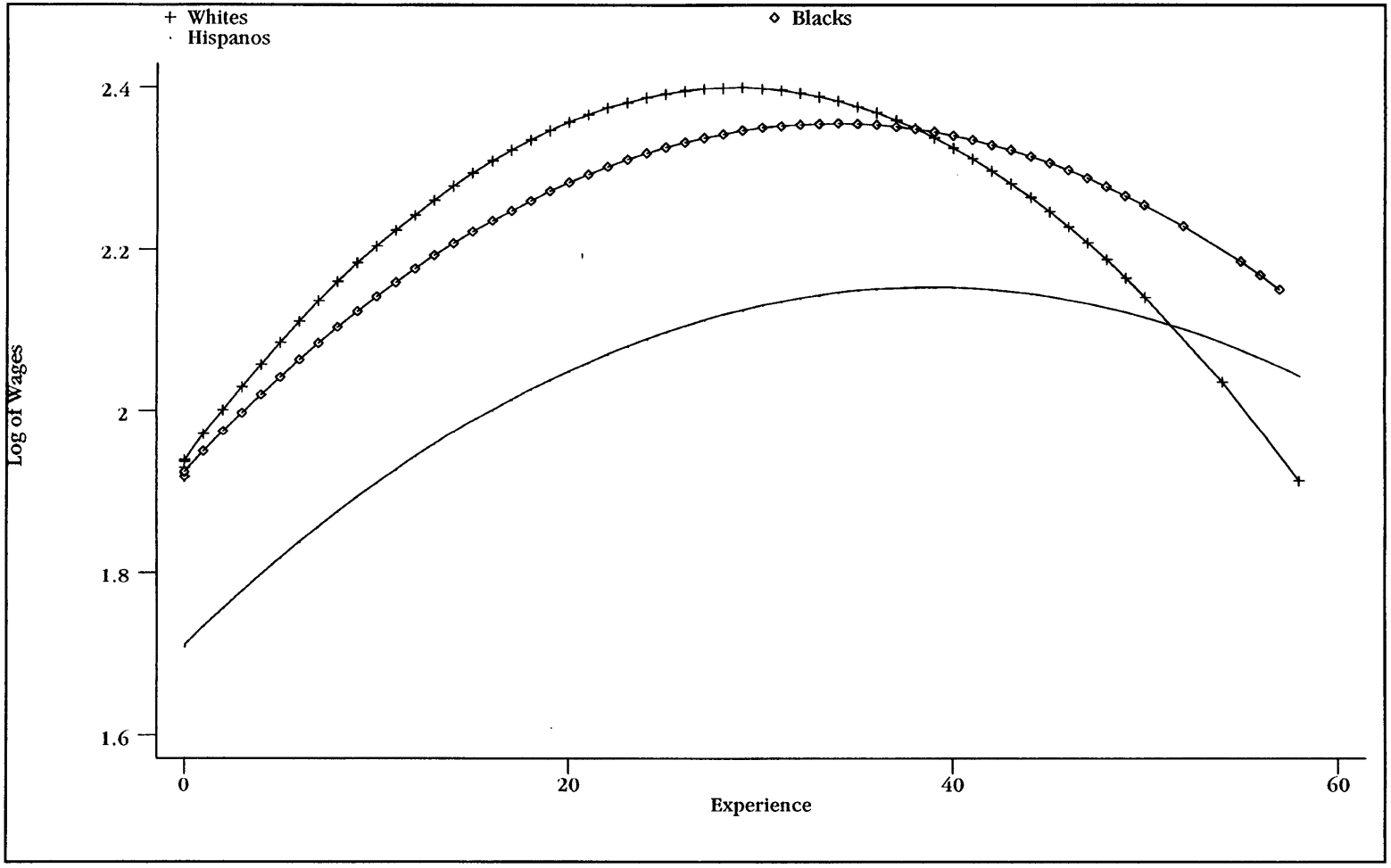
Note: Standard errors are given in parentheses. ** 5% level, * 10% level

more productive in non-labor market sectors. That is, the "reservation wages" of these women are higher than their "market wages" and, consequently, they are less likely to participate in the labor market.

In comparison to men, the economic payoffs to education among employed women vary less according to ethnicity and race. Returns to education for Hispanic women range from roughly 6% among Mexicans to 8% among Puerto Ricans. The partial effect of a year of schooling for non-Hispanic white and black females is slightly higher at 8%. Estimates for work experience are also quite consistent with the predictions of human capital theory. Without exception, post-school job experience renders positive returns to all women. Similar to education, returns to experience do not differ greatly by ethnicity. However, the wage increases generated by initial experience in the labor market are low. For instance, the payoff to initial experience in the labor market is about 2% for Mexican and Cuban women, as compared to non-Hispanic white's 3%. Central & South Americans receive the highest returns to experience, with each extra year increasing wages by almost 4%.

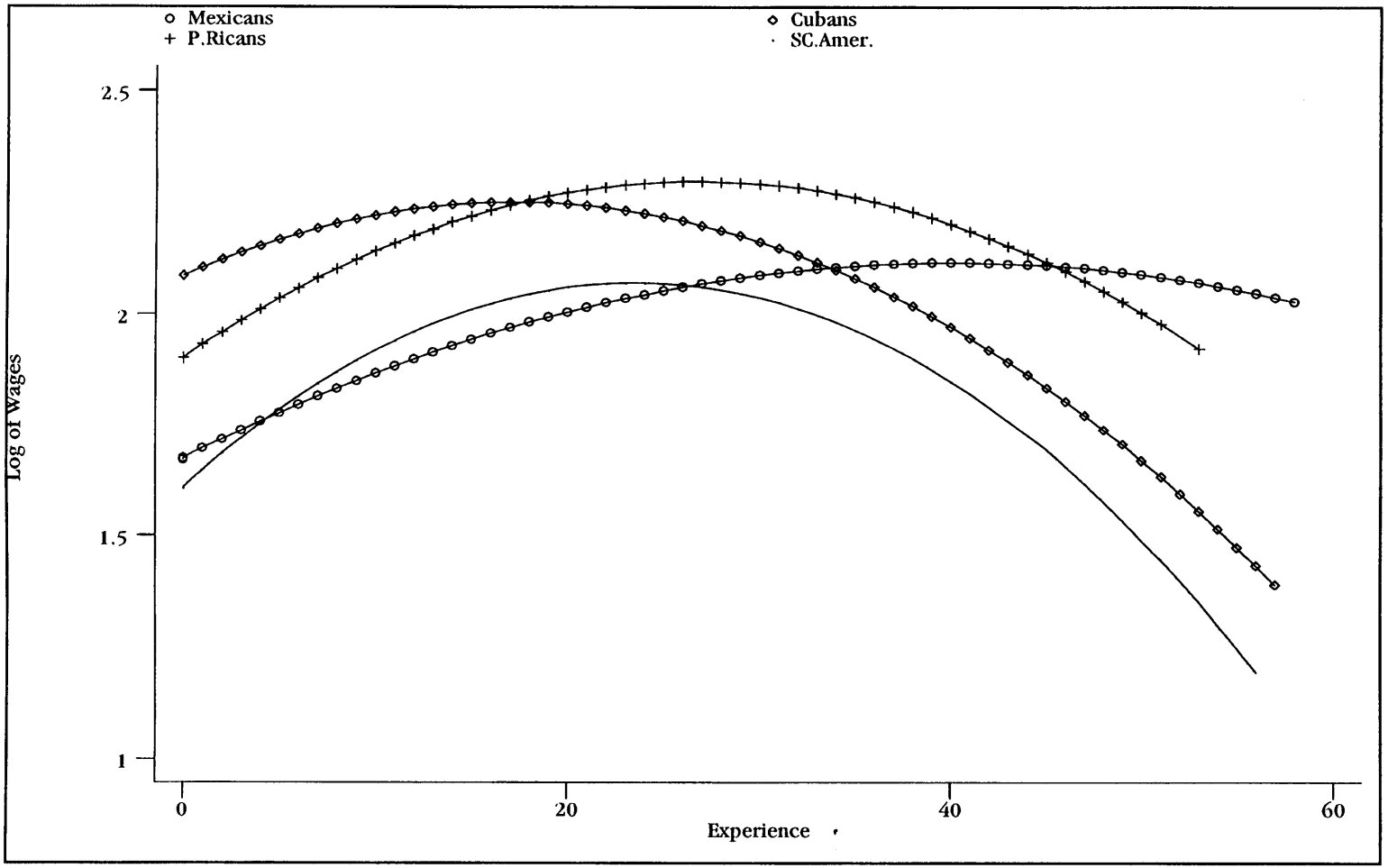
Figures 6 and 7 show experience-wage profiles for U.S. mainland-born women. All non-Hispanic and Hispanic women, except Central & South Americans, have flatter experience-wage profiles than their male counterparts, mirroring women's lower economic returns to work experience. Also, the differences in returns to post-school job experience among U.S native women are reflected in the steeper experience-wage profiles for Central and South Americans and non-Hispanic whites. As disclosed by Table 13, wages reach their peak values after 29 and 34 years of post-school experience for non-Hispanic white

Figure 6. Experience-Wage Profiles for Non-Hispanic White, Non-Hispanic Black and Hispanic Women, 1990



Source: The predicted potential experience-wage profiles are based on the estimated equations from Table 12. Wage equations are evaluated at the mean characteristics observed in the sample of workers for each ethnic group.

Figure 7. Experience-Wages Profile for Mexican, Cuban, Puerto Rican, and South & Central American Women, 1990



Source: The predicted potential experience-wage profiles are based on the estimated equations from Table 12. Wage equations are evaluated at the mean characteristics observed in the sample of workers for each ethnic group.

Table 13

Value of Years of Experience at Peak of Experience-Wage Profiles for U.S. Mainland-Born and Foreign-Born Women

Ethnic Group	U.S. Mainland Born	Foreign Born
Non-Hispanic Whites	28.61	29.04
Non-Hispanic Blacks	33.75	32.51
All Hispanics	38.72	32.35
Mexicans	40.14	30.87
Cubans	17.33	18.75
Puerto Ricans	26.84	40.79
Central and South Americans	23.60	33.77

Source of primary data: 5% Public-Use Microsample from 1990 Census of Population.
Note: Value of "potential experience" derived from estimated wage equations in Table 12 by setting the partial derivative of "lnwage" with respect to " potential experience" equal to zero and solving for "potential experience" (∂ lnwage / ∂ potential experience = 0).

and black women, respectively. Only Mexicans among working Hispanic women need more years of post-school experience to earn their highest wages (40 years). In contrast, Cuban female wages peak the most rapidly at just 17 years after completing school.

The regression results suggest that foreign-born women are not able to use their human capital as well as their U.S. native counterparts. Immigrant females of all ethnic groups receive lower returns to education than U.S. native-born females. The largest differential occurs in the Mexican origin group where female foreigners earn 2% for each year of schooling compared with 6% for women who are born in U.S. mainland. With a wage increase of over 5% per year completed in school, immigrant women of Cuban origin receiver higher payoffs to education than any other Hispanic and non-Hispanic group.

For Mexicans, Puerto Ricans, and Central & South Americans, potential labor market experience also yields lower returns to foreign-born women relative to their U.S. native counterparts. The difference in payoffs, however, is small, ranging from 1 to 3%. In general, Hispanic women born abroad earn negligible payoffs for an extra initial year of job experience. Thus, Cubans' economic return of under 2% is the highest payoff attributed to work experience among all Hispanic women. Table 13 reveals that the experience-wage profiles of all foreign-born Hispanic women but Mexicans peak less rapidly than their U.S. native counterparts. In opposition, the wages of non-Hispanic white and black women who are born abroad peak more quickly than those of women who are born in the U.S. mainland.

As observed for Hispanic men, the labor market disadvantages for Hispanic women stem partly form poor command of English. Limited English knowledge reduces Hispanic women's work probabilities and their wage rates. Yet, there is considerable variation of the wage loss associated with English deficiency across the Hispanic national-origin groups. Lack of English fluency renders the largest economic penalty to Cubans by diminishing their wages by 15%. The wage losses among Mexicans, Puerto Ricans, and Central & South Americans are lower, with 6, 10, and 11%, respectively. For non-Hispanic whites, English deficiency apparently has no effect on wages. Moreover, speaking Spanish at home may prevent women from obtaining valuable labor market skills as evidenced by its negative and significant coefficient among Mexican and Puerto Rican females.

Additional demographic factors statistically influence women's wages. In the probit equations, health disability diminishes the likelihood of working for all Hispanic women. The negative effects of health problems, notwithstanding, do not appear in the wage structure of Hispanic women. Poor health depresses wage rates for non-Hispanic white and black women but has no impact on the wages of any Hispanic female group. Marital status provides Hispanic and non-Hispanic women with fairly uniform wage increases of 6-7%. Relative to men, household headship affords women lower positive returns. The payoffs, however, vary considerably according to Hispanic national origin. Whereas household head grants Cuban and Puerto Rican females economic gains of 12 and 10%, respectively, the wages of Mexican and Central & South American augment 6 and 5%, respectively, for heading a household. There is also evidence of interaction

between household headship and ethnicity/race as manifested by the different estimated coefficients for non-Hispanic white and black women.

Contrary to expectations, the presence of young children and teenagers does not lower Hispanic women's wages. Having children under 6 has a significant and positive effect of 11 and 6% for non-Hispanic white and Mexican women, while the presence of teenagers hurts the economic position of non-Hispanic white females only. A possible explanation for this finding is that child rearing may actually motivate working women to seek better-paying jobs to fulfill the needs of their young children. It is noteworthy that child and teenager rearing has different effects on female participation and hourly wage rates. While reduced probit equations show that the presence of children/teenagers in a family reduces women's work probabilities, wage equations indicate that child/teenager rearing does not lower labor market wages. That is, the presence of children might determine whether women work but does not appear hurt the wages of those women who are employed.

Regression results display that there exists ample nativity differentiation in female wages. Foreign women perform better in the labor market than U.S. native women. Among Puerto Ricans, birth in the island rewards females with 34% higher wages relative to those who are born in U.S. mainland. Within every Hispanic and non-Hispanic group, immigrant women of all cohorts earn more than their native-born counterparts. For example, Mexican and Central & South American women who immigrated between 1985 and 1990 receive wages of over 40% compared to their native-born equivalents. There is some evidence of wage nativity differentials between genders within Hispanic national-

origin groups. Immigration effects follow quite dissimilar patterns for men and women of Central and South American origin. Concretely, Central & South American women who are born abroad earn significantly more than their native-born counterparts. This is not the case for men whose wages are not affected by their immigration status.

As observed for men, the notion of assimilation is supported by the estimates of the female wage equations. Length of time since migration improves the wages of both Hispanic and non-Hispanic women. For instance, whereas living in the U.S. for 6-10 years increases the wages of Cuban immigrant women by 36%, the economic benefits from a 30 year-residence in the U.S. are 26 percentage points higher. With the exception of Cubans, the gains from length of residence in the U.S. are larger for Hispanic women than non-Hispanic white women, suggesting that there might be important interactions occurring between ethnicity and foreign-born status. Yet, this might also result from the low share of foreign-born workers among the non-Hispanic white women.

The influence on female wages of employment sector differs by ethnic group. Employment in the public sector benefits mostly non-Hispanic black women, who receive wage bonuses of 7-10% by working in the federal, state, or local government, compared to the private sector. Federal employment exhibits the most consistent results by increasing the wages of all women except Cuban and Central & South American ones, relative to private sector employees. The wage gains are largest among Puerto Rican women, who earn 13% more than their counterparts who hold jobs in the private sector. Working in state public agencies augments the wages of Mexican women by 6% but has no effect in the labor market outcome of any other Hispanic group. For Puerto Rican and

Cuban woman, local government jobs represent an economic premium Particularly, the significant wage returns range from 8% for Puerto Ricans to 18% for Cubans but exclude Mexicans and Central and South Americans.

Job-related characteristics influence women's wage determination, as demonstrated by the significant coefficients on several of the industry and occupation variables. Excluding Cubans, hourly wages of women of every group are lower in retail and wholesale trade than in public administration. Similarly, jobs in the service and agriculture industries constitute an economic liability relative to public administration for Mexican and non-Hispanic women, with wage losses ranging from 5-8% in services to 8-23% in agriculture. In contrast, employment in the transportation and communication industry render Mexican, Puerto Rican, and non-Hispanic white women wage increments of 17, 12, and 13%, respectively, compared to the omitted industry. Among Mexican and non-Hispanic women, wage rates are also higher in mining than in public administration. Lastly, employment in manufacturing is an important determinant of hourly wages for non-Hispanic black women only.

Although Hispanic men and women concentrate in different types of occupations, their labor market wages are subject to similar effects attributed to occupational categories. The farming occupation is a significant predictor of wages for neither women nor men. Likewise, relative to service occupations, all men and women, regardless of ethnicity, have higher wages if they are employed as professional, technical, or craft workers. For instance, working in production precision, craft, and repair occupations yields female wage payoffs of 18% for Mexicans, nearly 14% for Cubans and Puerto

Ricans, and 11% for Central & South Americans. Among non-Hispanic white and black women, the wage gains are 18 and 21%, respectively. The sole area where a Hispanic gender difference arises is in the operator, laborer, and fabricator occupation. While employment in these occupations, compared to services, net significantly greater returns for Mexican, Cuban, and Puerto Rican men, only Mexicans among women benefit from working as laborers.

Labor market conditions are only significant predictors of female wage rates for some ethnic groups. Each dollar increase in the average labor market wage rate augments hourly wages by 2-3% for Cuban and Puerto Rican women and by 1% for non-Hispanic white and black women. Mexican and Central & South American women, presumably, are not better off by working in labor markets of high average wage rates. Unlike the case of Hispanic men, the impact of the Hispanic share in the labor market varies by national-origin group among Hispanic women. Cuban and Central & South American female wages appear unaffected by the proportion of Hispanics in the labor market. For Mexican women, an estimated wage loss of 28% is associated with employment in areas of high Hispanic concentration. In opposition, Puerto Rican women, along with non-Hispanic white and black females, earn 27% higher wages in markets where Hispanics represent a large fraction of the work force.

State residence show diverging results for women of the various Hispanic-origin groups. The most uniform results are provided by New Jersey and New York, whose positive and significant coefficients extend to all Hispanic and non-Hispanic women, except Cubans and Puerto Ricans. Relative to Arizona, living in Colorado diminishes the

wages of Puerto Rican and non-Hispanic white women by 31 and 7%, respectively, but does not afford the other Hispanic groups lower wages. Within the female Hispanic groups, Illinois residence benefits only Mexican women, whose relative wages rise by almost 15%. Living in New Mexico penalizes Mexican and non-Hispanic white women with wage losses of 9 and 15%, respectively. Seemingly, Cuban women are as well-off living in Florida as in any other state since geographical residence has no impact on their labor market wages. Mexican and non-Hispanic women earn more in California than Arizona by 18 and 14%, respectively.

The estimated wage equations for men and women highlight economic diversity within the working Hispanic population. As Chiswick (1987) emphasizes, "the Hispanic labor market experience is quite heterogeneous". The regression results show that the influence of particular demand and supply factors on Hispanic wages varies depending on the national-origin group. The analysis also reveals marked differences in the wage structures of Hispanic and non-Hispanic individuals.

Some general conclusions, however, can be drawn from this section of the study. First, human capital characteristics, notably education, are critical wage determinants for Hispanic men and women. Without exception, years of schooling and potential work experience raise the wages of all Hispanic groups. English deficiency, in addition, significantly penalizes Hispanic men and women in the labor market. Likewise, speaking Spanish at home is associated with Hispanic wage losses for all male national-origin groups except Cubans, which might suggests a higher degree of assimilation or acculturation among Cuban workers.

The negative effects of Spanish retention on Hispanic wages should not be interpreted, however, as evidence that cultural factors hamper the success of Hispanics in the labor market. Past research studies have found that maintenance of Spanish does not impede the socioeconomic achievements of Hispanic populations, provided that an adequate level of schooling, including English fluency, is completed (Tienda and Neidert, 1984). In this paper, Cubans, who have the highest levels of educational attainment among Hispanics, are not subject to wage penalties because of Spanish practice. Nevertheless, this analysis furnishes evidence that Spanish retention negatively influences Hispanic wages beyond retarding English fluency. Even, after controlling for educational attainment, the estimated parameter on Spanish practice is statistically significant and negative for Mexicans, Puerto Ricans, and Central & South Americans among men and for Mexicans and Puerto Ricans among women.

The previous results reject the notion that the impact of Spanish maintenance on Hispanic wages is only significant because Hispanics who suffer from English deficiencies speak Spanish at home. Spanish retention might also affect Hispanic wages through other mechanisms. For instance, by preventing development of social capital (networking) with more successful non-Spanish speaking individuals, which may lead to better paying jobs. A related argument is that Spanish maintenance might reflect the degree of "economic isolation" (by geography and lack of information) that marginalizes urban Hispanic residents and prevents them from obtaining employment in growing suburban labor markets.

Secondly, among personal characteristics, marriage, household headship, and, especially, immigration status positively influence hourly wages of Hispanic men and women. The effect of immigration needs further elaboration. Foreign birth supplies Hispanics with a wage premium in the labor market. Nevertheless, Hispanic immigrants are not able to use their human capital as well as native-born workers of Hispanic origin. Among Hispanics, men and women who are born in U.S. mainland receive significantly higher returns to education and potential work experience than their foreign-born counterparts. With the exception of Central & South American men, length of U.S. residence affords Hispanic male and female workers wage benefits. This may be an indication that Central & South American men have not been successful in incorporating into U.S. labor markets.

Thirdly, health disability and the presence of children and teenagers in the family are not significant wage determinants for Hispanic women. Specifically, child and teenager rearing does not depress the wages of working Hispanic women. In fact, having young children raises Mexican women's hourly wages.

Fourthly, job-related characteristics, such as industry, occupation, and employment sector variables, constitute significant factors affecting the wages of most Hispanic groups. In particular, the data show that employment in the public sector, primarily in local government, improves male and female wages of several Hispanic-origin groups, relative to private sector jobs.

Fifthly, labor market conditions are important factors in the wage structure of Hispanics. Labor market differences in average wage rates and Hispanic composition of

the workforce have significant effects on Hispanic men's and women's wages but are not equally important for each group. Areas with favorable wage structures enhance the wages of all Hispanic groups among men but only those of Cubans and Puerto Ricans among women. Furthermore, the concentration of Hispanics in the labor market tends to have a consistent impact on wages of Hispanic males. Men of all Hispanic-origin groups but Puerto Ricans experience wage decreases by working in areas where Hispanics constitute a large share of the labor force. Among Hispanic women, the pattern is not clear. Hispanic concentration reduces the wages of Mexicans yet increases those of Puerto Ricans. Cuban and Central & South American women's wages, in contrast, remain impervious to the degree of Hispanic concentration in the market.

Lastly, sample selection bias appears to be a problem for several of the ethnic groups. The estimated Hispanic parameter on the inverse Mill's ratio is negative and statistically significant for Mexican and Central & South Americans among women, and for all Hispanic-origin groups except Central & South Americans among men. This suggests that while the productivity of these groups in the labor market is high, it is even higher in non-working sectors. Consequently, men and women of these Hispanic-origin group are less likely to be in the wage and salary sample.

4.7 Decomposition of the Male Wage Gap

As previously shown, ethnic wage differentials can be decomposed into differences resulting from characteristics of workers, "explained" component, and into differences from the returns to characteristics, "unexplained" component. The latter is attributed to

labor market discrimination and other omitted variables, such as disparities in ability and quality of education. Table 14 summarizes the results for the decomposition of the male wage gap between Hispanic and non-Hispanic white workers, corrected for the possibility of sample selection bias. For analytical convenience, the explained effect is divided into partial sums corresponding to human capital and personal characteristics, job-related characteristics, labor market conditions, and state residence.

Cuban and Puerto Rican working men receive on average 26% lower wages than their non-Hispanic white counterparts. The correction for selectivity bias reduces the wage differential to nearly 14 and 11% for Cuban and Puerto Rican men, respectively. Presumably, a large part of the difference in average wages is due to the withdrawal of Cuban and Puerto Rican men of high relative productivity from the labor market. That is, selection bias decreases Cuban and Puerto Rican men's average wages more than it does for non-Hispanic men, widening the observed wage disadvantage for these Hispanic groups.

For Hispanic men of Cuban and Puerto Rican origin, the wage gap is mostly explained by differences in observed characteristics. Human capital and personal characteristics are responsible for a 11 and 18% wage gap for Cuban and Puerto Rican men, respectively. Job-related characteristics account for another 4% discrepancy among Cubans and another 6% differential among Puerto Ricans. Variation in geographical location explains a 3% wage difference for Cuban men but widens the disadvantage to nearly 14% for Puerto Rican men, as the latter tends to concentrate in areas of high living costs. Thus, based on the variables included in Table 10, if each group were endowed

Table 14

Decomposition of Male Wage Differentials, Corrected for Selectivity Bias
Effect of Differences in Observed Characteristics and Effect of Unobserved Factors

	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Observed Difference in Average Wages	37.52	41.47	23.37	26.51	36.74	23.06
Observed Log Wage Difference	45.75	51.66	26.37	26.39	45.45	23.35
Difference in Sample Selection Bias	-0.03	-8.70	12.54	15.48	-0.72	31.30
Log Wage Difference Corrected for Sample Selection Bias	45.77	60.36	13.83	10.90	46.17	-7.96
Explained Component						
Human Capital & Personal Characteristics[a]	24.48	28.13	10.90	18.01	21.40	7.98
Job-Related Characteristics[b]	7.99	9.32	3.57	5.68	6.05	4.80
Labor Market Conditions[c]	-2.72	-1.32	-5.59	-6.74	-6.54	-1.36
State Residence[d]	0.22	0.52	2.83	-2.96	-2.64	-0.27
Unexplained Component (Estimate of Labor Market Discrimination)	15.80	23.71	2.12	-3.08	27.91	-19.11

Source of primary data: 5% Public-Use Microsample from 1990 Census of Population.
Note: Calculated from Tables 4 and 10. Each column provides the breakdown of the observed wage gap or log wage gap between non-Hispanic white and minority men. For the decomposition of the wage gap between Puerto Ricans and non-Hispanic whites, the Puerto Rican equation was also run for non-Hispanic whites.

[a] Sum of the effects of (Education-Foreign*Imm85-90) variables in Table 15.

[b] Sum of the effects of (Federal-operat) variables in Table 15

[c] Sum of the effects of Hispanic concentration and Average wage rate variables in Table 15.

[d] Sum of the effects of (California-Texas) variables in Table 15.

with the productive characteristics of non-Hispanic white men, the wage discrepancy would narrow to 2% for Cubans and -3% for Puerto Ricans, indicating that the differential would favor Puerto Ricans. Potential labor market discrimination, in the statistical sense, appears then not to be a problem for Cuban and Puerto Rican working men.

Table 15 displays the contribution of individual independent variables to the wage differential between Hispanic and non-Hispanic men for each ethnic group. Among Cubans and Puerto Ricans, low levels of education are the primary determinants of the wage gap. The Hispanic-white difference in years of schooling accounts for a 11 and 15% shortfall in wages for Cubans and Puerto Ricans, respectively. More specifically, educational attainment explains 83% of the wage gap between Cuban and non-Hispanic men and completely eliminates the wage disadvantage affecting Puerto Rican men. Among Cubans, the effect on potential work experience on the wage difference is -3%, which mirrors the older age of Cuban males. Approximately, a 3 and 5% wage differential is explained by the relatively small presence of Cuban and Puerto Rican men, respectively, in managerial and professional occupations. English deficiency evidently has no impact on the wage disadvantage faced by Cuban and Puerto Rican men. Use of the Spanish language at home, in contrast, accounts from 3 to 4 percentage points of the overall wage discrepancy for Cubans and Puerto Rican males.

The Hispanic composition of labor markets tends to decrease the wage difference for Hispanic men. If Cuban and Puerto Rican men worked in areas where the Hispanic concentration was similar to that of markets where non-Hispanic white men worked, then the wage gap would rise by 8 percentage points among Cubans and 4 percentage points

Table 15

Decomposition of Male Wage Differentials, Corrected for Selectivity Bias
Effect of Independent Variables and Effect of Potential Labor Market Discrimination

	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Observed Wage Differential	45.75	51.66	26.37	26.39	45.45	23.35
Wage Differential Corrected for Sample Selection Bias	45.77	60.36	13.83	10.90	46.17	-7.96
Explained Differential						
Education	22.72	26.69	11.45	15.16	17.97	6.00
Potential experience	1.23	3.10	-17.42	-2.47	3.09	-1.72
(Potential experience)^2	0.50	-0.71	14.52	2.91	-1.67	1.20
English deficiency	-0.09	-0.09	-0.09	0.22	-0.11	0.00
Spanish at home	3.41	3.43	3.82	3.18	3.84	0.04
Married	0.31	0.27	-0.27	0.52	0.66	1.16
Foreign	--	--	--	-18.02	--	0.00
Foreign*Education	11.52	8.64	23.93	12.74	23.80	1.11
Foreign*Potential Experience	4.45	3.68	9.09	-0.84	7.21	0.29
(Foreign*Potential Experience)^2	1.36	1.08	3.33	3.87	2.04	0.07
Household head	1.69	1.83	0.48	1.45	2.07	1.13
Veteran	-1.52	-1.52	-2.02	-0.67	-2.22	0.14
Health disability	-0.20	-0.21	-0.22	-0.04	-0.31	-0.06
Foreign*Immpre50	-0.32	-0.09	-0.30	--	0.17	0.24
Foreign*Imm50	-1.50	-0.84	-2.32	--	-0.94	0.24
Foreign*Imm60	-4.31	-2.53	-19.78	--	-6.41	-0.10
Foreign*Imm70-74	-2.96	-2.94	-4.89	--	-3.93	-0.46
Foreign*Imm75-79	-3.70	-4.08	-0.82	--	-5.80	-0.42
Foreign*Imm80-84	-4.82	-4.28	-6.61	--	-11.14	-0.62
Foreign*Imm85-90	-3.32	-3.30	-0.98	--	-6.93	-0.25
Federal	-0.09	-0.09	-0.17	0.02	-0.21	0.34
State	-0.11	-0.11	-0.15	-0.08	-0.20	0.04
Local	-0.10	-0.14	0.01	0.26	-0.38	0.38
agrict	1.80	2.65	-0.25	-0.12	0.14	-0.13
mining	0.00	0.00	0.01	0.01	0.01	0.01
const	0.03	0.08	-0.10	-0.19	-0.06	-0.20
manfg	0.05	0.07	-0.06	0.02	0.11	-0.06
tcop	-0.02	-0.03	0.01	0.02	-0.03	0.10
trade	0.61	0.56	1.36	0.03	1.04	-0.47
fire	-0.08	-0.12	0.06	0.05	-0.03	-0.04
service	-0.89	-1.37	-0.01	0.36	0.21	0.60
mangmt	6.14	6.84	3.40	5.13	5.27	3.88
tech	1.10	1.46	-0.52	0.37	0.90	0.00
farming	0.45	0.64	-0.02	0.03	0.07	0.01
produc	-0.31	-0.44	0.25	0.20	-0.28	0.75
operat	-0.60	-0.69	-0.24	-0.44	-0.52	-0.41
Hispanic concentration	-4.44	-4.44	-7.53	-3.55	-3.99	-0.50
Average area wage rate	1.71	3.12	1.94	-3.18	-2.55	-0.85
California	0.24	-1.05	5.15	4.93	0.44	0.11
Colorado	0.00	0.00	0.02	0.01	0.02	-0.01
Florida	-0.04	0.19	-1.89	-0.31	-0.30	-0.04
Illinois	-0.05	-0.10	0.22	-0.28	0.15	-0.01
New Mexico	-0.01	-0.06	-0.36	-0.36	-0.36	-0.23
New Jersey	-0.01	0.49	-0.87	-2.06	-0.79	-0.07
New York	0.09	1.18	0.24	-5.20	-2.06	-0.03
Texas	0.00	-0.13	0.32	0.32	0.27	0.01
Unexplained Differential (Potential Labor Market Discrimination)	15.80	23.71	2.12	-3.08	27.91	-19.11

Source of primary data: 5% Public-Use Microsample from 1990 Census of Population.
Note: Calculated from Tables 4 and 10. Each column provides the breakdown of the observed wage gap between Non-Hispanic White and Minority men. For the decomposition of the wage gap between Puerto Ricans and non-Hispanic whites, the Puerto Rican equation was also run for non-Hispanic whites.

among Puerto Ricans. Adjusting for the variance of male wages in labor markets eliminates a discrepancy of 2% for Cubans. For Puerto Rican men, male market wages actually expands the differential, as Hispanics of Puerto-Rican origin locate mainly in high-priced states such as New York.

Mexican and Central & South American men average, respectively, 60 and 46% lower wages than non-Hispanic white men after adjusting for sample-selection bias. In the reduced probit equations, the estimated parameter on the inverse Mill's ratio is negative for all ethnic groups of men; yet, its absolute value is smaller for Mexicans and Central & South American males than for non-Hispanic white males. This implies that selection bias decreases productivity levels and, thus, wages of non-Hispanic white men more than it does for Mexican and Central & South American men. Accordingly, correcting for selectivity bias increases the male wage gap for these Hispanic groups.

Differences in human capital and personal characteristics explain nearly half of the wage differential for both Mexican and Central & South American men. Sectoral, industrial, and occupational distributions are responsible for a 9 and 6% wage gap for Mexican and Central & South American men, respectively. Labor market conditions and geographical location appear to have minimum net effects on the Mexican wage disadvantage relative to non-Hispanic whites. For men of Central & South American origin, both labor market conditions and state residence work to close their shortfall in wages as this Hispanic group lives and works, along with Puerto Ricans, in areas of high wages. In each case, a large component remains unexplained after controlling for socioeconomic factors. Specifically, a considerable wage discrepancy of 23 and 28% is

attributed to potential labor market discrimination for Mexican and Central & South American men, respectively.

Among the observed characteristics, education is the single largest source of disadvantage for Mexicans, explaining close to 50% of the wage discrepancy. Among Puerto Ricans, low educational attainment relative to non-Hispanic whites plays a role in explaining a 18% wage gap. Differences in work experience accounts for another 2% differential both Hispanic groups. Improving Mexican and Puerto Rican men's English proficiency has no impact on the wage difference. Immigrant background variables work to curtail the wage disadvantage for Mexican males. If men of Mexican origin had the same type of immigrant background as non-Hispanic white men, the wage gap would rise from 60% to 66%. As observed for Cuban and Puerto Rican men, Spanish retention determines a 3-4% wage gap for Mexican & Central and South American males.

Other results indicate that raising the percentage of Mexican and Central & South American men in managerial and professional occupations to the average of non-Hispanic white men would eliminate a wage differential of 5-7 percent. Hispanic concentration in labor markets keeps the wage difference from growing by 4 percentage points for both Mexican and Central & South American men. Area male wages generate a wage gap of 3% for Mexican men but decrease the Central & South American males' disadvantage by the same percentage. As formerly stated, this results from the tendency of men of Central & South American origin to work in markets of high living costs.

As a comparison, Tables 14 and 15 also furnish the breakdown of the wage differential between non-Hispanic black and white men. Educational attainment

determines a 8% wage gap. Non-Hispanic black males' low occupational status explain another 5%. In general, the entire wage disadvantage for non-Hispanic men is accounted by differing measurable characteristics. Selectivity bias, notably, has a substantial impact on the wage differential. The wages of non-Hispanic black males are 23% lower than those of non-Hispanic white men. However, correcting for selectivity bias yields a wage gap of 8% in favor of non-Hispanic blacks. Controlling for personal and socioeconomic factors augments the blacks' advantage even further to 19%.

4.8 Decomposition of the Female Wage Gap

Table 16 summarizes the data for the decomposition of the wage differential into explained and unexplained components between Hispanic and non-Hispanic white women. The relative effect of sample selection bias is to raise the wage difference for Cuban, Puerto Rican, and Central & South American females. It appears that non-working women of these Hispanic nationalities have low productivity relative to their non-Hispanic white equivalents. Selectivity bias, then, lowers the female wages of non-Hispanic whites more than those of Cubans, Puerto Ricans, and Central & South Americans. The result is a narrowed observed wage gap. The impact of selection bias is considerable among Cuban and Puerto Rican women. More specifically, adjusting for selectivity increases the wage differential from 14 to 64% for Cuban women and from 9 to 29% for Puerto Rican women.

Conversely, both the mean Mill's ratio and its estimated coefficient, in absolute value, are larger for Mexican than non-Hispanic white women. This suggests that the

Table 16

Decomposition of Female Wage Differentials, Corrected for Selectivity Bias
Effect of Differences in Observed Characteristics and Effect of Unobserved Factors

	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Observed Difference in Average Wages	24.68	28.65	12.50	10.89	27.87	4.29
Observed Log Wage Difference	28.00	32.81	14.25	9.36	32.62	4.37
Difference in Sample Selection Bias	18.46	8.77	-49.44	-29.91	-6.14	3.35
Log Wage Difference Corrected for Sample Selection Bias	9.53	24.04	63.69	39.27	38.76	1.02
Explained Component						
Human Capital & Personal Characteristics[a]	11.60	13.56	4.19	4.29	15.05	3.10
Job-Related Characteristics[b]	6.25	7.06	2.41	2.89	9.18	2.31
Labor Market Conditions[c]	-5.84	-5.64	-9.89	-5.08	-5.86	-1.03
State Residence[d]	0.00	0.47	2.66	-4.05	-3.58	-0.70
Unexplained Component (Estimate of Labor Market Discrimination)	-2.48	8.59	64.31	41.22	23.98	-2.66

Source of primary data: 5% Public-Use Microsample from 1990 Census of Population.

Note: Calculated from Tables 6 and 12. Each column provides the breakdown of the observed wage gap or log wage gap between non-Hispanic white and minority women. For the decomposition of the wage gap between Puerto Ricans and non-Hispanic whites, the Puerto Rican equation was also run for non-Hispanic whites.

[a] Sum of the effects of (Education-Foreign*Imm85-90) variables in Table 17.

[b] Sum of the effects of (Federal-operat) variables in Table 17.

[c] Sum of the effects of Hispanic concentration and Average wage rate variables in Table 17.

[d] Sum of the effects of (California-Texas) variables in Table 17.

relative productivity levels of Mexican non-working women are higher than those of non-Hispanic white women who are not in the labor market. The correction for selectivity bias, hence, diminishes the wage differential for Mexican women by roughly 9 percentage points.

The relative importance of human capital and personal background on the female wage discrepancy varies by Hispanic nationality. Differing productive characteristics explain only a wage gap of 4% for Cuban and Puerto Rican females. In contrast, bringing the human capital and other personal characteristics of Mexican and Central & South American women in parity with those of non-Hispanic white women eliminates a 14-15% disadvantage. Employment-related factors, as represented by sector, industry, and occupation variables, account for a wage differential ranging from 2-3% for Cuban and Puerto Rican females to 7-9% for Mexican and Central and South American women. As evidenced by their negative signs, labor market conditions generate a wage advantage in favor of Hispanic women of every nationality. Compared to non-Hispanic white women, the favorable wage gap is 5% for Puerto Ricans, 6% for Mexicans and Central & South Americans, and 9% for Cubans. Differences in geographical residences are sources of small wage gaps for Mexican and Cuban women while benefits for Puerto Rican and Central & South American women, as the latter Hispanic groups concentrate in areas of relative high wages.

For all Hispanic women except Mexicans, a substantial wage difference remains unexplained after controlling for measurable socioeconomic factors. In other words, if Cuban, Puerto Rican, and Central & South American women were endowed with the

average observable characteristics of non-Hispanic white women, the former would still earn significantly lower wages. The remaining wage difference is estimated at 64, 41, and 24% for Cuban, Puerto Rican, and Central & South American women, respectively. These unexplained components represent "upper bound" estimates of discrimination against Hispanic women in the labor market.

Table 17 shows the contribution of each independent variable to the wage differential between Hispanic and non-Hispanic white female workers. For the differential in wages due to explained factors, educational attainment and managerial and professional employment are the principal factors accounting for the Hispanic wage disadvantage. The estimated wage gap from having low schooling relative to non-Hispanic whites extends from roughly 8% for Cuban and Puerto Rican women to 18% for Mexican and Central & South American women. Compared to Hispanic women, the predominance of non-Hispanic white women in managerial and professional occupations determines a 5% wage difference for Cubans and Puerto Ricans and a 8% differential for Mexicans and Central & South Americans.

Additional results exhibit that closing the initial 1-2 year difference in labor market experience eliminates a wage discrepancy of 3 and 5%, respectively, for Mexican and Puerto Rican women. On the contrary, initial potential work experience creates a wage advantage in favor of Cuban females, reflecting Cuban's older age as compared to non-Hispanic whites. English deficiency and poor health seem to have small effects on the wage disadvantage for Hispanic women of every national-origin group. The female Hispanic-white wage difference also appears unresponsive to household headship, martial

Table 17

Decomposition of Female Wage Differentials, Correcting for Selectivity Bias
Effect of Independent Variables and Effect of Potential Labor Market Discrimination

	All Hispanics	Mexicans	Cubans	Puerto Ricans	Central and South Americans	Non-Hispanic Blacks
Observed Wage Differential	28.00	32.81	14.25	9.36	32.62	4.37
Wage Differential Corrected for Sample Selection Bias	9.53	24.04	63.69	39.27	38.76	1.02
Explained Differential						
Education	15.79	18.53	8.76	8.26	17.95	3.67
Potential experience	1.39	3.18	-11.17	4.65	-1.59	-0.63
(Potential experience)^2	-0.55	-2.03	11.24	-3.14	1.05	-0.16
English deficiency	-0.23	-0.21	-0.33	0.16	-0.44	0.00
Spanish at home	-3.45	-3.41	-4.13	-4.33	-4.10	-0.02
Married	0.12	0.06	-0.24	0.45	0.34	0.90
Foreign	--	--	--	-19.70	--	--
Foreign*Education	13.54	7.82	31.50	15.83	30.94	0.98
Foreign*Potential Experience	8.94	5.76	20.78	8.30	18.46	0.40
(Foreign*Potential Experience)^2	-4.46	-2.71	-11.93	-5.75	-8.83	-0.12
Household head	0.43	0.61	0.63	-0.42	0.44	-1.24
Child 6	-0.20	-0.25	0.00	-0.24	-0.10	-0.01
Child 6-17	0.33	0.41	-0.09	0.38	0.15	0.43
Child 6&17	-0.33	-0.46	-0.01	-0.16	-0.27	-0.19
Health disability	-0.04	-0.04	-0.09	0.02	-0.07	0.01
Foreign*Immpre50	-0.53	-0.22	-0.46	--	-0.22	0.20
Foreign*Imm50	-1.87	-0.91	-3.19	--	-1.25	0.50
Foreign*Imm60	-5.19	-2.45	-24.79	--	-8.33	-0.11
Foreign*Imm70-74	-4.15	-3.54	-7.76	--	-7.74	-0.47
Foreign*Imm75-79	-3.47	-3.43	-0.61	--	-7.97	-0.44
Foreign*Imm80-84	-2.66	-1.86	-3.27	--	-7.79	-0.42
Foreign*Imm85-90	-1.80	-1.28	-0.66	--	-5.58	-0.18
Federal	-0.02	-0.04	0.11	-0.09	0.15	-0.35
State	0.01	0.00	0.05	0.01	0.05	-0.03
Local	0.01	0.01	0.01	-0.02	0.03	-0.02
agrict	0.19	0.33	-0.08	-0.03	0.01	-0.09
mining	0.10	0.09	0.13	0.11	0.12	0.07
const	-0.02	-0.02	-0.01	-0.01	-0.02	-0.02
manfg	-0.46	-0.50	-0.48	-0.27	-0.58	0.02
tcop	0.10	0.17	-0.12	-0.20	0.27	-0.43
trade	0.00	0.16	-0.36	-0.62	-0.17	-0.98
fire	0.11	0.14	-0.09	0.05	0.13	0.08
service	-0.34	-0.42	-0.59	-0.06	0.00	0.31
mangmt	6.76	7.42	4.89	4.74	8.03	3.47
tech	1.13	1.15	0.14	0.14	2.68	0.64
farming	0.06	0.09	0.00	0.00	0.02	0.00
produc	-0.40	-0.48	-0.36	-0.23	-0.37	-0.12
operat	-0.97	-1.05	-0.83	-0.64	-1.18	-0.23
Hispanic concentration	-5.75	-5.83	-9.97	-4.12	-4.97	-0.61
Average area wage rate	-0.09	0.19	0.08	-0.96	-0.89	-0.42
California[d]	-0.08	-1.45	4.22	3.95	-0.51	-0.06
Colorado	0.00	-0.01	-0.19	-0.17	-0.18	0.03
Florida	-0.01	0.06	-0.49	-0.06	-0.06	0.00
Illinois	-0.02	-0.03	0.06	-0.08	0.01	-0.01
New Mexico	0.05	-0.04	-0.50	-0.47	-0.48	-0.33
New Jersey	-0.08	0.93	-1.33	-3.46	-1.27	-0.24
New York	0.08	1.17	0.44	-4.20	-1.46	-0.11
Texas	0.05	-0.17	0.45	0.43	0.38	0.02
Unexplained Differential (Potential Labor Market Discrimination)	-2.48	8.59	64.31	41.22	23.98	-2.66

Source of primary data: 5% Public-Use Microsample from 1990 Census of Population.
Note: Calculated from Tables 6 and 12. Each column provides the breakdown of the observed wage gap between Non-Hispanic White and Minority women. For the decomposition of the wage gap between Puerto Ricans and non-Hispanic whites, the Puerto Rican equation was also run for non-Hispanic whites.

status, and child and teenager rearing. Unlike the case for Hispanic men, Spanish retention contributes to reduce the wage gap between Hispanic and non-Hispanic white women. Specifically, the practice of Spanish at home produces approximately a 3-4% wage advantage in favor of all Hispanic women.

Among labor market conditions, variance in area female wages explains a negligible wage gap between Hispanic and non-Hispanic white women. As observed for Hispanic men, employment in labor markets with a large concentration of Hispanic women reduces the wage discrepancy by 10 percentage points for Cuban females and by 4-6 percentage points for women of other Hispanic nationalities.

For comparison purposes, Tables 16 and 17 also report the breakdown of the female wage difference between non-Hispanic blacks and whites. On average, the wages of non-Hispanic black women are just 4% lower than those of non-Hispanic white women. The adjustment for selectivity bias decreases the gap to merely 1%. Controlling for socioeconomic factors eliminates the remaining wage discrepancy completely for non-Hispanic black women. That is, if non-Hispanic black women had the same productive characteristics as non-Hispanic white women, the female wage differential would favor non-Hispanic blacks. In particular, human capital and personal characteristics are responsible for a 3% wage disadvantage. Differences in employment distributions by sector, industry, and occupation account for another 2% differential.

Summarizing the results, differences in measurable characteristics explain a small portion of the Hispanic-white wage differential for Cuban and Puerto Rican females. After correcting for selectivity bias, potential labor market discrimination, instead of

human capital and employment attainment, largely account for the shortfall in wages for Cuban and Puerto Rican women. Moreover, while variation in human capital and personal background is an important determinant of the relatively low wages of Mexican and Central & South American women, large wage gaps still remain unaccounted for among these Hispanic groups.

V. CONCLUSION AND POLICY IMPLICATIONS

5.1 General Characteristics

The empirical evidence in this paper supports the notion that Hispanics are a disadvantaged group in the United States. Working Hispanics earn lower wage rates and have smaller endowments of productive characteristics than their non-Hispanic white counterparts. Occupational attainment and industrial distribution also tend to benefit non-Hispanic whites over Hispanics. In the labor market, the performance of Hispanic workers is poor relative to non-Hispanic whites.

The magnitude of ethnic differences, however, varies by gender and nationality. In particular, the data reveal ample socioeconomic heterogeneity within the Hispanic working population. On average, ethnic disadvantages are larger for Hispanic men than Hispanic women. Moreover, Cubans and Puerto Ricans are more successful in the labor market than Mexicans and Central & South Americans. Classifying Hispanics as a single and homogeneous group disguises then the lower skill levels and wages of Mexicans and Central & South Americans and the more considerable accomplishments of Cubans and Puerto Ricans. Therefore, strategies aimed at improving the economic status of Hispanics must recognize this diversity and target a specific gender and national-origin group.

5.2 Estimated Wage Functions

The estimation of wage functions indicates that both demand variables (job-related and labor market characteristics) and supply factor (human capital and personal characteristics) are significant determinants of Hispanic wages. Regardless of gender,

years of schooling and potential work experience improve the wages of Hispanics while both English deficiency and Spanish retention impose wage losses. Other demographic effects exhibit that Hispanic men and women who are foreign-born, married, or household heads receive wage increases, suggesting that family economic responsibilities improve Hispanic wages. Among immigrants, length of U.S. residence translates into wage premiums. Contrary to expectations, the presence of children and teenagers in the household does not depress the wages of Hispanic working women. These results suggest that the wages of Hispanic workers would rise with policies that enhanced their human capital and facilitated the adjustment of immigrants into American society and its labor market. Educational and English language programs seem particularly relevant. Day care and after school supervision might increase the labor supply of Hispanic women but not their labor market wages.

Additional results show that location in the labor market, in terms of occupation, industry or employment sector, significantly influence the wages of Hispanic men and women. Some Hispanic national-origin groups, namely Puerto Rican and Mexican women and Central & South American men, benefit from working in the public sector. Relative to public administration, Hispanic wages are lower in the service and wholesale and retail trade industries. With the exception of farming, service occupations provide Hispanics with low wages as compared to other occupations. Thus, it appears that improving access to government jobs and promoting upward occupational mobility would afford some Hispanic sub-groups wage gains[20].

[20] The author recognizes that improving access to government jobs for Hispanics might not be a feasible strategy given the current anti-affirmative action sentiments in the political spectrum.

Labor market structures have significant impacts on the wage structure of Hispanics. The Hispanic concentration in labor markets penalizes Hispanic male workers but has no consistent effects on the wages of Hispanic women. In addition, employment in areas of high average wage rates augments Hispanic wages, primarily male wages. As argued by Reimers (1984), the negative impact of Hispanic concentration on the wages of Hispanic men should not be interpreted as evidence in support of "regional development" or "industrial location" policies. Given that non-Hispanic whites and blacks do not receive lower wages in areas with high proportions of Hispanics, the shortfall in Hispanic wages is not due to regional underdevelopment. In fact, the data reveal that the concentration of Hispanics in labor markets hurts Hispanic wages but increases those of non-Hispanic groups, suggesting that ethnic discrimination might have some responsibility for this outcome. This finding agrees with past research which shows that Non-Hispanic whites seem to benefit economically from large proportions of minority workers (Brown and Fuguitt, 1972; Frisbie and Neidert, 1977; Tienda, 1983).

5.3 Decomposition of Wage Differentials

In accordance with past studies, the relative importance of measured characteristics on ethnic wage gaps differs by Hispanic-national origin group (Tienda, 1983; Reimers, 1983, 1985). Among the independent variables, educational and occupational attainment plays the main role in accounting for wage differences between Hispanics and non-Hispanic whites. Compared to non-Hispanic whites, Hispanics' fewer years of schooling and lower concentration in managerial and professional occupations

explain roughly the entire wage differential for Cuban and Puerto Rican men. Similarly, differences in education and occupational status are responsible for half of the wage gap for Mexican and Central & South American men.

For women of Hispanic origin, the effects of schooling and occupational distributions on wages gaps are also important but not as substantial. Raising the educational and occupational achievements of Mexican and Central & South American female workers to non-Hispanic white women's averages would eliminate a wage disadvantage of nearly 26%. Among Cuban and Puerto Rican women, the wage differential with non-Hispanic whites would decrease by 13-14 percentage points in each case.

The decomposition results suggest that to eliminate the wage disadvantage of Hispanics relative to non-Hispanic whites would require policies oriented towards improving the educational levels of Hispanics and facilitating their upward movement in the occupational ladder[21]. This type of intervention would suffice for some Hispanic groups. If Cuban male workers had the same socioeconomic background as non-Hispanic white men, they would earn just 2% lower wages. For Puerto Rican men, wages would actually be 3% higher relative to non-Hispanic whites. Among Mexican women, the female wage gap with non-Hispanic whites would decrease from 24 to under 9%.

For the remaining Hispanic national-origin groups, the above policies are also important but not sufficient for eliminating their wage disadvantages. Specifically, the

[21] Policy-makers should be cautious about overemphasizing English training. Tables 15 and 17 suggest that access to English language programs would raise Hispanic wages but would affect the ethnic wage gap only minimally.

analysis provides evidence of unexplained discrimination. The part of the wage gap that stems from differences in the estimated coefficients is considerably large for several Hispanic nationalities. Almost the entire Hispanic-white wage differential for Cuban and Puerto Rican women could be attributable to ethnic discrimination in the labor market. In addition, controlling for all measured characteristics reduces the wage gap from 39 to a high 24% for Central and South American females. Likewise, if Mexican and Central & South American men had the average characteristics of their non-Hispanic white counterparts, the wage discrepancy would still remain at 24-28%.

The so-called "cost" of being Hispanic appears real and substantial for many national-origin groups, specially for Cuban and Puerto Rican women. In some instances, discrimination against Hispanics in the labor market may explain the whole wage differential. In these situations, the analysis suggests that anti-discrimination efforts are needed to bring wage parity between Hispanic and non-Hispanic whites.

The evidence is strong given the narrow economic criteria for establishing discrimination. As previously stated, the statistical definition of labor market discrimination fails to include the effects of "premarket" discrimination. Might ethnic discrimination be responsible for the poor educational achievement and occupational segregation of some Hispanic groups? May Hispanics be victims of biased employment tests or excluded from recruitment systems that are based on worth of mouth? These types of questions can not be addressed with standard estimation techniques. Yet, other research methods have shown that Hispanics are indeed subject of unfair employment

hiring practices. Hiring audits conducted by the Urban Institute in 1989 showed that foreign-looking and sounding Hispanics faced considerable barriers compared to their "Anglo" counterparts in obtaining interviews and employment offers in Chicago and San Diego.

Even in the absence of premarket discrimination, several Hispanic groups experience high levels of unexplained labor market discrimination. It might be argued that differences in the quality of education overstates the effects of discrimination. In this paper, much of the unexplained portion of the wage gap is due to differing returns to education for some Hispanic groups[22]. However, if differences in the payoffs to schooling were excluded from the estimate of potential labor market discrimination, large wage differential would remain unexplained for Cuban (49%), Puerto Rican (39%), and Central and South American (13%) women. Hence, Relative to non-Hispanic whites, limited education, in terms of quantity or quality, is not the sole answer for the shortfall in wages of all Hispanics.

During the 1980s, scholars found that the skill and earnings between Hispanics and Whites was converging (Bean and Tienda, 1987; Melendez, Rodriguez, and Figueroa, 1991; Defreitas, 1991). This progress prompted Chiswick (1984) to write that "should this pattern continue, Hispanics as a group, and the various subgroups, may in the future no longer experience disadvantages in the labor market". The analysis in this study suggests less cause for optimism. Even in the presence of absolute convergence in human

[22] The contribution of each independent variable to the unexplained component for the various ethnic groups is available from the author upon request.

capital levels, some Hispanics, particularly women, might earn lower wages than their non-Hispanic white equivalents.

Works Cited

Angel, R. (1984). "The Costs of Disability for Hispanic Males." *Social Science Quarterly*, 65(2): 426-441.

Bean, F., and M. Tienda. (1987). *The Hispanic Population of the United States*. New York: Russel Sage.

Borjas, G. (1982). "The Earnings of Male Hispanic Immigrants in the United States." *Industrial and Labor Relations Review*, 35(3): 343-353.

_____. (1985). "Assimilation, Changes in Cohort Quality, and the Earnings of Immigrants." *Journal of Labor Economics*, 3(4): 463-489.

_____. (1996). *Labor Economics*. New York: McGraw-Hill.

Borjas, G., and M. Tienda. (1985). *Hispanics in the U.S. Economy*. New York: Academic Press.

Brown, D. L., and G. V. Fuguitt. (1972). "Percent Nonwhite and Racial Disparity in Nonmetropolitan Cities in the South." *Social Science Quarterly*, 53(December): 573-582.

Cain, G. G. (1975). "The Challenge of Dual and Radical Theories of Labor Market to Orthodox Theory." Discussion Paper, Institute for Research on Poverty, University of Wisconsin-Madison.

Carliner, G. (1976). "Returns to Education for Blacks, Anglos, and Five Spanish Groups." *Journal of Human Resources*, 11(2): 172-84.

Chiswick, B. (1978). "The Effect of Americanization on the Earnings of Foreign-born Men." *Journal of Political Economy*, 86(5): 897-921.

_____. (1987). "Hispanics in the United States Labor Market." *Journal of American Ethnic History*, (): 30-58.

Cintron, Aixa. (1995). *The Disadvantaged Labor Market Status of an Ethnic Minority: Puerto Rican Women in the United States 1970-1990*. Ph.D. dissertation, University of Michigan.

Cooney, R. S., and V. Ortiz. (1983). Nativity, National Origin and Hispanic Female Participation in the Labor Force." *Social Science Quarterly*, 64(3): 510-523.

Cross, H., G. Kenney, J. Mell, and W. Zimmerman. (1990). *Employment Hiring Practices: Differential Treatment of Hispanic and Anglo Job Seekers.* Urban Institute Report 90-4. Washington: Urban Institute Press.

Davila, A. E. (1984). "Racial Earnings Differential in Texas." *Economic Review (Federal Reserve Bank of Dallas)*, (November): 13-23.

Defreitas, G. (1991). *Inequality at Work: Hispanics in the Labor Force.* New York: Oxford University Press.

_____. (1988). "Hispanic Immigration and Labor Segmentation." *Industrial Relations*, 27(2): 195-214.

Enchautegui, M. (1995). *Policy Implications of Latino Poverty.* Washington: Urban Institute.

Fogel, W. (1966). "The Effect of Low Educational Attainment on Incomes: A Comparative Study of Selected Ethnic Groups." *Journal of Human Resources*, 1(Fall): 23-38.

_____. (1967). "Mexican Americans in Southwest Labor Markets." Mexican-American Study Project, Advance Report 10, Graduate School of Business Administration, University of California, Los Angeles.

Frisbie, W., and L. Neidert. (1977). "Inequality and the Relative size of Minority Populations: A Comparative Analysis." *American Journal of Sociology*, 82(5): 1007-1030.

Grenier, G. (1984). "The Effects of Language Characteristics on the Wages of Hispanic-American Males." *Journal of Human Resources*, 19(1): 35-52.

Gwartney, J. P., and J. E. Long. (1978). "The Relative Earnings of Blacks and Other Minorities." *Industrial and Labor Review*, 31(3): 336-346.

Heckman, J. J. (1979). "Sample Selection Bias as a Specification Error." *Econometrica* 47(1): 153-161.

Kossoudji, S. (1988). "English Language Ability and the Labor Market Opportunities of Hispanic and East Asian Men." *Journal of Labor Economics*, 6(2): 205-28.

Levy, F., and R. J. Murnane. (1992). "U.S. Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations." *Journal of Economic Literature*, 30(3): 1333-1381.

Long, J. E. (1977). "Productivity, Employment, Discrimination, and the Relative Economic Status of Spanish Origin Males." *Social Science Quarterly*, 58(3): 357-373.

McManus, W., W. Gould, and F. Welch. (1983). "Earnings of Hispanic Men: The Role of Proficiency in English Language." *Journal of Labor Economics*, 1(2): 110-130.

Melendez, E. (1991). "Labor Market Structure and Wage Differences in New York City: A comparative Analysis of Hispanics and Non-Hispanics Blacks and Whites." In E. Melendez, C. Rodriguez, and J. B. Figueroa, Eds., *Hispanics in the Labor Force: Issues and policies*. New York: Plenum Press.

Melendez, E., C. Rodriguez, and J. B. Figueroa (1991). *Hispanics in the Labor Force: Issues and policies*. New York: Plenum Press.

Mincer, J. (1970). "The Distribution of Labor Incomes: A Survey With Special Reference to the Human Capital Approach." *Journal of Economic Literature*, 8(1): 1-26.

Morales, R., and F. Bonilla. (1993). *Latinos in a Changing Economy: Comparative Perspectives on Growing Inequality*. Newbury Park: Sage Publications.

Oaxaca, R. L. (1973). "Male-Female Wage Differences in Urban Labor Markets." *International Economic Review*, 14(1): 693-701.

Polacheck, S. W. (1975). "Potential Biases in Measuring Male-Female Discrimination." *Journal of Human Resources*, 10(2): 205-229.

Portes, A., and R. L. Bach. (1980). "Immigrant Earnings: Cuban and Mexican Immigrants in the United States". *International Migration Review*, 14(3): 315-341.

Poston, D. L., and D. Alvirez. (1973). "On the Cost of Being a Mexican American Worker." *Social Science Quarterly*, 53(4): 697-709.

Poston, D. L., D. Alvirez, and M. Tienda. (1976). "Earnings Differences Between Anglo and Mexican American Male Workers in 1960 and 1970: Changes in the "Cost" of Being Mexican American." *Social Science Quarterly*, 57(3): 618-631.

Psacharopoulos, G., and H. A. Patrinos. (1994). *Indigenous People and Poverty in Latin America: An Empirical Analysis*. Washington: World Bank.

Psacharopoulos, G., and M. Woodhall. (1985). *Education for Development*. New York: Oxford University Press.

Reimers, C. W. (1983). "Labor Market Discrimination Against Hispanic and Black Men." *Review of Economics and Statistics*, 63(4): 570-579.

_____. (1984). "The Wage Structure of Hispanic Men: Implications for Policy." *Social Science Quarterly* 65(2): 401-416.

_____. "A Comparative Analysis of the Wages of Hispanics, Blacks, and Non-Hispanic Whites." In G. Borjas and M. Tienda, Eds., *Hispanics in the U.S. Economy*. Orlando, FL: Academic Press.

Rivera-Batiz F. L. and Carlos Santiago (1995). *Puerto Ricans in the United States: A Changing Reality*. Washington: National Puerto Rican Coalition.

Rodriguez, C. E. (1991). "The Effect of Race on Puerto Rican Wages." In E. Melendez, C. Rodriguez, and J. B. Figueroa, Eds., *Hispanics in the Labor Force: Issues and policies*. New York: Plenum Press.

Schultz, T. W. (1961). "Investment in Human Capital." *American Economic Review*, 51(1): 1-17

Shapiro, D. (1984). "Wage Differentials Among Black, Hispanic, and White Young Men." *Industrial and Labor Review*, 37(4): 570-581.

Siegel, P. M. (1965). "On the Cost of Being a Negro." *Sociological Inquiry*, 35 (Winter): 41-57.

Tienda, M. (1983). "Market Characteristics and Hispanic Earnings: A Comparison of Natives and Immigrants." *Social Problems*, 31(1): 59-72.

_____. (1983). "Nationality and Income Attainment Among Native and Immigrant Hispanic Men in the United States." *Sociological Quarterly*, 24(2): 253-272.

Tienda, M., and P. Guhleman. (1982). *The Occupational Position of Employed Hispanic Women*. Discussion Paper No. 708-82, Institute for Research on Poverty, University of Wisconsin-Madison.

Tienda, M., and D. Lii. (1985). *Minority Concentration and Earnings Inequality: A Revised Formulation*. Discussion Paper No. 791-85, Institute for Research on Poverty, University of Wisconsin-Madison.

Tienda, M., and F. D. Wilson. (1992). "Migration and the Earnings of Hispanic Men." *American Sociological Review*, 57(5): 661-678.

Tienda, M., and L. J. Neidert. (1984). "Language, Education, and the Socioeconomic Achievement of Hispanic Origin Men." *Social Science Quarterly*, 65(2): 519-536.

Verdugo, N. T., and R. R. Verdugo. (1984). "Earnings Differentials Among Mexican American, Black, and White Male Workers." *Social Science Quarterly*, 65(2): 417-425.

Weiss, R. (1970). "The Effect of Education on the Earnings of Blacks and Whites." *Review of Economics and Statistics*, 52(1): 150-159.